

Research Paper

An Exploration of Mind Wandering using Probes and Memories Evoked during Reading Fiction

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ABSTRACT

Mind wandering is an everyday phenomenon that has garnered considerable attention in the past decades. It refers to the direction of attention away from the task at hand, resulting in what is termed decoupling. The mind could wander into the past or the future, or stay in the present moment without wandering. Mind wandering elicits memories, especially when reading a book of fiction. The most commonly used method of measuring mind wandering is the probe-caught method. It is a direct and subjective method as against indirect and objective methods that may involve physiological measures. In this study, the researcher conducted a survey on bookstore owners and librarians across the city of Bangalore. The aim of the survey was to be able to decide upon a book of fiction in an objective manner and to make an unbiased decision about the selection of the same, so that it could be used as the basis for a reading experiment for young adults aged between 18 and 21 years. American young adult fiction author John Green and his book entitled “Turtles All The Way Down” received the highest number of mentions and hence it was chosen. Although the actual reading of the text was 30 minutes, the duration of the entire experiment was greater than 30 minutes, owing to periodical interruptions approximately every minute, with the objective of probing the subjects’ internal trains of thought while they engaged in reading. For recording, the researcher used an audio recorder, after which the verbal reports of the subjects were transcribed. The conclusions arrived at through content analysis revealed the fact that for all the subjects, the mental content was about the past or related to aspects in the present. Content referring to the future was absent among all subjects. In short, amongst other areas, the study finds key implications in the broad area covering the intersection of behavioural sciences and literature.

Keywords: *Mind Wandering, Probe-caught Method, Fiction, Young Adults, John Green, Reading, Memories, Memory, Creating*

Mind wandering is a cognitive phenomenon that permeates the inner experience of all people for a significant portion of their lifetime. It is the experience in which attention is not focused on the task in the external environment, but gets directed to the internal environment intentionally or unintentionally. Mind wandering and

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mindfulness may be regarded as two opposing constructs. There is a clear void in the doctoral domain pertaining to theses centered around mind wandering in India. In this paper, preliminary results of research on mind wandering using a literary text as the backdrop are reported.

This research paper is an extension and culmination of intellectual efforts, evolving from the time of presenting a paper based initially on an abstract at the 4th International Interdisciplinary Conference on “Memory, Forgetting and Creating” held online on 14th and 15th January 2021. This conference was organized by InMind Support whose scientific community consisted of reputed researchers from Poland.

Csikszentmihalyi (1990) described the state of flow as an autotelic experience (in which the activity itself constitutes the goal) in which both happiness and productivity are simultaneously at the peak. However, research points to the fact that individuals mind wander about 50% of the time (Seli, Carriere, Levene, & Smilek, 2013). An inquiry pertaining to the mind’s natural inclination to wander is a lamentation that has existed since antiquity (Ross, 2013). Mind wandering is a run-of-the-mill phenomenon in which attention is diverted from the external environment to internal trains of thought, especially when one is engaged in an attention-demanding task like reading, driving, listening to a lecture and so on. Mind wandering tends to occur when there is low cognitive vigilance. It is related to decrements in performance on cognitive tasks. Mind wandering occurs due to attentional decoupling. Leading mind wandering researcher Smallwood (2011) argues that “when internal thoughts and feelings form our train of thought, attention is disengaged or decoupled from the external world.”

Wallas (1926) contended that mind-wandering was an important part of the second stage of creativity – incubation. It was only in the 1960s that the first documented studies were done on mind-wandering (Baumeister & Vohs, 2007).

In their seminal paper, Smallwood and Schooler (2006) proposed that research on disparate constructs such as task-unrelated thought, task-unrelated images, stimulus-independent thought, mind pops, and zone outs could be fused under a unifying terminology referred to as mind wandering (Shepherd, 2019).

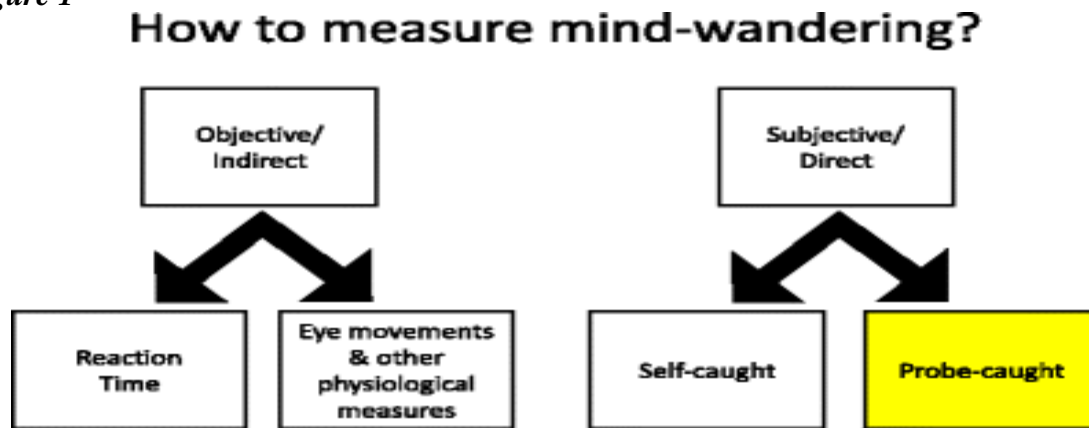
According to Psychology Today, the mind wanders at least thirty percent of the time during everyday tasks (2013).

Mind-wandering studies have time and again focused on the task of reading. Deployed as a task-related, goal-directed and stimulus-dependent process, in many studies investigating mind-wandering, reading becomes the backdrop against which the onset of mind-wandering episodes is measured (Schooler et al., 2004, 2014; Smallwood et al., 2008; Reichle et al., 2010; Uzzaman and Joordens, 2011; Varao Sousa et al., 2013; Broadway et al., 2015; Sanders et al., 2017; as cited in Fabry & Kukkonen, 2019).

Literary writing more generally, has been understood as eliciting mental imagery that shapes readers' deep understanding of these texts (Scarry, 1995; Kuzmičová, 2014; Troscianko, 2014).

Mind wandering gives perspective to the experiencer, enabling them to meaningfully situate life experiences, integrate experiences and form personal life narratives that contain meaning (Karthick, 2017).

Figure 1



The four main methods for measuring mind-wandering

Source: Weinstein, 2018

The probe-caught method of mind wandering is the most widely used and the most unbiased method of gathering data on mind wandering. Very often, studies on mind-wandering use reading as an experimental task. Tasks such as reading require focus and attention and while individuals are reading a literary text, mind wandering appears to be triggered by the contents of the text itself. Thus, mind wandering becomes a necessary factor for successful comprehension of a literary text or in other words, of a book of fiction. It may transport individuals to the past, evoking numerous memories.

METHODOLOGY

In order to objectively choose a fiction book, as part of the doctoral research, the researcher conducted a survey on bookstore owners and librarians across the city of Bangalore to gather a list of reading preferences of young adults (18 to 21 years). The results of the reading preferences survey were obtained after simple addition calculations (of the frequency of mentions for each author and book). It was deduced that author John Green secured the highest number of mentions – 6 out of 10 subject matter experts (that is, bookstore owners and librarians) that were surveyed cited John Green and his novel entitled “Turtles All The Way Down” (2019). Furthermore, when the researcher sought the expert opinion of an award-winning Indian author well-known at the national level as well as in the international literary community, the latter explicitly reinstated that the most accurate and authoritative sources to rely upon for the survey would undoubtedly be bookstore owners and librarians. Therefore, all other potential subject matter experts were dismissed. John Green’s latest novel “Turtles All The Way Down” was selected for an experiment on reading aiming to elicit mind wandering. A neutral probe that references neither an on-task nor an off-task thought state, such as in the probe “What were you thinking just now?” used by Forster and Lavie in 2009 and 2014 in a slightly different context (that is, their research contained 3 given/fixed response options) was chosen.

Inclusion Criteria

Research subjects were chosen through snowball sampling method. Sample size (N) was 4 subjects, and included 2 girls and 2 boys. Subjects belonged to the age group of 18 to 21 years. All subjects hailed from urban settings. Subjects were screened beforehand for inclusion criteria purposes. None of the subjects belonged to the clinical population. Hobby screening revealed that all subjects that were included in the study quoted reading as one of their hobbies. All subjects were studying in English-medium educational institutions.

Procedure

Individual administration of the study was carried out in offline mode. All subjects took part on a voluntary basis, and signed an Informed Consent Form. Instructions Sheet detailing the procedure of the reading experiment was given before the experiment. It was found that none of the subjects had previously read the literary text chosen – that is, “Turtles All The Way Down,” although they were familiar with the author John Green. A room with adequate sunlight, room temperature, and minimal external environmental noise was chosen. Rapport was built with the subject and it was made sure that they were comfortably seated. The subject was asked to read the novel for 30 minutes, starting from the very beginning (the first chapter), while approximately every minute, the aforementioned neutral probe, “What were you thinking just now?” was administered. Thus, 30 probes were administered; the duration of the experiment was considerably much more than just 30 minutes, owing to periodical interruptions approximately every minute. A high-quality audio recorder was used to record the verbatim verbal reports of the subjects. All subjects were given chocolates as a token of appreciation for their participation.

RESULTS AND DISCUSSION

The researcher conducted this preliminary research study in 2020 and early this year (2021), and what is reported in this article constitute the preliminary findings only. After the researcher carried out content analysis of these data, it was found that the reports encompass memories of the past in particular. The subjects could identify with the protagonist in the sense that they were able to empathize with the character. They were judging the characters at certain points in time. Few instances where the subjects were verbalizing philosophical thinking were noted. Certain words and content in the book triggered ‘allusions’ with reference to the subjects’ personal lives, some of which were descriptive, few of which were emotionally charged and many of which evoked nostalgic content. Childhood memories were elicited when the subjects were probed at certain intervals. Other content revealed on-task cognition such as visualizing, concentrating and comprehending. All subjects used filler words in their verbal reports. It was observed that one subject was “dropping their aspirates” (not pronouncing the “h” sound; also termed H-dropping or aitch-dropping). Two out of four subjects reported task-irrelevant thought during certain probe interruptions. At one particular probe, one subject explicitly expressed what could be termed “meta-awareness cued by textual content.” Interestingly, future-oriented content was absent in the data gathered. Given that the very central theme of the novel, “Turtles All The Way Down,” revolves around anxiety, this factor was also noted as a significant contributing factor without which judgment or conclusion was not made. Thus, all such integral factors were considered. Importantly, content analysis of the data in its integrated form, involving the inspection of the subjects’ latent content, that is, non-verbal communication such as voice tonality, overall body language, together with the manifest content – the verbal reports, did not show the presence of cognitive distortions, aberrations, or other red flags.

The Usefulness of the Study

Mind wandering is not always detrimental, as it promotes creativity and aids in autobiographical planning. It is a well-established fact in neuroscience that “neurons that fire together, wire together.” What the individual pays attention to has the power to change his/her brain, resulting in changes in neural architecture owing to experience-dependent neuroplasticity or experience-dependent synaptic plasticity (experience-induced cortico-cortical connectivity). Scientific evidence from Quantum Physics also indicates that thoughts have the power to cause quantum entanglement. Thoughts have the power to change reality. *Ceteris paribus*, reading itself aids in attentional focus, increases knowledge base and serves as an exercise to the mind, while activating various cognitive processes. Research demonstrates that reading fiction leads to higher levels of empathy.

Limitations of the study

- The foremost, obvious drawback of the study lies in the sample size.
- Although the present study examines where attention is directed, it does not specifically address attention and concentration levels during the cognitive task of reading among young adults.
- The present research does not focus on how well the student has understood the text, i.e., reading comprehension. It does not aim to assess comprehension of the reader, which has been addressed in several Western studies on mind wandering.
- The current research does not account for mind wandering at times when the probe is not administered. In other words, the researcher does not record self-caught mind wandering.
- An elaborate, in-depth investigation of the latent content of the subjects’ data is beyond the scope of this research study.

Future Implications

- According to neuroscience, the brain is naturally wired to confess and this confession of transgressions is beneficial for physical and mental health. Thus, the study finds implications in neurocognition research and neuro-cognitive retraining.
- Future research could shed light on the influx of technology into the educational setup, the ‘digital reader’ and the characteristic differences between digital reading and paper reading.
- Thus, comparative studies could highlight significant differences between offline mode and online mode.
- Similar studies using literary texts from vernacular languages would possibly add a different angle to the area.

Conclusion

In conclusion, it is evident that eliciting mind wandering using a book of fiction evokes memories, sensations, feelings, emotions, mixed emotions like nostalgia, images, impressions, and several other overt and covert behaviors. The relationship between that of mind wandering and memory during the cognitive task of reading is undoubtedly a complex one. An integrated approach, employing a combination of psychophysiological, cognitive measures, and other advanced facial expression recognition software would do more justice in the enhancement of the study of mind wandering during reading.

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Conflict of Interest

The author(s) declared no conflict of interest.

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