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Pay Attention to Me: Group Identity and Mind-Wandering in Text Communication

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Author Note

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Abstract

Task-unrelated thought (TUT) occurs frequently in our daily lives, but we know little about how it influences our communication. The current study explores how frequently our minds wander during text-based computer-mediated communication and how group membership impacts this rate. Participants reported TUT once every two minutes on average, but this rate was lower when participants perceived talking with an ingroup member. More frequent TUT was also related to more frequent topic shifting across all conditions.

Keywords: computer-mediated communication, mind wandering, attention, social identity

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We frequently find ourselves daydreaming in the middle of conversations. We may appear to our partner to be fully attentive when in reality our thoughts are captivated by something entirely different. The phenomenon of *task-unrelated thought* (TUT) is commonly referred to as mind wandering (see Seli et al, 2018; Christoff et al., 2016 for definitional debates) and occurs around 40-60% of the time during our waking hours (Mills et al, 2018). Though TUT is highly frequent, research has yet to investigate task-unrelated thought in the context of conversation. Given that we spend anywhere from 50-80% of our lives engaged in some form of communication (Rankin, 1928; Klemmer & Snyder, 1972), we're bound to find ourselves periodically off-task during conversations.

Text-based computer-mediated communication (CMC) has seen explosive growth in recent years, becoming our preferred way to communicate by some estimates (Newport, 2014). Despite increasing popularity, text communication may be susceptible to task-unrelated thought because there is no social presence to sustain attention (Oh, Balienson & Welch, 2018). This led early research to suggest CMC could not facilitate coherent exchanges (Lengel & Daft, 1984). Recent developments suggest creating the proper environment for exchanges can mitigate these effects. For example, giving partners more time to converse leads to the same levels of trust and cooperation as face-to-face exchanges (Wilson, Straus & McEvily, 2006).

Social identity may similarly influence interpersonal exchange in CMC, as group affiliation becomes salient without personal identity cues (Tanis & Postmes, 2005). This is supported by the finding that CMC users are attracted to fellow group members (ingroup) but stereotype members of other groups (outgroups; Lea et al, 2001). Further, ingroup-relevant information is processed more quickly and accurately than neutral or outgroup information (Moradi, Sui, Hewstone & Humphreys, 2015; Moradi, Sui, Hewstone & Humphreys, 2017) as

more attention is allocated to more personally relevant information (Moradi, Najlerahim, Macrae & Humphreys, 2020). We thus test whether an ingroup social identity will mitigate the risk of task-unrelated thought during conversations.

We employed the minimal groups paradigm; a paradigm well-known for inducing group identity using arbitrary differences (Tajfel, 1970), to establish groups. Minimally-induced groups have demonstrated effects on trust and cooperation, with ingroups showing more trust than outgroups (Platow, Foddy, Yamigishi, Lim & Chow, 2012). We predict a minimally-induced ingroup will encourage trust and cooperation between partners that will help sustain attention on the task and prevent task-unrelated thought.

Additionally, we sought to determine factors related to task-unrelated thought during conversations. For example, topic shifting is a determinant of coherence in communication, and research suggests topics decay rapidly over text. Topic shifting over text may cause discontinuity in the turn-taking sequence that makes maintaining attention difficult (Herring, 1999).

We assessed the following research questions: 1) how often does TUT occur in CMC?; 2) how does perceived group membership relate to rates of TUT?; and 3) how does TUT relate to the frequency of topic shifts during CMC?

Method

Participants

Data was collected from 132 students at a northeastern university (*M*age = 19.136 years; *SD*age = 2.438 years) participating for course credit.

Design and Procedure

The study was completed from two locations to avoid contact between partners prior to the conversation. Both sessions were completed on a 13” laptop.

Minimal Groups. A modern adaptation of Tajfel's (1970) induction procedure was used to assign groups. Participants in all conditions estimated the number of dots displayed on a screen over forty trials. Participants in experimental conditions were told scores on this task determined whether they were overestimators or underestimators and an algorithm would match them with a partner that scored similarly. Ingroup participants were informed the algorithm found them a fellow group member to chat with. Outgroup participants were informed the algorithm was unsuccessful, so they would chat with a member of the other group. This task was not linked to the chat in the Control condition.

Chat. Before entering the chat participants were informed they could discuss any topics but were asked not to disclose personally identifiable information. They were instructed to report task-unrelated thought by pressing a designated key anytime they thought about anything other than the conversation. This method has limitations but is a common way of measuring task-unrelated thought during a task. Pairs had ten minutes to chat before the session expired.

Topic Shifts. Participants were presented with an interactive transcript of their conversation and instructed to tick a box next to any messages they felt signified a shift in the topic of conversation.

Results

One participant who reported task-unrelated thought over thirty times was omitted. Task-unrelated thought reports from two participants and topic shift reports from another two different participants were not collected due to program errors. All other data collected from these four participants were included in the analysis.

How often does TUT occur in computer mediated communication?

Participants reported task-unrelated thoughts 5.79 times on average (*SD* = 5.10). This amounts to about once every two minutes throughout the conversation – highlighting the pervasiveness of task-unrelated thoughts during human interaction.

Figure 1

Descriptive statistics

	Control		Ingroup		Outgroup		Overall	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
TUT Reports	6.90	6.38	4.50	3.61	5.95	4.78	5.79	5.10
Topic Shifts	4.36	1.58	6.03	3.02	5.10	2.01	5.17	2.36
User Messages Sent	15.20	6.75	19.43	11.58	17.33	7.98	17.32	9.07

How does perceived group membership relate to rates of TUT?

We first tested whether group membership influenced the overall rate of messages participants sent in a chat; the difference in the number of messages across conditions was nonsignificant, $\chi^2(2) = 2.222$, $p = .329$.

We constructed a regression model where task-unrelated thought reports were regressed only on Group Condition. The conversation pair ID was included as a random factor to control for baseline differences across pairs. Due to the non-normal distribution of task-unrelated thought reports, we constructed a Poisson regression where number of task-unrelated thought reports was regressed on Group Condition and topic shifts. The categorical variable Group has three levels; we use the Ingroup as the reference group in our primary model given our a priori predictions, but we report the full pairwise comparisons below for completeness.

In vs. Control. We first assessed whether the presence of group identity influenced rates of task-unrelated thought by comparing Ingroup pairs against the Control condition that received no induction of group identity. Participants in the Ingroup reported significantly less task-

unrelated thoughts than did participants in the Control condition, B = .410, 95% CI +/- .191, p = .032.

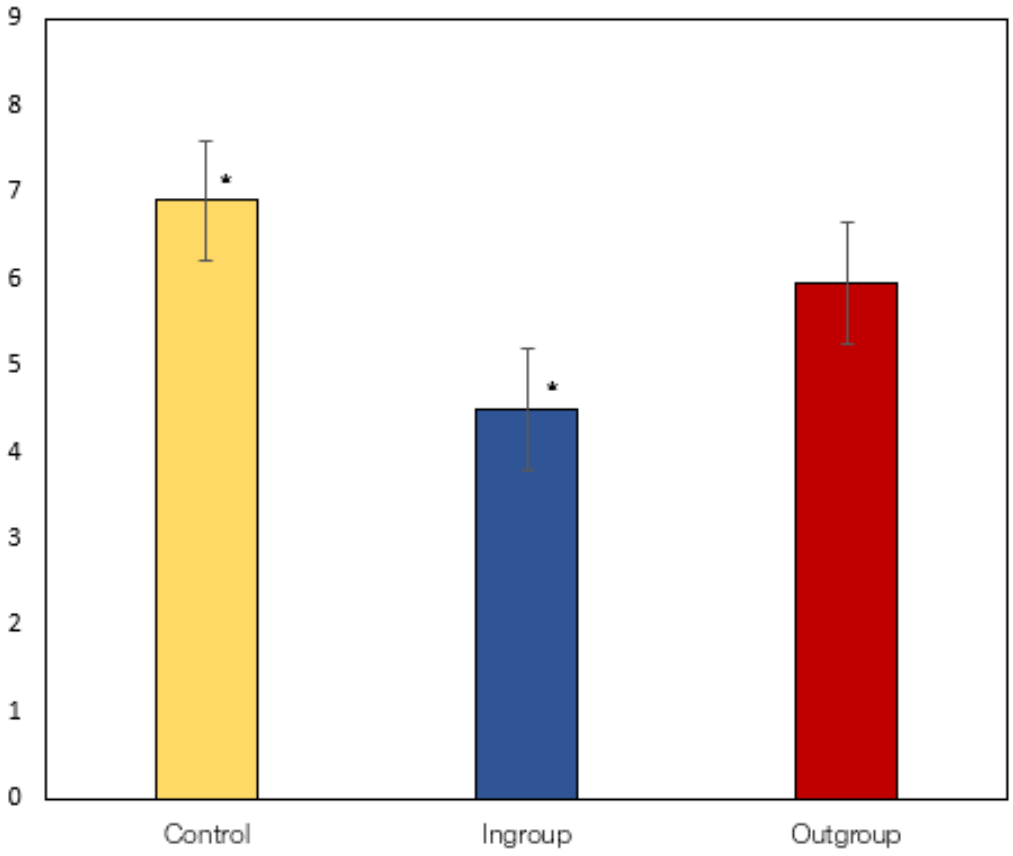
In vs. Out. We next compared reported task-unrelated thoughts in Ingroup participants against the Outgroup participants to test whether the minimal group induction procedure produced reliable differences in off task thought. Differences between the experimental conditions were in the predicted direction; with Ingroup pairs reporting task-unrelated thought less than their Outgroup counterparts, but this difference failed to reach conventional significance, B = .323, 95% CI +/- .190, p = .086.

Out *vs.* Control. Finally, we assessed whether there were reliable differences in the rate of task-unrelated thinking between Outgroup and Control group pairs. The pairwise comparison between the Outgroup and Control group conditions was nonsignificant, B = .087, 95% CI +/- .184, p = .640.

Although the pairwise results reported above are more likely to be a more robust of group differences given our a priori predictions, we also report that the omnibus test did not reach statistical significance, $\chi^2(2) = 5.057$, $p = 0.080$. This is not entirely surprising given that omnibus testing has a high rate of producing false negatives and may cause researchers to miss reliable group differences due to a nonsignificant omnibus test (Chen et al, 2018).

Figure 2

TUT Reports by Condition



Note: * indicates significant pairwise comparison at $p < 0.05$

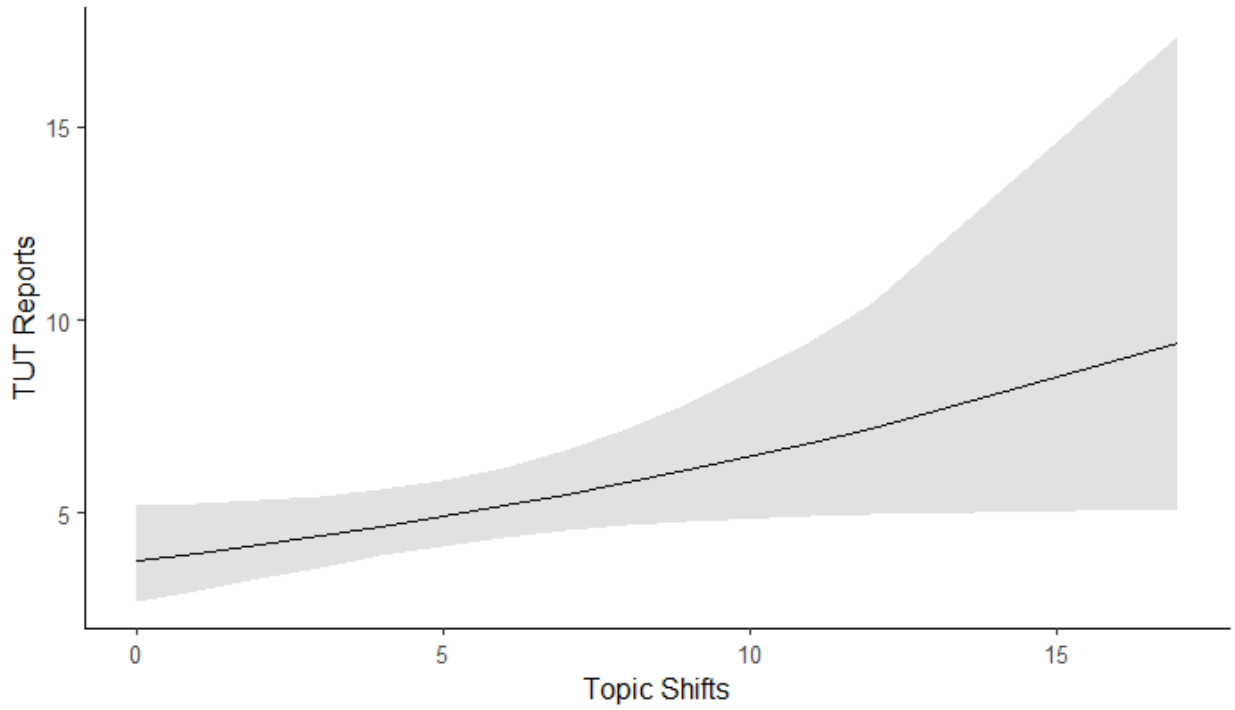
How does TUT relate to the frequency of topic shifts during computer-mediated conversations?

We assessed if participants were more likely to shift topics when their minds went off task during the conversation. We constructed a model where task-unrelated thought reports were regressed on the number of reported topic shifts. We included the number of messages sent in the model, as topic shifts were calculated at the message level and the conversation pair ID was included as a random factor.

Topic shifts were positively related to number of task-unrelated thought reports (see Fig 2), $B = 0.054$, 95% CI +/- .026, $p = .037$. This finding proposes that frequent topic shifts in CMC make it harder to sustain attention.

Figure 3

Relationship between TUT Reports and Topic Shifts



Conclusion

We found participants report going off-task once every two minutes during computer-mediated communication, but Ingroup participants reported task-unrelated thought less than the Control condition. Task-unrelated thought was also positively related to topic shifts, suggesting that these variables may be fundamentally related. One limitation of this study is that the timing of task-unrelated thoughts and topic shifts was not assessed, meaning we cannot determine

whether one predicts the other. Future research should include temporal measures to determine the directionality of this relationship.

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