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Writer–Reader Contagion of Inspiration and Related States: Conditional Process Analyses Within a Cross-Classified Writer × Reader Framework

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A longstanding tradition in the humanities holds that a writer's inspiration is infectious, but this thesis has not been tested. We hypothesized that (a) inspiration is infectious, such that inspired writers are more inspiring to the average reader; (b) contagion is mediated by the insightfulness of the text; and (c) contagion is moderated by readers' openness to experience, such that open readers are more prone to contagion. To test these hypotheses, a sample of 195 student writers, each of whom wrote 1 poem, was crossed with a sample of 220 student readers, who read all poems. Data were available for 36,020 cells of the resulting Writer × Reader matrix. Our analytic approach integrated cross-classified multilevel modeling with conditional process analysis. As hypothesized, writers who were more inspired elicited higher levels of inspiration in the average reader. Inspiration contagion was mediated by the insightfulness and pleasantness of the text and was partially suppressed by originality. Inspiration contagion was moderated by reader openness. Moderated mediation analyses indicated that open readers were prone to contagion because they were tolerant of the originality and sublimity of inspired writing. Additional analyses differentiated contagion of inspiration from contagion of its covariates (awe, positive affect), documented effects of writer inspiration on reader enthralment (awe, chills), and showed that writer effort is a poor predictor of reader states. The infectiousness of inspiration—through poetry, if not also through scripture and academic writing—suggests that a given instance of inspiration may have far-reaching cultural implications, including dissemination of innovations and ideologies.

Keywords: inspiration, contagion, openness to experience, cultural transmission, authenticity

The idea that a culture's greatest writings are products of *inspiration*, a state of heightened creative activity, has been a perennial thesis throughout the history of Western scholarship (Clark, 1997). An even more provocative version of this thesis holds that the writer's inspiration is infectious, such that inspired texts inspire their readers. Plato posited that inspiration is transmitted from the

Muse, to poets, to rhapsodes (performers), and finally, to audiences (Plato, 1936). Longinus (1890), writing in approximately the 1st century AD, argued that sublime writing arises during moments of inspiration and, in turn, enthalls and inspires its readers. Judeo-Christian theology holds that God's revelation inspires prophets and apostles to write scripture, which, in turn, produces a state of illumination in readers (Geisler & Nix, 1986). Romantic poet Edward Young (1759/1918) suggested that genius inspires and is itself inspired. Fellow Romantic Shelley (1977) portrayed inspiration in the writer and inspiration in the reader as so intertwined that his descriptions blur the distinction between them (Clark, 1997).

In spite of the far-reaching implications of this venerable intellectual tradition, inspiration contagion has not yet been the subject of empirical investigation. In this study, we conduct the first test of writer–reader contagion of inspiration and related states, including awe and positive affect. We also investigate the qualities of a text that mediate contagion of each state and the traits of readers that moderate contagion effects. In the following, we identify obstacles that have precluded study of inspiration contagion to date, as well as our strategies for overcoming them.

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Obstacles to the Study of Writer–Reader Inspiration Contagion

The first obstacle, ironically, is the unusually long history of the inspiration concept, which brings connotations of muses and Romantic hyperbole (e.g., effortless creation). The typical reaction among 20th century scholars was to dismiss the topic on the basis of these associations. Recently, however, inspiration has undergone a renaissance in literary theory (Clark, 1997; Roe & Stanco, 2007) and psychological science (Jones, Dodd, & Gruber, 2014; Milyavskaya, Ianakieva, Foxen-Craft, Colantuoni, & Koestner, 2012; Thrash & Elliot, 2003). The catalyst in both fields was a recognition that descriptions of inspiration have been sufficiently consistent across history (Clark, 1997) or disciplines (Thrash & Elliot, 2003) that a scholarly treatment demands serious consideration of these consistencies. In fact, noting trends in literary theory, Clark (1997) concluded that inspiration is “the oldest and the most contemporary theory of the genesis of the poetic” (p. 282). We employ a contemporary, empirically validated conceptualization of inspiration (Thrash & Elliot, 2003, 2004) with the aim of documenting the continuity of inspiration, from the genesis of the poetic to its reception.

Second, the inspiration contagion narrative has been largely overshadowed by a narrative of perspiration. In defiance of Romantic conceptions of the inspired poet, Edgar Allen Poe (1846) famously portrayed writing as a matter of cold calculation. Poet Paul Valéry (1958, 2007) retained inspiration *in the reader* as the objective of the poet, but he argued that this end is achieved primarily through hard work rather than inspiration (see also Fehrman, 1980). Within the sciences, Martindale (2001) and Sawyer (2006) suggested that no theorist disputes Edison’s claim that genius is 1% inspiration and 99% perspiration, and Martindale (1989) stated that “the 1% versus 99% partitioning of the ‘variance’ in creativity is probably close to the mark” (p. 213). Invariably, such claims are not accompanied by references to studies in which inspiration was assessed. In the present research, we treat inspiration contagion and Valéry’s rival account as hypotheses subject to empirical test.

Finally, the far-reaching topic of inspiration contagion has lacked an intellectual home, because it does not fit within the boundaries of contemporary academic literatures. Scientists have generally invoked ad hoc, domain-specific conceptualizations of inspiration as a creative (e.g., Martindale & Hasenfus, 1978) or interpersonal (e.g., Lockwood & Kunda, 1997) process, and therefore the commensurability and continuity of inspiration across writers and readers has not been apparent. This problem of conceptual fragmentation has been compounded by pressures toward methodological specialization. Wimsatt and Beardsley (1946, 1949), champions of the influential New Criticism, argued that analysis of a text cannot support valid inferences about inspiration or other states in the writer or reader. The solution advocated by these theorists was to constrict the focus of literary analysis to objective features of the text itself, relegating the study of writer or reader states to other specialized literatures (e.g., reader response theory). Unfortunately, these literatures have remained largely isolated, apparently because the integrated study of the writer, text, and reader poses unwieldy methodological challenges. Perhaps the greatest impediment to the study of inspiration contagion has been the boundary between the humanities and the sciences, which

separates theories of inspiration contagion, dating back to Plato, from the quantitative methods and models needed to test them. In the following, we present integrative solutions to these problems of conceptual, methodological, and statistical fragmentation.

Integrative Conceptualization, Study Design, and Statistical Model

Integrative Conceptualization of Inspiration

Thrash and Elliot (2003, 2004) have argued that diverse forms of inspiration (e.g., spiritual, creative, interpersonal) share common features. These researchers conceptualized inspiration as an epistemic–motivational episode involving two component processes: being inspired *by* and being inspired *to*. Being inspired *by* is an epistemic process in which one is awoken to new or better possibilities. This process may occur spontaneously during a “eureka” moment or may be stimulated by the environment. Being inspired *to* is a motivational process in which one feels compelled to bring one’s new vision into fruition. Although dissociable, these processes tend to co-occur (Thrash & Elliot, 2004). Inspiration has been theorized to serve the function of motivating *transmission* (e.g., articulation, actualization, or extension) of ideas appraised as intrinsically valuable (Thrash & Elliot, 2004; Thrash, Moldovan, Oleynick, & Maruskin, 2014).

This general conceptualization is applicable to both the writing and reading processes. Applied to the writing process, or the creative process more generally, inspiration involves an impulse to actualize an idea in the form of a concrete product. Studies have shown that inspiration predicts indicators of creative output, including receipt of patents (Thrash & Elliot, 2003) and ratings of the creativity of poetry, fiction, and scientific essays (Thrash, Maruskin, Cassidy, Fryer, & Ryan, 2010). Consistent with the posited transmission function, creative ideation precedes inspiration, which, in turn, predicts the creativity of the resulting product (Thrash, Maruskin, et al., 2010). Writers who are more inspired report that their ideas came to them more fully formed; they write more efficiently; and they use shorter words—all suggesting a swift articulation of ideas while they are fresh in the mind’s eye (Thrash, Maruskin, et al., 2010). Inspiration is also applicable to the reading process but has not been studied in this context. In this case, the written word is illuminating and awakens a desire to express or embody this new epistemic awareness.

The transmission function of inspiration should be distinguished from the inspiration contagion process investigated herein. In the transmission process, inspiration is a mediating (intervening) variable that explains the transmission of perceived intrinsic value by a single individual, such as a writer (idea → writer inspiration → text) or reader (text → reader inspiration → future goal). In the contagion process, writer and reader inspiration serve as independent and dependent variables, respectively, mediated by qualities of the text (writer inspiration → text → reader inspiration). Thus, the inspiration contagion process complements and extends the transmission function of inspiration, such that a given experience of inspiration has the potential to spark reverberations in others via the written word, much as Plato, Longinus, and others argued.

Integrative Study Design

Empirical study of writer–reader contagion requires not only an integrative conceptualization of inspiration, but also an integrative study design that allows data about the writing process, text, and reading process to be linked. Our strategy was to use the poems written in a previous study of inspiration and the writing process (Thrash, Maruskin, et al., 2010, Study 3) as stimuli in a new study of inspiration and reader response. Our paradigm involves fully crossing participants from the two samples (“writers” and “readers”), such that each reader is asked to respond to each writer’s poem. Both samples consist of undergraduate students. Poem characteristics are measured using the consensual assessment technique (Amabile, 1996), in which a panel of judges rates each poem on multiple dimensions. Merging the data sets yields the Writer \times Reader data structure illustrated in Figure 1.

We acknowledge that crossing a sample of student writers with a sample of student readers cannot be expected to yield the kinds of historically important inspiration episodes discussed by Plato and other theorists who have posited inspiration contagion. Nevertheless, our strategy allows the unwieldy topic of writer–reader inspiration contagion to be broached using rigorous scientific methods. Strengths of this design include (a) sampling of writers, poems, and readers, rather than use of hand-picked exemplars; (b) multidimensional assessment of poem characteristics; (c) experimental assignment of readers to poems and the writers “behind” them; and (d) direct, valid, and commensurate assessment of writer and reader inspiration and known covariates. Moreover, we note that our hypotheses do not hinge on the literary sophistication of the writer and reader samples. Once romanticized as the province of the genius, inspiration is now understood to be consequential in the daily lives of all individuals (Laski, 1961; Thrash & Elliot, 2003).

Integrative Statistical Model

Crossing a sample of readers with a sample of writers (or, equivalently, with the corresponding sample of poems)¹ poses statistical challenges. Responses from the same reader to different poems are nonindependent due to nesting within readers; similarly, responses to the same poem from different readers are nonindependent due to nesting within poems. These sources of nonindependence must be modeled in order to avoid violation of the independence assumption. A related consideration is that the particular readers and poems under investigation are arbitrary samples rather than exhaustive populations. Accordingly, both readers and poems must be modeled as random effects in order to permit generalization to their respective populations (Hoffman & Rovine, 2007). Crossed patterns of nonindependence and crossed random effects may be modeled appropriately using a modeling technique called cross-classified (or “mixed effects”) multilevel modeling (Judd, Westfall, & Kenny, 2012; Raudenbush & Bryk, 2002).

Although the cross-classified multilevel model offers a rigorous way to analyze reader \times poem (“person \times situation”) data, it is a univariate technique—that is, it accommodates only a single dependent variable. Accordingly, it does not provide a natural way to accommodate distal effects of writer states on poem characteristics, nor indirect effects of writer states on reader states via poem characteristics (i.e., mediation). Fortunately, recent developments allow cross-classified modeling to be integrated with the multivar-

iate technique of structural equation modeling (Asparouhov & Muthén, in press) and hence with conditional process analysis—that is, analysis of mediation, moderation, and moderated mediation (Hayes, 2013). Next we present our hypotheses, which were guided by our methodological-statistical framework and by relevant theory, thus illustrating methodological-substantive synergy (Marsh & Hau, 2007).

Hypotheses

Writer–Reader Contagion of Inspiration

From the perspective offered by our Writer \times Reader framework, a statistical test of contagion minimally requires a single reader. In this case, contagion is present if writers who are more inspired evoke higher levels of inspiration in that single reader. However, because reader response consists of general and idiosyncratic components (Fish, 1970), we frame our contagion hypothesis in terms of the average effect across multiple readers. Thus, our contagion hypothesis specifies that, on average across readers, writer inspiration has a positive effect on reader inspiration.

Mediation

We further posited a mediating process that explains how contagion occurs. Specifically, we hypothesized that contagion is mediated by the insightfulness of the text, such that writers who are more inspired write texts that reveal greater insight (as evaluated independently of the writers’ and readers’ perceptions); and texts that are more insightful, in turn, evoke higher levels of inspiration in the average reader. Our rationale is that an insightful text serves as both the output of the epistemic transmission process in the writer and as the input for an epistemic transmission process in the reader.

Insightfulness is not, in theory, the only intrinsically valuable quality that may be transmitted by inspiration. However, insightfulness is particularly relevant to writer–reader contagion because of its symmetric significance to writer and reader, a quality that we label *transitivity*. For sake of discrimination, we also examine a related quality—originality—that was expected not to mediate contagion because of its asymmetric significance. Although writer inspiration is known to facilitate writers’ actualization (transmission) of original ideas (Thrash, Maruskin, et al., 2010), originality is unlikely to facilitate inspiration in the average reader, because original ideas are regarded as belonging to their author and not their audience (Bennett, 2005). The problem of ownership does not apply to an insightful text, which casts light upon (perceived) truths that transcend authorship.

Our theorizing regarding the problem of ownership is informed by Plato’s model of contagion. The reason inspired writing was itself inspiring in Plato’s model was that the writer was not the origin of ideas, but rather the mediator of the eternal wisdom of the

¹ Because of the 1–1 correspondence between writers and poems in our framework, we make no distinction between the sample of writers and the sample of poems. Our framework could be expanded to involve multiple poems per writer, in which case poems would be nested within writers, and both would be crossed with readers.

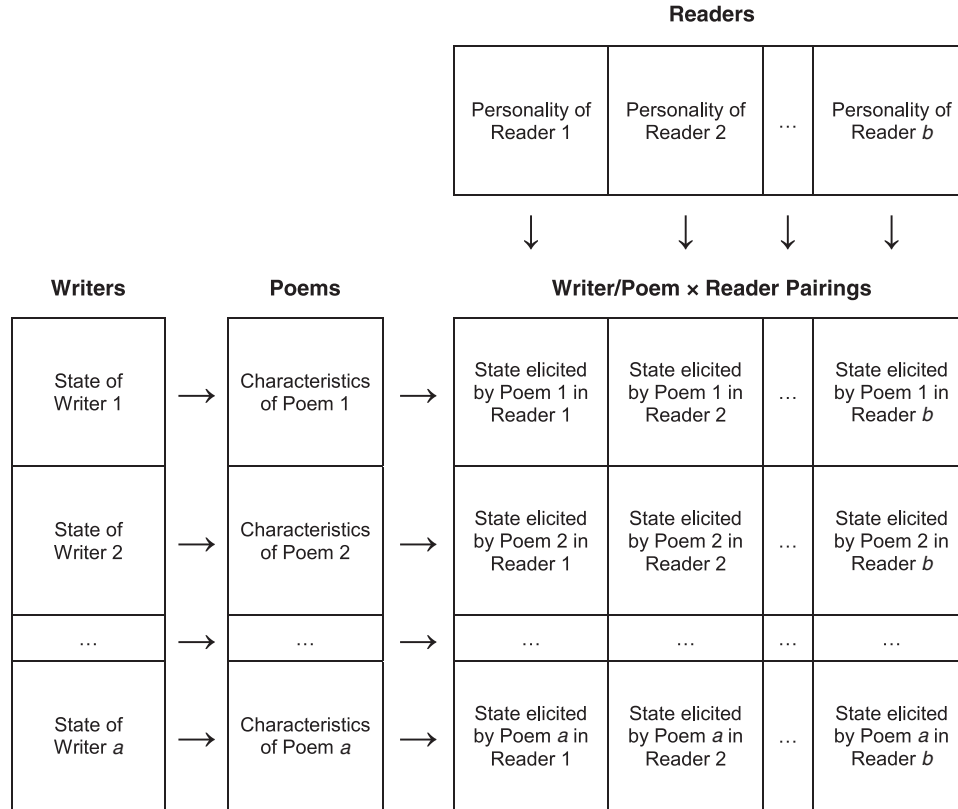


Figure 1. Illustration of the cross-classified Writer × Reader data structure.

Muse. The Muse—daughter of Mnemosyne (memory)—may be understood as a symbol for the collective memory of many generations of orator-poets in a predominantly oral culture (Clark, 1997). Thus, the writer who catches a glimpse of eternal wisdom and serves as its transmitter invites the reader into a comparable state conducive to further inspired transmission.

Moderation

In positing writer–reader continuity of inspiration, we do not mean to imply that inspiration spreads indiscriminately. Some readers may be more receptive than others. Accordingly, we test whether contagion is moderated by (conditional upon) reader personality.

Openness to experience from the Five Factor Model (McCrae & Costa, 1997) has been identified as the key trait that predicts proneness to inspiration (Thrash & Elliot, 2003, 2004; Thrash, Maruskin, et al., 2010). We hypothesized that contagion is moderated by reader openness, such that the effect of writer inspiration on reader inspiration is greater for readers higher in openness. This hypothesis is consistent with Plato’s portrayal of poets and rhapsodes—paragons of openness—as more receptive than the general public to inspiration from the Muse.

Contagion of Related States

Although not yet investigated, it is likely that writer–reader contagion occurs for a variety of emotions and basic affective states beyond inspiration. To broaden the scope of our research, and to test whether

the theorized mediator and moderator are distinctively applicable to inspiration per se, we also examine contagion of two covariates—awe and activated positive affect (PA)—that overlap substantially with inspiration but that represent alternative theoretical traditions. Whereas the inspiration construct emerged from the human motivation literature, the awe and PA constructs represent the discrete emotion and dimensional affect literatures, respectively (Thrash, Moldovan, Oleynick, et al., 2014).

Awe is an emotion that arises from the challenge of accommodating vast stimuli (Keltner & Haidt, 2003; Shiota, Keltner, & Mossman, 2007). Romantic expression theories provide grounds for positing contagion of awe and emotions more generally (Collingwood, 1938; Tolstoy, 1897/2014; for related theory and research, see Oatley, 2003; Robinson, 2005). We hypothesized that contagion of awe is mediated not by insightfulness, which implies ease of accommodation, but by sublimity—a grand, powerful, exalting quality of a stimulus that overwhelms one’s capacity for rational comprehension (Longinus, 1890). The sublime has long been identified as the natural object of awe and related emotions (e.g., astonishment, reverence; Burke, 1759; Kant, 1764/1960; Konečni, 2008; Longinus, 1890). Moreover, the concept of the sublime was originally applied to written language (Longinus, 1890), which is arguably its most potent elicitor (Burke, 1759). On the basis of past findings (Shiota, Keltner, & John, 2006; see also recent research by Silvia, Fayn, Nusbaum, & Beaty, in press), we hypothesized that awe contagion, like inspiration contagion, is moderated by reader openness.

PA is a basic affective state involving positive valence and arousal (Watson, Wiese, Vaidya, & Tellegen, 1999). The possibility of writer–reader contagion of PA is suggested by evidence that affect-laden language spreads across social networks (Kramer, Guillory, & Hancock, 2014). We hypothesized that PA contagion is mediated by the pleasantness of the text and moderated by reader approach temperament, a sensitivity to positive incentives (Elliot & Thrash, 2010). For thoroughness, we also test parallel hypotheses regarding negative affect (NA), low pleasantness (unpleasantness), and avoidance temperament (Elliot & Thrash, 2010). Although most relevant to PA and NA, pleasantness was also expected to contribute to contagion of inspiration and awe, given the positive valence of these states.

Other Relations Between Writer and Reader States

Moving beyond contagion, we also investigate alternative consequences of writer inspiration and alternative antecedents of reader inspiration. Regarding the former, we hypothesized that writer inspiration predicts two indicators of reader *enthralment*: awe and chills (Konečni, 2008; Maruskin, Thrash, & Elliot, 2012; Silvia & Nusbaum, 2011). We conceptualize enthralment states as involving deep emotional resonance, a focus on the evocative object, and (in contrast to inspiration) little immediate motivational impetus. Because inspiration in a writer is theorized to transmit some admirable qualities that do not lend themselves to further transmission—such as originality (Thrash, Maruskin, et al., 2010) and sublimity (Longinus, 1890)—it may enthrall as well as inspire. Indeed, Bowra (1951) and Lembke (1973) have previously argued that inspired writing evokes both inspiration and chills.

Regarding alternative antecedents of reader inspiration, we test Valéry's hypothesis that reader inspiration is primarily a result of writer effort rather than writer inspiration. Although writer effort is likely to contribute to the production of inspiring texts, we are skeptical of reactionary, post-Romantic theorizing in which effort *rather than* inspiration is held to be the process through which inspiring texts are produced. Indeed, Thrash, Maruskin, et al. (2010) found that inspiration and effort during the writing of fictional stories were related to the total number of words typed and deleted, respectively. This finding suggests that inspiration and effort play complementary roles in the writing process. Inspiration may also provide motivational support for effort exertion (Thrash, Moldovan, Oleynick, et al., 2014), a possibility that Valéry acknowledged in his more nuanced writings (Valéry, 2007).

Method

In the following, we present methods concerning both the writer and reader data collections. Methods and data concerning writer states and evaluative coding of poems, as well as data concerning the relations between writer states and evaluative coding, have been published previously (Study 3 of Thrash, Maruskin, et al., 2010). Methods and data concerning reader states, reader traits, and appraisal coding of the poems, as well as their relations to writer states and evaluative coding, have not been published previously.

Participants

Writer sample. The writer sample consisted of 195 undergraduates (96 male, 99 female) who participated in return for credit

toward a research participation requirement in an introductory psychology course. Ethnicity was distributed as follows: African American, 9.2%; Asian, 4.6%; Caucasian, 80.0%; Hispanic, 2.6%; Native American, .5%; Other, 3.1%. One additional participant had begun the study but quit prior to beginning the writing process questionnaire because his or her English was too poor to understand it.

Reader sample. The reader sample consisted of 220 undergraduates (66 male, 154 female) who participated in return for credit toward a research participation requirement in a course on personality and poetry. As an additional incentive, participants were offered feedback about their scores upon completion of the study. Ethnicity was distributed as follows: African American, 7.7%; Asian, 10.0%; Caucasian, 69.1%; Hispanic, 6.4%; Native American, .5%; Other, 6.4%. Seven additional participants had begun the study but failed to complete the personality questionnaire or failed to complete any poem questionnaires, and therefore data from these participants were dropped prior to analysis. The writer and reader samples attended the same competitive university, with a 5-year separation between data collections.

Procedure

Writer sample. Participants in the writer sample attended individual lab sessions. Participants first completed a background questionnaire. They were then given 30 min to write a poem about the human condition using a word processor, with additional time granted upon request. Finally, participants completed a questionnaire regarding inspiration and other states during particular stages of the writing process.

Reader sample. Participants in the reader sample attended a preliminary orientation session and completed personality questionnaires near the beginning of the semester. Throughout the remainder of the semester, they were asked to complete a series of online poem questionnaires at times of their choosing in a private location. At the beginning of each poem questionnaire, a poem was presented, and participants then completed measures concerning their responses to the poem. Poems were presented in a different random order for each reader.

Following preliminary cleaning in which participant errors in entry of identifiers were reconciled, the poem questionnaire data file consisted of 41,397 cases. The data file was then cleaned by removing cases that met any of the following criteria: (a) no identifying information was provided; (b) the data came from an individual who had neither provided consent nor completed the personality questionnaires; (c) the participant responded affirmatively to a question asking if he or she would prefer to redo the questionnaire on a later occasion due to distraction or other factors that may invalidate the data; (d) the submission duplicated another submission; (e) time stamps revealed that the participant spent less than 2 min on the poem questionnaire (this cutoff was the nadir of a bimodal distribution); or (f) the data concerned a poem that had been included in error (this poem was written by the writing study participant whose English was too poor for him or her to fill out the writing process questionnaire). The final, cleaned data file consisted of 36,020 poem questionnaires. In this final data set, the number of poem questionnaires per reader ranged from one to 195 with a median of 193.

Measures

Writer states. Consistent with Thrash, Maruskin, et al. (2010), for a given writer state (e.g., inspiration), writers' reports regarding each of three conceptually distinct stages of the idea actualization process—the moment of getting the idea for a poem, the process of expressing the idea, and the process of revising—were aggregated to yield an overall indicator of the state.

Writer inspiration was assessed using three of four items from the state version of the Inspiration Scale (Thrash & Elliot, 2003), adapted to each stage of the process. The full set of nine items, in order by stage, was as follows: "I felt inspired at those moment(s)," "Something inspired me," and "I was inspired to write"; "I felt inspired while expressing my idea(s)," "Something inspired me," and "I was inspired to write"; and "I felt inspired while revising and finalizing this poem," "Something inspired me," and "I was inspired to revise this poem." The fourth item from the Inspiration Scale was not administered regarding any stage. Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). An inspiration composite was formed by summing across the nine items ($M = 37.57$; $SD = 11.60$; $\alpha = .91$).

Writer awe was assessed using two items, "full of awe" and "full of wonder," that were administered with respect to each stage of the writing process. Items were rated from 1 (*very slightly or not at all*) to 7 (*extremely*). An awe composite was formed by summing across the six items ($M = 13.44$; $SD = 8.67$; $\alpha = .95$).

Writer PA was assessed, separately for each stage, using four of five items ("excited," "enthusiastic," "alert," "determined") from a short version of the Positive and Negative Affect Schedule (PANAS; Kercher, 1992). The fifth item, "inspired," was excluded in order to avoid redundancy between the PA and inspiration variables. Items were rated from 1 (*very slightly or not at all*) to 7 (*extremely*). A PA composite was formed by summing across the 12 items ($M = 45.72$; $SD = 16.36$; $\alpha = .93$).

Writer NA was assessed, separately for each stage, using five items ("upset," "distressed," "scared," "nervous," "afraid") from a short version of the PANAS (Kercher, 1992). Items were rated from 1 (*very slightly or not at all*) to 7 (*extremely*). A NA composite was formed by summing across the 15 items ($M = 25.25$; $SD = 12.75$; $\alpha = .93$).

Writer effort was assessed with two items that were adapted to each stage of the writing process. The full set of six items, in order by stage, was as follows: "I was working hard at those moment(s)" and "I was putting forth a great deal of effort at those moment(s)"; "I worked hard in writing this poem" and "I put forth a great deal of effort into expressing my idea(s)"; and "I worked hard on revising this poem" and "I put forth a great deal of effort into revising and finalizing this poem." Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). An effort composite was formed by summing across the six items ($M = 21.74$; $SD = 8.14$; $\alpha = .89$).

Reader states. Reader state measures were similar to those used for writer states but, of course, were administered once rather than once per stage of the writing process.

Reader inspiration was assessed using the full four-item state version of the Inspiration Scale. One item from the original state version of the scale ("Something I encountered or experienced inspired me") was adapted to the poem-reading context ("Something about the poem inspired me"). Because reading may inspire

actions other than writing (Thrash, Moldovan, Fuller, & Domrowski, 2014), the scale was not adapted to focus specifically on inspiration to write. Items were rated from 1 (*not at all*) to 7 (*very deeply or strongly*). An inspiration composite was formed by summing across items ($M = 7.65$; $SD = 5.69$; $\alpha = .98$).

Reader awe was assessed using the two-item measure used for writer awe. Items were rated from 1 (*not at all*) to 5 (*extremely*). An awe composite was formed by summing across items ($M = 2.58$; $SD = 1.26$; $\alpha = .79$).

Reader PA was assessed using the four-item measure used for writer PA. Items were rated from 1 (*not at all*) to 5 (*extremely*). A PA composite was formed by summing across items ($M = 6.26$; $SD = 2.52$; $\alpha = .70$).

Reader NA was assessed using the five-item measure used for writer NA. Items were rated from 1 (*not at all*) to 5 (*extremely*). A NA composite was formed by summing across items ($M = 6.33$; $SD = 2.38$; $\alpha = .83$).

Reader chills was assessed using a preliminary version of the 12-item Chills Questionnaire (Maruskin et al., 2012). Items were as follows: "got goosebumps," "got a shiver down my spine," "felt tickling sensations somewhere in my body," "felt a chill pass through me," "felt a tingling sensation spread over me," "felt hairs stand-on-end somewhere on my body," "got a cold sensation deep inside me," "got a cool sensation on my skin," "felt my muscles quiver or shiver," "got pins-and-needles or prickling sensations," "got a shudder or tremor," "felt a wave of goosebumps come over me." Items were rated on a scale from 0 (*not at all*) to 6 (*extremely*). A chills composite was formed by summing across items ($M = 1.60$; $SD = 4.72$; $\alpha = .91$).²

Reader traits. *Openness to experience* was assessed using the 12-item scale from the NEO Five-Factor Inventory (Costa & McCrae, 1992). Items were rated from 1 (*strongly disagree*) to 5 (*strongly agree*). An openness composite was formed by summing across the 12 items ($M = 43.57$; $SD = 6.82$; $\alpha = .79$).

Approach and avoidance temperament were assessed using the six-item scales from the Approach-Avoidance Temperament Questionnaire (Elliot & Thrash, 2010). Items were rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Approach temperament and avoidance temperament composites were formed by summing across the respective sets of six items (approach temperament: $M = 32.92$; $SD = 5.04$; $\alpha = .80$; avoidance temperament: $M = 24.45$; $SD = 7.49$; $\alpha = .82$).

Poem coding. In light of our integrative design, the poems function not only as products of writer states, but also as elicitors of reader states. Because the considerations involved in coding poems as products are different than those involved in coding poems as stimuli, we collected two sets of ratings and integrated them using factor analytic methods. We refer to the first coding task, which focused primarily on the quality of the poems as products, as *evaluative coding*, and the second, which focused primarily on psychologically meaningful stimulus qualities, as *appraisal coding*. In the following, we describe the two coding

² A subsequent version of this questionnaire was optimized for the separate assessment of distinct types of chills—in particular, goosetingles and coldshivers (Maruskin et al., 2012). We focus on overall chills in this study given that goosetingles and coldshivers are not clearly distinguished with the version of the Chills Questionnaire employed here.

tasks and then describe our method for integrating data obtained through the two methods.

Evaluative coding. Evaluative coding was performed by a panel of nine qualified coders, who were advanced English majors or graduate students of American literature. Coders rated the poems relative to one another (1 = *very low*, 5 = *medium*, 9 = *very high*) on each of the following dimensions (both the labels and descriptions were provided to coders): *grammar/spelling* (“the degree to which the poem has proper grammar and spelling”), *punctuation/capitalization* (“the degree to which the poem has proper punctuation and capitalization”), *finish* (“the degree to which the poem seems finished and polished, rather than unfinished and rough”), *craftsmanship* (“the degree to which the poem displays craftsmanship, using your own subjective definition of craftsmanship”), *clarity* (“the degree to which the ideas are expressed clearly”), *sound/rhythm* (“the degree to which word sound and rhythm are used effectively”), *richness of imagery* (“the degree to which vivid imagery is present”), *beauty/aesthetic appeal* (“the degree to which the poem is beautiful or aesthetically appealing”), *pleasantness* (“the degree to which the poem is pleasant, as opposed to unpleasant”), *creativity* (“the degree to which the poem is creative, using your own subjective definition of creativity”), *novelty of style* (“the degree to which the style of expression (e.g., word choice, literary devices, structure) is novel”), *originality of idea* (“the degree to which the thematic idea is original”), *unusualness* (“the degree to which the poem is unusual or out-of-the-ordinary”), *profundity* (“the degree to which the poem is profound, showing depth and significance”), *insightfulness* (“the degree to which the poem transcends the obvious or superficial and discerns the true or hidden nature of things”), *organic/authentic quality* (“the degree to which the ideas and their expression are organic, natural, and authentic, as opposed to manufactured, contrived, and phony”), *evocation of emotion* (“the extent and depth of emotion that the poem evokes”), *stimulation of thought* (“the degree to which the poem stimulates thought or reflection”), and *sublimity* (“the degree to which the poem has a moving, exalting, or elevating effect”). The poems and variables to be coded were presented in different orders for each coder. Interrater reliability was established for all variables (see Table 1).

Appraisal coding. Appraisal coding was carried out by a panel of 11 undergraduate psychology research assistants. Whereas the evaluative coders had been selected on the basis of their qualifications for evaluating poetry, these coders were instead drawn from a population that resembles the population from which our readers were drawn. The following items were coded using an absolute scale (1 = *strongly disagree*, 4 = *neutral*, 7 = *strongly agree*): original or novel; beautiful or aesthetically appealing; revealing of truth; ordinary or mundane; morally good or right; emotionally impactful; profound or significant; creative; contrived or arbitrary; rational or logical; interesting; valuable or useful; meaningful; surprising; insightful; amusing; pleasant; superficial or cliché; complex; unifying or integrative; humorous; and unique. The poems and variables to be coded were presented in different orders for each coder. Interrater reliability was established for all variables (see Table 1). The items “amusing” and “humorous” were excluded from the primary analyses because they had low means and variances and converged poorly with other variables.

Factor analytic integration of evaluative and appraisal coding. We used exploratory structural equation modeling (Asparouhov & Muthén, 2009) to examine the factor structure of the two

sets of ratings after method variance associated with coder group had been removed. Specifically, we adapted the correlated-traits-correlated-methods (CTCM) multitrait-multimethod (MTMM) confirmatory factor analysis model, such that method factors (evaluative coding method, appraisal coding method) were represented with confirmatory factors as in a standard CTCM analysis, but substantive poem factors (“traits”) were modeled using exploratory factor analysis with geomin oblique rotation. A model with two confirmatory method factors and six exploratory substantive factors was found to have good fit, $\chi^2(741) = 1104.33$, CFI = .95, TLI = .92, SRMR = .017, and readily interpretable factors. On the basis of factor loadings, we labeled the substantive factors as follows: mechanics, insightfulness, originality, clarity, emotionality, and pleasantness/sublimity. Factor loadings are shown in Table 1. Notably, conceptually similar variables from different coder groups loaded together as indicators of the same factors, indicating convergent validity. Correlations between factors ranged from $r = -.44$ (originality and clarity) to .60 (mechanics and originality).

Because the insightfulness and originality factors were of direct theoretical interest, we saved factor scores for these factors for use in subsequent analysis (insightfulness: $M = .00$, $SD = 1.00$; originality: $M = .00$, $SD = .99$).³ Because the pleasantness/sublimity factor is also relevant but subsumes theoretically distinct pleasantness and sublimity constructs, we used ratings of pleasantness and sublimity from the evaluative coding as separate variables in subsequent analyses (pleasantness: $M = 4.65$, $SD = 1.25$; sublimity: $M = 4.26$; $SD = 1.23$).

Variable Transformation and Rescaling

Variable distributions were examined using Q-Q plots. Because of strong positive skew, reader inspiration, PA, and NA were transformed using a log transformation. Because of severe positive skew, reader awe and chills were transformed using an inverse transformation. In supplemental analyses, we repeated our core analyses using outcome variables that were trichotomized and modeled as ordered categorical (ordinal). These analyses yielded findings generally comparable to those based on transformation (for details, see Footnote 10).

To facilitate model estimation, variables were rescaled as needed so that their variances fell in the 1–10 range (Muthén & Muthén, 2012). All predictor variables (i.e., writer states, poem characteristics, and reader traits) were centered in order to facilitate interpretation of moderation and moderated mediation analyses. Predictors were centered at the level at which they were measured.⁴

³ It was not possible to use ESEM factors in our subsequent cross-classified modeling analyses, because ESEM in Mplus currently requires maximum likelihood estimation, whereas cross-classified modeling requires Bayesian estimation.

⁴ This study was conducted as part of a larger project. We have also conducted preliminary analyses for a separate publication that will address a distinct topic, with partial overlap of variables. Although we collected additional variables not reported here, our analyses were guided systematically by our comprehensive statistical framework, theory, and a priori decisions.

Table 1
Poem Coding: Interrater Reliability and Standardized Factor Loadings

Variable	Interrater reliability (α)	Standardized factor loading					
		Mechanics	Insightfulness	Originality	Clarity	Emotionality	Pleasantness/sublimity
Grammar/spelling ^c	.76	.67	-.00	.06	.31	-.05	-.07
Finish ^c	.73	.60	.26	-.03	.25	.04	.09
Sound/rhythm ^c	.70	.55	-.09	.14	-.02	.04	.09
Craftsmanship ^c	.82	.54	.14	.23	.06	.10	.07
Punctuation/capitalization ^c	.72	.45	.04	.12	.09	-.03	-.00
Beauty/aesthetic appeal ^c	.83	.40	.02	.03	-.09	.26	.38
Revealing of truth ^a	.73	-.02	.97	-.04	.11	-.08	-.08
Insightful ^a	.78	.01	.93	.14	-.04	-.16	-.03
Meaningful ^a	.80	.01	.93	-.02	-.03	.10	-.02
Valuable or useful ^a	.72	-.02	.92	.14	.08	-.17	.04
Profound or significant ^a	.81	.05	.91	.03	-.16	.00	-.01
Unifying or integrative ^a	.71	.00	.85	-.12	.06	-.25	.29
Morally good or right ^a	.78	-.16	.61	-.09	.05	-.14	.42
Profundity ^c	.76	.07	.61	.09	-.21	.13	.07
Insightfulness ^c	.72	-.02	.53	.23	-.16	.14	.14
Contrived or arbitrary ^a	.77	-.10	-.56	-.20	-.05	-.40	.03
Stimulation of thought ^c	.71	-.07	.44	.36	-.22	.15	.07
Ordinary or mundane ^a	.82	-.28	-.44	-.35	.15	-.08	.04
Unusualness ^c	.83	.15	-.07	.88	.02	-.06	-.03
Unique ^a	.84	.09	.12	.86	.06	.00	-.03
Originality of idea ^c	.80	.01	.00	.84	-.01	-.01	.08
Original or novel ^a	.84	.11	.25	.75	-.00	.04	-.02
Surprising ^a	.76	-.03	.14	.72	-.13	-.02	-.17
Novelty of style ^c	.85	.43	-.03	.59	-.02	-.12	.02
Organic/authentic quality ^c	.65	-.24	-.02	.54	.19	.52	.04
Creativity ^c	.85	.38	.02	.49	-.07	.03	.15
Superficial or cliché ^a	.80	-.04	-.40	-.49	.11	-.25	.09
Creative ^a	.87	.34	.28	.48	-.07	-.02	.10
Interesting ^a	.81	.23	.42	.43	.01	.13	-.02
Clarity ^c	.79	.01	.02	-.06	.87	.19	.01
Rational or logical ^a	.64	-.11	.45	.00	.66	.01	.00
Complex ^a	.87	.18	.45	.20	-.53	-.01	-.03
Evocation of emotion ^c	.79	.06	.16	.13	.01	.65	.09
Emotionally impactful ^a	.84	.10	.51	-.03	.03	.63	-.12
Pleasant ^a	.86	.01	.01	.10	.26	-.18	.90
Pleasantness ^c	.76	.04	-.07	.07	.15	.04	.82
Sublimity ^c	.77	.13	.18	-.01	-.03	.29	.58
Beautiful or aesthet. appealing ^a	.88	.39	.20	-.07	-.02	.22	.52
Richness of imagery ^c	.92	.32	-.06	.19	-.09	.32	.36

Note. Loadings $\geq .40$ are shown in bold.

^c Evaluative coding. ^a Appraisal coding.

Results

Analytic Strategy

The labels *Level 2A*, *Level 2B*, and *Level 1* (Muthén & Muthén, 2012) may be used to characterize the nesting structure of the data. Writers (and their associated poems) are the Level 2A units, which may be regarded as populating the left margin of the Writer \times Reader matrix in Figure 1. Writer states and poem characteristics were assessed at this level ($N = 195$). Readers are the Level 2B units, which may be regarded as populating the top margin of the Writer \times Reader matrix. Reader traits were assessed at this level ($N = 220$). Particular writer–reader pairings are the Level 1 units, which correspond to cells within the Writer \times Reader matrix. Reader states were assessed at this level ($N = 36,020$). A given Level 1 unit is nested within a particular Level 2A unit and within a particular Level 2B unit and hence is cross-classified.

We adopt a second set of labels—*Writer level*, *Reader level*, and *Writer \times Reader level*—to refer to three orthogonal levels of analysis at which a given variable may or may not have variance. If one applies the values of variables measured at Level 2A (e.g., writer inspiration) to the cells in their corresponding rows, the total variance in these variables across all 36,020 cells is due entirely to writer-level variance (i.e., differences between writers). Likewise, if one applies the values of variables measured at Level 2B (e.g., reader openness) to the cells in their corresponding columns, the total variance in these variables across all 36,020 cells is due entirely to reader-level variance (i.e., differences between readers). In contrast, the total variance in variables measured at Level 1 (e.g., reader inspiration) may span three levels of analysis. Reader inspiration, for instance, may vary at the Writer level (i.e., some writers' poems may tend to be more inspiring than others'), Reader level (i.e., some readers may tend to be more inspired than others),

and a residual Writer \times Reader level (i.e., reader inspiration may also depend on the particular writer–reader pairing).⁵

All analyses were conducted using Mplus 7.3 with Bayesian estimation (Asparouhov & Muthén, 2010; Muthén & Muthén, 2012). We used Bayesian estimation because cross-classified models are too computationally demanding for traditional estimation methods, and because it allows rigorous testing of the significance of indirect effects and other derived parameters (Muthén & Asparouhov, 2012; Yuan & MacKinnon, 2009). We used uninformative priors, rather than informative priors based on theory or past findings. The Markov Chain Monte Carlo (MCMC) algorithm based on the Gibbs sampler was used to generate the posterior distribution for each parameter. Two MCMC chains were used, and the second half of each chain was retained. Potential scale reduction (PSR) was used as the MCMC convergence criterion. To minimize the possibility of premature convergence, analyses were repeated with the minimum number of iterations set at four times the number of iterations from the initial analysis (Muthén & Asparouhov, 2012). All reported point estimates are medians of posterior distributions. Bayesian 95% credible intervals (CIs) are used for all significance tests and are presented in brackets. References to marginal significance indicate that zero fell within the 95% CI but not within the 90% CI. Where reported, p values are one-tailed and indicate the proportion of the posterior distribution that is below zero in the case of positive estimates or above zero in the case of negative estimates.

In our primary analyses, we examined each writer/reader state (e.g., inspiration, awe) in separate models, without controlling other states. In ancillary analyses reported at the end of the Results section, we also examined the incremental predictive utility of each writer state with other writer states controlled. Reasons for not controlling other states in our primary analyses are as follows. First, retaining the full variance in each construct allows us to draw conclusions about contagion of each construct per se. Second, detecting contagion of the unique portions of each of a set of constructs chosen on the basis of maximal redundancy would be unrealistic without extraordinarily large samples. Indeed, detecting contagion of the unpartitioned states may itself be difficult, because contagion effects are inherently indirect (i.e., the text intervenes between writer and reader) and therefore are likely to be modest in magnitude. Third, controlling other writer states may or may not be considered desirable, depending on one's assumptions about the pattern of causal relations among writer states. Controlling a third variable is desirable if the third variable is a common cause but undesirable if it is a mediator. Notably, these difficulties are less relevant to the issues of multiple mediators and multiple moderators than to the issue of multiple writer and reader states. Accordingly, unique mediation and moderation effects were examined by modeling all mediators or all moderators simultaneously.

Variance Decomposition of Reader States

For each reader state, cross-classified intraclass correlations (ICCs; Raudenbush & Bryk, 2002) are presented in Table 2. These ICCs indicate the proportions of total variance found at the writer, reader, and Writer \times Reader levels of analysis. For reader inspiration, the percentages of the variance each level were as follows: Writer level, 5.7%; Reader level, 42.8%, and Writer \times Reader level, 51.5%. These values reveal, respectively, a tendency for some poems to be generally more inspiring than others; a stronger tendency for some readers to be generally more inspired than

others; and a particularly strong tendency for reader inspiration to hinge on the pairing of a particular reader with a particular poem. Although the presence of writer-level variance in reader inspiration is consistent with the hypothesis that writers' inspiration tends to be infectious (as tested in the following analysis of contagion), the larger proportions of variance at the reader and Writer \times Reader levels suggest that reader personality may play an important role as predictor of reader inspiration and moderator of contagion (as tested in the subsequent moderation analysis). As shown in Table 2, variance decompositions for reader awe, PA, NA, and chills were similar to that for reader inspiration.

Contagion Effects

For descriptive purposes, correlations among writer states, poem characteristics, and the writer-level components of reader states were estimated using a random-intercepts model and are reported in Table 3.

Contagion hypotheses were formally tested by estimating unstandardized effects in random-slope-and-intercept models. In each analysis, a given reader state (e.g., inspiration) was regressed on the corresponding writer state, with the intercept free to vary at all levels and the slope free to vary across readers. Each reader's slope reflects the effect of the writer state (left column of Figure 1) on his or her own state (a particular column of the Writer \times Reader matrix).

The *fixed effect* of a given writer state refers to the mean slope across readers. Fixed effects are shown in Table 4. Regarding inspiration contagion, the fixed effect was positive as hypothesized, although the 95% CI narrowly included zero ($p = .053$). Although the 95% CI included zero in this model, it excluded zero in all subsequent models (mediation, moderation, and moderated mediation). Taken together, these findings call for rejection of the null hypothesis for inspiration contagion.⁶ We conclude that the inspiration of the average reader is predictable from the inspiration of the unseen writer "behind" the text. Similarly, significant positive fixed effects were documented for awe, PA, and NA. Thus, contagion generalizes across a set of motivation, discrete emotion, and dimensional affect constructs.

Although the unstandardized coefficients in Table 4 cannot be directly compared with one another, the correlations reported in Table 3 are useful for gauging the relative magnitudes of the contagion effects (inspiration, $r = .13$; awe, $r = .23$; PA, $r = .15$; NA, $r = .20$). Contagion of inspiration was weaker (but not significantly so) than contagion of the other states (inspiration vs.

⁵ With one observation per cell by design, between-cell Writer \times Reader variance cannot be distinguished from within-cell variance (Raudenbush & Bryk, 2002). We use the label "Writer \times Reader level" because our focus is on predicting reliable between-cell variance. In a design with multiple observations per cell, such that each reader responds to each writer's poem more than once, the Writer \times Reader and within-cell levels could be decomposed, resulting in four distinct levels of analysis.

⁶ Whereas the proportion of the posterior distribution below zero for the contagion effect was $p = .053$ in the present model, it was $p = .003$ in the mediation model, $p = .020$ in the moderation model, and $p = .006$ in the moderated mediation model. On average across models, the proportion of the posterior distribution below zero was $p = .021$, warranting rejection of the null hypothesis. Slight differences in estimates and CIs across models are not surprising given that the models varied with respect to whether mediators and/or moderators were included.

Table 2
Cross-Classified ICCs

Level of analysis	Reader state				
	Inspiration	Awe	PA	NA	Chills
Writer	.057 [.046, .070]	.040 [.033, .050]	.027 [.022, .034]	.133 [.111, .160]	.033 [.027, .041]
Reader	.428 [.382, .473]	.353 [.311, .396]	.479 [.432, .526]	.286 [.248, .327]	.415 [.369, .460]
Writer × Reader	.515 [.472, .557]	.606 [.564, .646]	.494 [.450, .538]	.580 [.543, .615]	.551 [.509, .594]

Note. The ICCs for a given reader state indicate the proportions of total variance at particular levels of analysis. For effects in bold, 95% CIs exclude zero.

awe, $r_{\text{dif}} = .091$ [−.089, .272]; inspiration vs. PA, $r_{\text{dif}} = .020$ [−.133, .172]; inspiration vs. NA, $r_{\text{dif}} = .062$ [−.151, .273].

The *random effect* of a given writer state refers to variability in the writer–reader slope across readers, capturing individual differences in readers’ receptivity to contagion. Random effects are shown in Table 4. Next we report mediation and moderation analyses, which account for the fixed and random aspects of contagion, respectively.

Mediation by Poem Characteristics

Four poem characteristics—insightfulness, pleasantness, originality, and sublimity—were selected as candidate mediators on the basis of theory (see Introduction) and factor analysis (see Method). We examined contagion of each writer/reader state in separate models, with all four mediators modeled simultaneously. To test mediation, we used a Bayesian cross-classified extension of multilevel structural equation modeling (Preacher, Zyphur, & Zhang, 2010; Yuan & MacKinnon, 2009). Because the writer state and poem characteristics cannot vary across readers, the paths (slopes) from the writer state to poem characteristics were modeled as fixed. Because the effects of poem characteristics and the direct effect of the writer state on the reader state may vary across readers, these paths were modeled as having both fixed and random components. For a particular writer/reader state, the indirect effect via a given poem characteristic was computed as the product of (a) the effect of the writer state on the poem characteristic, and (b) the average effect of the poem characteristic on the reader state.⁷ Fixed effects from the mediation models are shown in Table 5. All effects discussed in this section concern average effects across readers.

As shown in Table 5 and Figure 2A, writer inspiration positively predicted insightfulness, pleasantness, originality, and sublimity. Insightfulness and pleasantness, in turn, positively predicted reader inspiration, whereas originality negatively predicted reader inspiration. Accordingly, writer inspiration had positive indirect effects on reader inspiration via insightfulness, $B = .021$ [.015, .026], and pleasantness, $B = .034$ [.024, .046], and a negative indirect effect via originality, $B = -.029$ [−.038, −.020].⁸ These findings demonstrate that inspiration is infectious due to the insightfulness and not the originality of inspired writing; indeed, the originality of inspired writing suppressed contagion. The indirect effect via pleasantness is consistent with the positive valence of inspiration.

Documentation of three highly significant indirect effects is noteworthy given the modest ($r = .13$) and narrowly significant overall fixed contagion effect documented above (see Table 4 and Footnote 6). This apparent contradiction may be explained as an

instance of *inconsistent mediation* (MacKinnon, Krull, & Lockwood, 2000). The overall contagion effect was only modestly greater than zero not because writer inspiration had little effect, but rather because it had multiple effects that varied in sign and therefore suppressed one another. The modest net effect of writer inspiration belies its explanatory power, as becomes apparent from the moderated mediation analysis below, in which the negative indirect effect via originality is essentially switched on and off by a moderating variable.

Writer awe had positive indirect effects on reader awe via sublimity, $B = .013$ [.006, .020], and pleasantness, $B = .018$ [.010, .026]. Writer awe also had a negative indirect effect via originality, $B = -.002$ [−.003, −.000], such that writer awe led to higher levels of originality, which, in turn, led to lower levels of reader awe. These awe findings parallel the inspiration findings except that a double dissociation was documented: insightfulness mediated contagion of inspiration but not awe, whereas sublimity mediated contagion of awe but not inspiration.

Writer PA had positive indirect effects on reader PA via pleasantness, $B = .022$ [.010, .034], and insightfulness, $B = .003$ [.001, .005]. Given the similarity of the inspiration and PA findings, we conducted an additional pair of analyses in which the effect of the other writer state was controlled. In the analysis of inspiration contagion, all three indirect effects remained significant when writer PA was controlled. In the analysis of PA contagion, the indirect effect via pleasantness remained significant. The indirect effect via insightfulness was again significant but reversed in sign, due to a negative unique effect of writer PA on insightfulness.

⁷ Extending Preacher et al.’s (2010) notation to the case of cross-classified models, our mediational model could be described as a $2A \rightarrow 2A \rightarrow 1$ mediation model. Whereas Preacher et al.’s (2010) two-level $2 \rightarrow 2 \rightarrow 1$ model necessarily involves fixed slopes for both the a and b paths, the cross-classified context allows for the possibility that the b path varies at level 2B (i.e., across readers). Accordingly, we estimated the indirect effect as $a \times b$ as in Preacher et al.’s $2 \rightarrow 2 \rightarrow 1$ model, except that b was estimated as the average of readers’ randomly varying slopes, rather than as a nonvarying fixed slope. Given that our b path may vary randomly, our model also resembles Preacher et al.’s $2 \rightarrow 1 \rightarrow 1$ model, which allows for the possibility of varying b paths. However, because our mediator exists at Level 2A rather than Level 1, the complication of between- and within-level confounding of the b slope does not arise in our case.

⁸ Unless otherwise indicated, positive indirect effects discussed in the text are products of positive a and b paths. That is, higher levels of the writer and reader state are related to higher levels of the mediator. In instances where a positive indirect effect is the product of negative a and b paths, we indicate that the effect is mediated by low levels of the mediator.

Table 3
Correlations at the Writer Level of Analysis

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Writer inspiration													
2. Writer awe	.44												
3. Writer PA	.70	.52											
4. Writer NA	-.03	.10	-.09										
5. Writer effort	.28	.15	.35	.08									
6. Poem insightfulness	.17	.00	.09	.04	.05								
7. Poem pleasantness	.24	.18	.31	-.15	.09	.15							
8. Poem originality	.26	.04	.16	-.01	-.03	.40	.22						
9. Poem sublimity	.32	.16	.29	-.06	.13	.44	.77	.41					
10. Reader inspiration	.13	.12	.21	-.12	.13	.42	.55	-.11	.47				
11. Reader awe	.30	.23	.30	-.18	.03	.32	.73	.16	.72	.71			
12. Reader PA	.09	.08	.15	-.16	.09	.18	.41	.00	.32	.77	.49		
13. Reader NA	-.07	-.21	-.19	.20	-.05	.26	-.56	.17	-.18	-.38	-.44	-.31	
14. Reader chills	.24	.01	.08	.07	.03	.61	.18	.20	.50	.41	.41	.21	.51

Note. These correlations are based on covariances at the Writer level of analysis and are standardized with respect to model estimates of writer-level variances. For effects in bold, 95% CIs exclude zero.

Thus, insightfulness was distinctively implicated in contagion of inspiration.

Writer NA had positive indirect effects on reader NA via insightfulness, $B = .002$ [.001, .004] and low pleasantness, $B = .054$ [.043, .066]. Writer NA also had a negative indirect effect via sublimity, $B = -.009$ [-.014, -.005], such that writer NA led to lower sublimity, and lower sublimity, in turn, led to lower reader NA.

These findings support our hypotheses that inspiration and awe contagion are mediated by insightfulness and sublimity, respectively. Pleasantness, a fundamental stimulus dimension, mediated contagion of PA and contributed to contagion of all other states we examined.

Moderation by Reader Personality

Having documented contagion and mediation for the average reader, we next tested whether contagion effects vary as a function of reader personality. We tested each writer/reader state in a separate model, with all candidate moderators (openness, approach temperament, and avoidance temperament) modeled simultaneously. Moderation was tested by modeling reader traits as predictors of random writer–reader slopes (as in hierarchical multilevel modeling) rather than by modeling product terms (as in multiple regression).⁹ Fixed effects are reported in Table 6.

First we consider direct effects of reader traits on reader states. As shown in Table 6, approach temperament positively predicted

reader inspiration, awe, and PA, whereas avoidance temperament positively predicted NA.

Next we consider moderating effects of reader traits. In the inspiration analysis, contagion was moderated by openness, $B = .005$ [.001, .010], such that contagion was stronger for readers higher in openness. We also examined conditional effects—that is, contagion effects at particular levels of the moderator. In this and subsequent analyses, low, moderate, and high levels of the moderator refer to the observed minimum, mean, and maximum, respectively.¹⁰ The conditional effect of writer inspiration on reader inspiration was significantly greater than zero for readers moderate, $B = .036$ [.001, .073], or high, $B = .062$ [.022, .105], but not low, $B = .002$ [-.042, .046], in openness. Figure 3 illustrates the conditional effect and 95% CI band at all levels of reader openness. In this plot, the moderation effect corresponds to the positive slope of the conditional effect line, and conditional contagion effects are significant at levels of reader openness where the CI band excludes zero. This moderation analysis reveals an additional reason (in addition to suppression by originality) that the average contagion effect was modest in magnitude: contagion effects were present for readers at or above the mean in openness, but not for those below the mean.

The hypothesis that awe contagion is moderated by reader openness was not supported, $B = .002$ [-.004, .008]. Contagion of awe was instead moderated by reader approach temperament, $\beta = .007$ [.002, .013], such that contagion was stronger for readers higher in approach temperament. The conditional effect of writer

Table 4
Writer–Reader Contagion Effects

Contagion process	Fixed effect (coefficient)	Random effect (variance)
Writer inspiration → reader inspiration	.031 [-.008, .067]	.002 [.001, .004]
Writer awe → reader awe	.052 [.011, .084]	.006 [.004, .008]
Writer PA → reader PA	.024 [.001, .046]	.002 [.001, .003]
Writer NA → reader NA	.084 [.031, .136]	.003 [.002, .004]

Note. For effects in bold, 95% CIs exclude zero.

⁹ In all moderation and moderated mediation analyses, main effects of reader traits were modeled with random intercepts but fixed slopes, because preliminary models that included random slopes for reader traits (in addition to random intercepts and slopes for all writer-level predictors) were excessively slow to converge or could not be estimated successfully.

¹⁰ The minimum, mean, and maximum of the moderator correspond to the leftmost portion of the X axis, the 0 point, and the rightmost portion of the X axis, in all moderation and moderated mediation figures. We caution that our conditional effect analyses describe conditional effects across the full range of the moderator, and therefore “low” and “high” levels of the moderator are more extreme in the present context than they are when standardized scores of -1 and 1 are used.

Table 5
Fixed Effects from Mediation Models

Effect	Writer state (X) and reader state (Y)			
	Inspiration	Awe	PA	NA
Direct effects				
X → Y	.007 [−.016, .033]	.023 [−.001, .047]	.004 [−.012, .021]	.025 [−.005, .065]
X → insightfulness	.107 [.101, .114]	.004 [−.003, .011]	.056 [.049, .062]	.026 [.019, .033]
X → pleasantness	.129 [.124, .135]	.105 [.099, .111]	.169 [.164, .174]	−.090 [−.096, −.084]
X → originality	.166 [.160, .173]	.030 [.023, .038]	.101 [.095, .108]	−.008 [−.016, −.001]
X → sublimity	.170 [.165, .176]	.090 [.084, .096]	.154 [.148, .159]	−.034 [−.040, −.028]
Insightfulness → Y	.195 [.145, .245]	.057 [.018, .097]	.050 [.011, .090]	.094 [.034, .157]
Pleasantness → Y	.266 [.183, .352]	.172 [.098, .242]	.130 [.061, .202]	−.599 [−.728, −.486]
Originality → Y	−.172 [−.227, −.119]	−.054 [−.099, −.015]	−.039 [−.085, .001]	.077 [.002, .136]
Sublimity → Y	−.012 [−.103, .071]	.140 [.066, .218]	−.017 [−.093, .063]	.267 [.162, .406]
Indirect effects				
X → insightfulness → Y	.021 [.015, .026]	.000 [−.000, .001]	.003 [.001, .005]	.002 [.001, .004]
X → pleasantness → Y	.034 [.024, .046]	.018 [.010, .026]	.022 [.010, .034]	.054 [.043, .066]
X → originality → Y	−.029 [−.038, −.020]	−.002 [−.003, −.000]	−.004 [−.009, .000]	−.001 [−.002, .000]
X → sublimity → Y	−.002 [−.018, .012]	.013 [.006, .020]	−.003 [−.014, .010]	−.009 [−.014, −.005]
Total contagion effect	.031 [.009, .056]	.052 [.028, .076]	.022 [.005, .041]	.072 [.039, .115]

Note. For effects in bold, 95% CIs exclude zero.

awe on reader awe was significantly greater than zero for readers moderate, $B = .053 [.020, .087]$, or high, $B = .087 [.045, .127]$, but not low, $B = -.021 [−.085, .045]$, in approach temperament (see Figure 4).

Contagion of PA was likewise moderated by approach temperament, $\beta = .006 [.003, .010]$, such that contagion was stronger for readers higher in approach temperament. The conditional effect of writer PA on reader PA was significantly greater than zero for readers moderate, $B = .026 [.001, .051]$, or high, $B = .054 [.024, .083]$, but not low, $B = -.036 [−.079, .008]$, in approach temperament (see Figure 5).

Contagion of NA was moderated (marginally) by avoidance temperament, $\beta = .004 [−.000, .009]$ ($p = .036$), such that contagion was stronger for readers higher in avoidance temperament. The conditional effect of writer NA on reader NA was significantly greater than zero for readers low, $B = .059 [.018, .108]$, moderate, $B = .082 [.054, .127]$, and high, $B = .105 [.065, .159]$, in avoidance temperament (see Figure 6A). Contagion of NA was also moderated by approach temperament, $\beta = .007 [.003, .012]$, such that contagion was stronger for readers higher in approach temperament. The conditional effect of writer NA on reader NA was significantly greater than zero for readers moderate, $B = .082 [.054, .127]$, or high, $B = .115 [.080, .171]$, but not low, $B = .010 [−.046, .064]$, in approach temperament (see Figure 6B).

These findings reveal a double dissociation in the moderation of contagion of inspiration and its covariates. Openness to experience moderated contagion of inspiration but not of awe or PA; conversely, approach temperament moderated contagion of awe and PA but not of inspiration. Contagion of NA was moderated by approach and avoidance temperaments.

Moderated Mediation

The above mediation analyses documented the characteristics of inspired writing through which, for the average reader, inspiration contagion was facilitated (insightfulness, pleasantness) or sup-

pressed (originality). The moderation analyses documented for whom inspiration contagion effects were stronger versus weaker than average (readers higher vs. lower in openness). Considered together, these answers to questions of “how?” and “for whom?” raise a further question: Is the greater proneness of open readers to inspiration contagion a result of drawing more inspiration from particular characteristics of inspired writing? To answer this question, we specified a model that integrated the above mediation and moderation models. Reader traits were specified to moderate the random effects of the mediators on reader inspiration, as well as the random direct effect of writer inspiration on reader inspiration.

Much as moderation may be indexed as the effect (e.g., the slope in Figures 3–6) of a moderator on the conditional effect of a writer state on a reader state, moderated mediation may be indexed as the effect (slope) of a moderator on the conditional indirect effect via a particular mediator. In the present context, in which the second but not the first path of an indirect effect is potentially moderated, this index is computed as the product of (a) the effect of the writer state on a given mediator, and (b) the effect of the moderator on the slope relating the mediator to the reader state (Hayes, 2015; for a generalization, see Wang & Preacher, 2015). Fixed effects, including indexes of moderated mediation, are shown in Table 7.

As indicated in Table 7, reader openness and approach temperament were both documented as moderators of indirect effects. In the following, we first present openness findings, followed by approach temperament findings.

Openness as a moderator of indirect effects. Reader openness was found to moderate the indirect effect of writer inspiration on reader inspiration via originality, $B = .003 [.001, .005]$, such that the indirect effect was less negative for readers higher in openness. The conditional indirect effect via originality was significantly less than zero for readers low, $B = -.046 [−.062, −.032]$, moderate, $B = -.028 [−.036, −.020]$, and high, $B = -.013 [−.027, −.000]$, in openness, although it approached nonsignificance at the highest levels of openness. The moderated mediation effect corresponds to the positive slope of the condi-

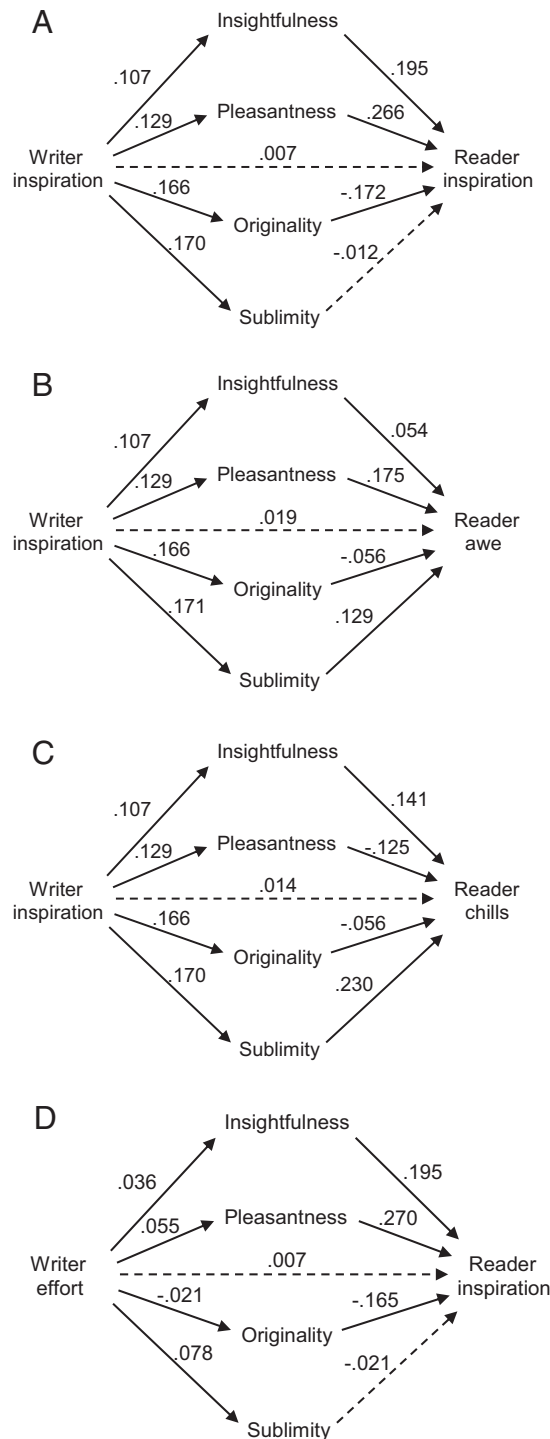


Figure 2. Mediation via poem characteristics of the effect of (A) writer inspiration on reader inspiration, (B) writer inspiration on reader awe, (C) writer inspiration on reader chills, and (D) writer effort on reader inspiration. Solid/dashed arrows indicate that 95% CI excludes/includes zero, respectively.

tional indirect effect line plotted in Figure 7C. Because reader traits cannot impact the effect of writer inspiration on poem characteristics, moderation of the indirect effect via originality is attributable to moderation of the effect of originality on reader inspiration (see Table 7).

Reader openness was also found to moderate (marginally) the indirect effect via sublimity, $B = .003 [-.000, .006]$ ($p = .030$), such that the indirect effect was initially less negative and then more positive with increasing levels of openness. The conditional indirect effect via sublimity was negative and marginally significant for readers low in openness, $B = -.020 [-.044, .003]$ ($p = .048$), close to zero and nonsignificant for readers moderate in openness, $B = -.002 [-.018, .013]$, and positive but nonsignificant for readers high in openness $B = .012 [-.010, .034]$. The moderated mediation effect corresponds to the positive slope of the conditional indirect effect line plotted in Figure 7D. (Marginal) moderation of the indirect effect via sublimity is attributable to (marginal) moderation of the effect of sublimity on reader inspiration (see Table 7).

Openness was found not to moderate indirect effects via insightfulness or pleasantness. As illustrated in Figures 7A and 7B, conditional indirect effects via insightfulness and pleasantness were uniformly positive and significant across levels of openness. The lack of moderation of the indirect effects via insightfulness and pleasantness is manifest as horizontal slopes in these plots.

These moderated mediation findings explain why openness moderated contagion of inspiration. At all levels of openness, individuals showed a proneness to contagion via the insightfulness and pleasantness of inspired writing. These effects were offset (suppressed) by a negative indirect effect via originality to a greater degree among individuals lower in openness. In addition, the sublimity of inspired writing showed a tendency to suppress contagion at low levels of openness and a tendency to facilitate contagion at high levels of openness. We conclude that open readers were not more responsive to the positively inspiring aspects of inspired writing (insightfulness, pleasantness); rather, they were more tolerant of the incidental characteristics of inspired writing (originality, sublimity) that undermined contagion in readers low in openness.

Approach temperament as a moderator of indirect effects.

Reader approach temperament was found to moderate the indirect contagion effect via pleasantness, $B = .004 [.002, .007]$, such that the indirect effect was more positive for readers higher in approach temperament. The conditional indirect effect via pleasantness was significantly greater than zero for readers moderate, $B = .034 [.023, .047]$, or high, $B = .054 [.038, .070]$, but not low, $B = -.008 [-.034, .018]$, in approach temperament. This moderated mediation effect is manifest as a positive slope in Figure 8B. Moderation of the indirect effect via pleasantness is attributable to moderation of the effect of pleasantness on reader inspiration (see Table 7).

Reader approach temperament was also found to moderate the indirect effect via originality, $B = -.003 [-.005, -.001]$, such that the indirect effect was more negative for readers higher in approach temperament. The conditional indirect effect via originality was significantly less than zero for readers moderate, $B = -.028 [-.036, -.020]$, or high, $B = -.043 [-.055, -.031]$, but not low, $B = .005 [-.016, .024]$, in approach temperament. This moderated mediation effect is manifest as a negative slope in Figure 8C. Moderation of the indirect effect via originality is attributable to moderation of the effect of originality on reader inspiration (see Table 7).

Table 6
Fixed Effects from Moderation Models

Effect	Writer state (X) and reader state (Y)			
	Inspiration	Awe	PA	NA
Direct effects				
X → Y	.036 [.001, .073]	.053 [.020, .087]	.026 [.001, .051]	.082 [.054, .127]
Openness → Y	-.031 [-.125, .061]	-.060 [-.146, .027]	-.074 [-.164, .017]	-.038 [-.106, .036]
Approach temperament → Y	.111 [.027, .194]	.124 [.046, .202]	.120 [.036, .200]	.062 [-.003, .128]
Avoidance temperament → Y	.081 [-.004, .166]	.008 [-.064, .082]	-.006 [-.088, .078]	.113 [.051, .174]
Moderation effects				
Openness → (X → Y)	.005 [.001, .010]	.002 [-.004, .008]	.000 [-.004, .004]	-.001 [-.006, .004]
Approach temperament → (X → Y)	.002 [-.003, .006]	.007 [.002, .013]	.006 [.003, .010]	.007 [.003, .012]
Avoidance temperament → (X → Y)	-.001 [-.005, .003]	.000 [-.005, .006]	-.002 [-.006, .001]	.004 [-.000, .009]

Note. For effects in bold, 95% CIs exclude zero. Arrows pointing to effects within parentheses indicate moderation of those effects.

Approach temperament did not moderate indirect effects via insightfulness or sublimity. As illustrated in Figure 8A and 8D, the conditional indirect effect via insightfulness was uniformly positive and significant across levels of reader openness, and the conditional indirect effect via sublimity was uniformly nonsignificant. The lack of moderation of the indirect effects via insightfulness and sublimity is manifest as roughly horizontal slopes in these plots.

Moderation of mediation by approach temperament may seem surprising given that approach temperament had not emerged as a moderator of inspiration contagion (see Table 6). These findings may be reconciled as a case of a novel statistical phenomenon that we label (by analogy to inconsistent mediation) *inconsistent moderation of mediation*, in which a null or weak moderation effect belies the existence of multiple moderated mediation effects that vary in sign and therefore offset one another. In this case, the failure of approach temperament to significantly moderate inspiration contagion belies the fact that individuals higher in approach

temperament were both more prone to contagion via the pleasantness of inspired writing and less prone to contagion via the originality of inspired writing.

Alternative Consequences of Writer Inspiration and Antecedents of Reader Inspiration

Next we consider alternative consequences of writer inspiration and alternative antecedents of reader inspiration. We conducted a series of analyses in which one of five writer states (including effort) was modeled as a predictor of one of five reader states (including chills). Mediators were modeled in all analyses in order to facilitate interpretation. Total effects of each writer state on each reader state are reported in the top of Table 8. In the following, we focus on results relevant to the issues of reader enthralment and the perspiration narrative.

Writer inspiration as an antecedent of reader enthralment.

As shown in the top of Table 8, writer inspiration positively

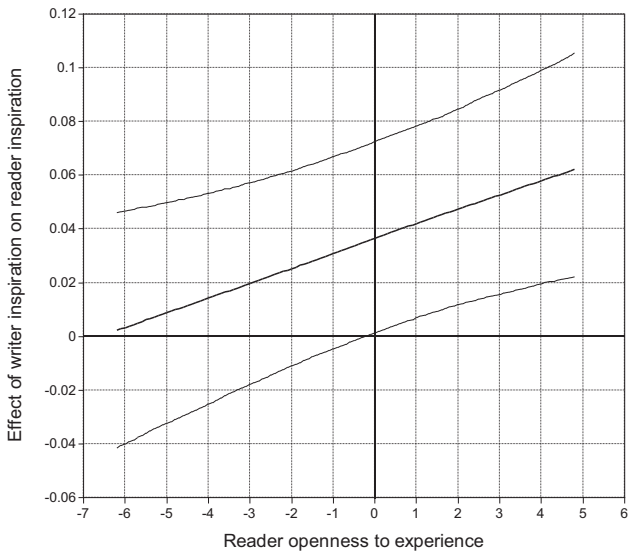


Figure 3. Moderation of inspiration contagion by reader openness. The straight line indicates the conditional effect of writer inspiration on reader inspiration at particular levels of reader openness. The arcs demarcate the 95% CI band.

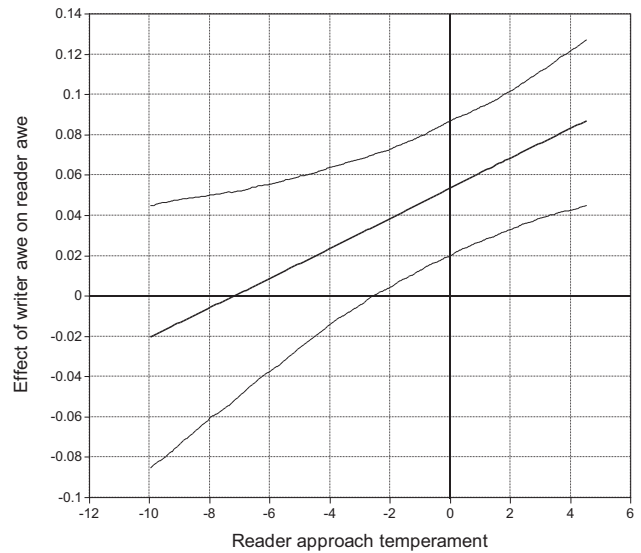


Figure 4. Moderation of awe contagion by reader approach temperament. The straight line indicates the conditional effect of writer awe on reader awe at particular levels of reader approach temperament. The arcs demarcate the 95% CI band.

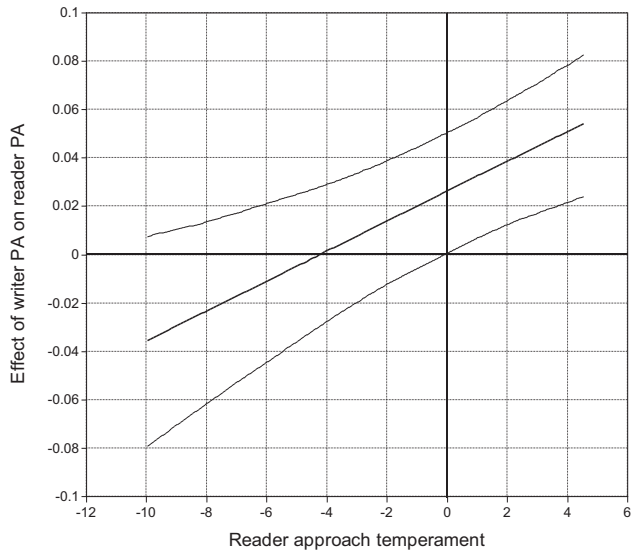


Figure 5. Moderation of PA contagion by reader approach temperament. The straight line indicates the conditional effect of writer PA on reader PA at particular levels of reader approach temperament. The arcs demarcate the 95% CI band.

predicted both indicators of reader enthralment, awe and chills. In fact, as shown in Table 3, writer inspiration predicted reader awe ($r = .30$) and chills ($r = .24$) more strongly than reader inspiration ($r = .13$), although only the contrast with reader awe was significant (prediction of reader inspiration vs. awe, $r_{\text{dif}} = .168$ [.052, .290]; prediction of reader inspiration vs. chills, $r_{\text{dif}} = .103$ [−.063, .272]).

Indirect effects of writer inspiration on reader awe and chills are illustrated in Figure 2B–C. In the prediction of reader awe, writer inspiration had positive indirect effects via insightfulness, $B = .006$ [.001, .010], pleasantness, $B = .023$ [.014, .031], and sublimity, $B = .022$ [.008, .033], and a negative indirect effect via originality, $B = -.009$ [−.015, −.002]. In the prediction of reader chills, writer inspiration had positive indirect effects via insightfulness, $B = .015$ [.011, .020], and sublimity, $B = .039$ [.027, .054], and negative indirect effects via pleasantness $B = -.016$ [−.025, −.008], and originality, $B = -.009$ [−.017, −.003]. As revealed in Tables 3 and 8, writer inspiration had relatively strong and highly significant total effects on reader enthralment in spite of suppression from negative indirect effects.

Notably, sublimity was a pivotal mediator that distinguished the enthralling effects of writer inspiration from its inspiring effects. Writer inspiration predicted sublimity, which, in turn, predicted reader awe and chills but not reader inspiration. Sublime stimuli are natural elicitors of awe and chills, but they elude the grasp of understanding and hence do not instigate an inspired epistemic transmission process in the average reader.

Writer effort as an antecedent of reader inspiration. As shown in the top of Table 8, writer effort positively predicted reader inspiration, consistent with the perspiration narrative. Indirect effects are shown in Figure 2D. Writer effort had positive indirect effects via insightfulness, $B = .007$ [.005, .010], pleasantness, $B = .015$ [.010, .020], and low originality, $B = .003$ [.002, .005].

Although writer effort predicted reader inspiration, so too did all other writer states that we examined. This finding raises the question of whether effort contributes uniquely to the prediction of reader inspiration. We address this question and other questions of incremental predictive utility in the following section. We also note that writer effort was the only writer variable that failed to predict any reader states beyond reader inspiration.

Ancillary Analyses: Incremental Predictive Utility of Writer States

Finally, we conducted a set of ancillary analyses in which all five writer states were modeled as simultaneous predictors of a given reader state, again with mediators modeled in order to facilitate interpretation. Total effects from these analyses are shown in the bottom of Table 8. We emphasize that these analyses are stringent and are not necessarily more “correct” than the analyses reported above. As discussed above, the desirability of controlling other writer states depends on assumptions about the pattern of causal relations among writer states, assumptions that cannot be tested with the present design.

Robustness of writer–reader contagion effects. As shown in the bottom of Table 8, the inspiration contagion total effect became nonsignificant when other writer states were controlled. However, all three indirect effects of writer inspiration on reader inspiration remained significant: insightfulness, $B = .027$ [.020, .035], pleasantness, $B = .005$ [.003, .008], and originality, $B = -.033$ [−.043, −.022]. Controlling other writer states weakened the positive indirect effect via pleasantness, thus explaining why the total (net) effect was reduced to zero.

The awe contagion total effect also became nonsignificant when other writer states were controlled. The indirect effect via pleasantness remained significant, $B = .004$ [.002, .007]. The negative indirect effect via originality became positive, $B = .004$ [.001, .006], due to a negative rather than positive unique effect of writer awe on originality. In addition, there was now a negative indirect effect via insightfulness, $B = -.003$ [−.006, −.001], such that writer awe uniquely predicted lower insightfulness, and lower insightfulness, in turn, predicted lower reader awe. Most noteworthy, the positive indirect effect via sublimity became nonsignificant, $B = .000$ [−.001, .000].

The PA contagion total effect also became nonsignificant. The indirect effect via pleasantness remained significant, $B = .017$ [.006, .027], whereas the indirect effect via insightfulness became nonsignificant, $B = .000$ [−.001, .000].

The NA contagion total effect remained significant when other writer states were controlled. All three indirect effects documented above remained significant: pleasantness, $B = .045$ [.035, .056], insightfulness, $B = .003$ [.001, .006], and sublimity, $B = -.007$ [−.011, −.004]. In addition, there was now a positive indirect effect via originality, $B = .001$ [.000, .002].

In sum, in these stringent ancillary analyses in which other writer states were controlled, contagion effects became nonsignificant for inspiration, awe, and PA, whereas the NA contagion effect remained significant. This pattern of findings is understandable in light of the considerable overlap among writer inspiration, awe, and PA ($r_s = .44$ to $.70$; see Table 3) and the negligible overlap between these variables and writer NA ($r_s = -.09$ to $.10$). The hypothesized indirect effects

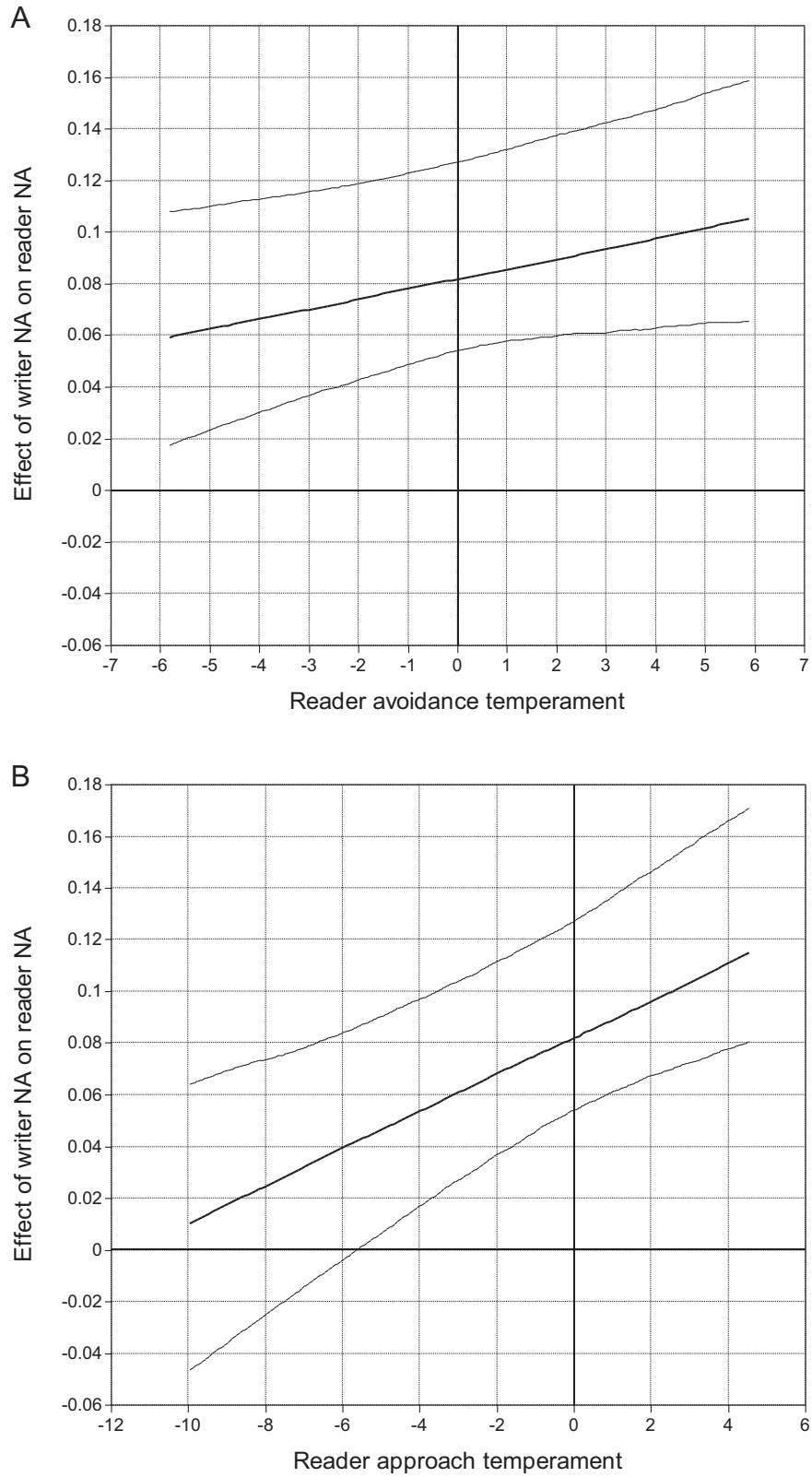


Figure 6. Moderation of NA contagion by reader avoidance temperament (A) and approach temperament (B). The straight lines indicate the conditional effects of writer NA on reader NA at particular levels of reader avoidance or approach temperament. The arcs demarcate the 95% CI bands.

were robust for contagion of inspiration, PA, and NA, but not awe (i.e., the indirect effect via sublimity became nonsignificant).

Robustness of the enthralling effects of inspiration. Next we examined the robustness of the enthralling effects of inspiration when other writer states are controlled. The total effect of writer inspiration on reader awe remained significant (see the bottom of Table 8), as did all four indirect effects: insightfulness, $B = .008$ [.002, .014], pleasantness, $B = .004$ [.002, .006], originality, $B = -.011$ [-.019, -.003], and sublimity, $B = .016$ [.007, .025]. Likewise, the total effect of writer inspiration on reader chills remained significant, as did all four indirect effects: insightfulness, $B = .019$ [.013, .025], pleasantness, $B = -.002$ [-.004, -.001], originality, $B = -.012$ [-.020, -.003], and sublimity, $B = .027$ [.017, .037]. Thus, the enthralling effects of writer inspiration were robust when other writer states are controlled.

Robustness of the effect of writer effort on reader inspiration. Finally, we examined the robustness of the effect of writer effort on reader inspiration. The total effect of writer effort was no longer significant when other writer states were controlled (see the bottom of Table 8). Of the three indirect effects documented above, only the positive indirect effect via low originality remained significant, $B = .014$ [.009, .018]. These findings raise further doubts about the centrality of effortful processes in the generation of deeply affecting texts.¹¹

Discussion

Contagion of inspiration via the written word is, by most measures, one of the “big” ideas of Western scholarship—it has a long and rich history in the humanities, it concerns peaks of human experience, it has far-reaching implications for the transmission of culture, and it is broadly relevant across the aesthetic, spiritual, and intellectual domains. Nevertheless, the concept of inspiration contagion has been conspicuously absent from the contemporary research literature. In the following, we summarize the results of our investigation and discuss their implications and limitations.

Writer-Reader Inspiration Contagion

Our core finding is that student writers’ privately reported inspiration predicts the privately reported inspiration of the average student reader, despite lack of contact between writers and readers beyond the intervening text. This finding attests to the power of the written word as a vehicle for sharing the peaks of human experience among individuals separated in time or place. As Bowra (1951) suggested, the inspired poem “creates in us the kind of exaltation which the poet himself has known in his times of vision and enraptured creation . . . the central, final, inescapable fact is that inspired words create life in us because they are themselves alive” (p. 36).

Mediation of Inspiration Contagion

Such descriptions of a text as *alive* or *inspired* vividly convey the transitivity of inspired writing; they imply a vital inspiration process through which the words were produced and a homologous process through which they are received. However, we have not formally conceptualized texts as inspired, because states of inspiration properly belong to individuals.¹² Conceptualizing a text

as inspired is, at best, redundant with conceptualizing writers or readers as inspired and, at worst, prone to the kinds of inferential ambiguities and circularity of reasoning that have led some theorists to be needlessly suspicious of the inspiration concept (e.g., Fehrman, 1980; Valéry, 1958; Wimsatt & Beardsley, 1946). Instead, we have conceptualized texts as displaying specific observable characteristics (e.g., insightfulness), as evaluated by independent judges. From this perspective, the transitivity of inspired writing may be operationalized as positive indirect effects via qualities of the text.

Our mediation findings may be summarized as follows: Writer inspiration had positive effects on poem insightfulness, pleasantness, originality, and sublimity. In turn, insightfulness and pleasantness had positive effects on the inspiration of the average reader, whereas originality had a negative effect and sublimity had a null effect. Accordingly, writer inspiration had positive indirect effects on the inspiration of the average reader via insightfulness and pleasantness and a negative indirect effect via originality.

The positive indirect effects via insightfulness and pleasantness support our theorizing. In particular, the indirect effect via insightfulness is consistent with the theorized epistemic transmission function of inspiration operating in the writer and reader. That is, an insightful text functions both as the concretization of the writer’s inspiration and as the elicitor of a comparable state in the reader. In addition, the indirect effect via pleasantness is consistent

¹¹ As noted, given that the dependent variables were highly skewed, we repeated our core analyses using outcomes that were trichotomized and modeled as ordered categorical (rather than transformed and modeled as continuous, as in our primary analyses). These supplemental analyses have the advantage of not violating distributional assumptions, but they have the disadvantage of loss of variance. These supplemental analyses yielded findings generally comparable to our primary findings. A summary of the findings based on ordered categorical outcomes is as follows: (a) In the inspiration contagion analysis (see Table 4), the nonsignificant fixed effect of writer inspiration became marginally significant ($B = .026$ [-.005, .055], $p = .050$). (b) Regarding mediation of inspiration contagion (see Table 5), all indirect effect findings remained the same. (c) Regarding moderation of inspiration contagion (see Table 6), the significant moderating effect of openness became marginally significant ($B = .006$ [-.001, .013], $p = .038$). (d) Regarding moderated mediation (see Table 7), findings for indexes of moderated mediation remained the same, except that avoidance temperament emerged as a significant moderator of the indirect effect via sublimity ($B = .003$ [.000, .005]). (e) Regarding alternative antecedents and consequences (see top of Table 8), findings related to total and indirect effects of writer inspiration on reader awe and chills remained the same, except that the significant indirect effect of writer inspiration on reader awe via originality became marginally significant, ($B = -.006$ [-.012, .000], $p = .035$). Findings related to the total and indirect effects of writer effort on reader inspiration remained the same. (f) Regarding tests of incremental predictive utility (see bottom of Table 8), total and indirect effects of writer inspiration on reader inspiration remained the same. Total and indirect effects of writer inspiration on reader awe and chills remained the same, except that the significant indirect effect of writer inspiration on reader awe via originality became marginally significant ($B = -.007$ [-.015, .000], $p = .030$). Total and indirect effects of writer effort on reader inspiration remained the same. In sum, the two methods of addressing the skewness issue yielded comparable findings in most cases. In most instances where findings differed between the two methods, differences were modest, but the effect happened to cross the threshold of significance (or marginal significance) in one direction or the other.

¹² As long as its meaning is clear, we see no problem in using the phrase “inspired text” as shorthand for “a text written by an inspired writer.” We do so in the present article.

Table 7
Fixed Effects from Moderated Mediation Inspiration Contagion Model

Effect	Estimate [CI]
Direct effects	
Writer inspiration → insightfulness	.107 [.101, .114]
Writer inspiration → pleasantness	.129 [.124, .135]
Writer inspiration → originality	.166 [.160, .173]
Writer inspiration → sublimity	.171 [.165, .176]
Writer inspiration → reader inspiration	.005 [−.019, .030]
Insightfulness → reader inspiration	.195 [.142, .244]
Pleasantness → reader inspiration	.265 [.182, .358]
Originality → reader inspiration	−.167 [−.216, −.119]
Sublimity → reader inspiration	−.012 [−.104, .078]
Openness → reader inspiration	−.032 [−.128, .062]
Approach temperament → reader inspiration	.113 [.026, .197]
Avoidance temperament → reader inspiration	.083 [−.001, .167]
Indirect effects	
Writer inspiration → insightfulness → reader inspiration	.021 [.015, .027]
Writer inspiration → pleasantness → reader inspiration	.034 [.023, .047]
Writer inspiration → originality → reader inspiration	−.028 [−.036, −.020]
Writer inspiration → sublimity → reader inspiration	−.002 [−.018, .013]
Total contagion effect	.030 [.007, .053]
Moderation effects	
Openness → (writer inspiration → reader inspiration)	.000 [−.004, .004]
Openness → (insightfulness → reader inspiration)	−.001 [−.014, .011]
Openness → (pleasantness → reader inspiration)	−.002 [−.022, .019]
Openness → (originality → reader inspiration)	.018 [.006, .031]
Openness → (sublimity → reader inspiration)	.017 [−.001, .035]
Approach temperament → (writer inspiration → reader inspiration)	.002 [−.002, .006]
Approach temperament → (insightfulness → reader inspiration)	.004 [−.007, .015]
Approach temperament → (pleasantness → reader inspiration)	.033 [.015, .051]
Approach temperament → (originality → reader inspiration)	−.020 [−.031, −.008]
Approach temperament → (sublimity → reader inspiration)	−.008 [−.024, .008]
Avoidance temperament → (writer inspiration → reader inspiration)	−.002 [−.006, .001]
Avoidance temperament → (insightfulness → reader inspiration)	.000 [−.011, .011]
Avoidance temperament → (pleasantness → reader inspiration)	−.001 [−.020, .017]
Avoidance temperament → (originality → reader inspiration)	−.003 [−.014, .008]
Avoidance temperament → (sublimity → reader inspiration)	.013 [−.003, .028]
Moderated mediation effects	
Openness → (writer inspiration → insightfulness → reader inspiration)	.000 [−.001, .001]
Openness → (writer inspiration → pleasantness → reader inspiration)	.000 [−.003, .002]
Openness → (writer inspiration → originality → reader inspiration)	.003 [.001, .005]
Openness → (writer inspiration → sublimity → reader inspiration)	.003 [−.000, .006]
Approach temperament → (writer inspiration → insightfulness → reader inspiration)	.000 [−.001, .002]
Approach temperament → (writer inspiration → pleasantness → reader inspiration)	.004 [.002, .007]
Approach temperament → (writer inspiration → originality → reader inspiration)	−.003 [−.005, −.001]
Approach temperament → (writer inspiration → sublimity → reader inspiration)	−.001 [−.004, .001]
Avoidance temperament → (writer inspiration → insightfulness → reader inspiration)	.000 [−.001, .001]
Avoidance temperament → (writer inspiration → pleasantness → reader inspiration)	.000 [−.003, .002]
Avoidance temperament → (writer inspiration → originality → reader inspiration)	−.001 [−.002, .001]
Avoidance temperament → (writer inspiration → sublimity → reader inspiration)	.002 [−.000, .005]

Note. For effects in bold, 95% CIs exclude zero. Arrows pointing to effects within parentheses indicate moderation of those effects.

with the pleasant and appetitive nature of inspiration. We presume that this indirect effect is extraneous to epistemic transmission and instead reflects an inherent compatibility of pleasant ideas with the appetitive inspired state (but see also Thrash, Moldovan, Oleynick, et al., 2014, regarding ways in which inspiration may be negative or unpleasant).

Also important is the discrimination provided by the finding that contagion was not mediated by sublimity or originality, qualities

theorized to lack the property of transitivity. Unlike insightfulness, sublimity does not lend itself to further transmission, because a sublime stimulus eludes comprehension. Although it may be deeply moving, it remains inherently *other*, without being fully internalized. Originality, similarly, “belongs” to its author and therefore is not available for further transmission. Further research is needed to determine why originality had a negative rather than null effect on reader inspiration. One possibility is that the author

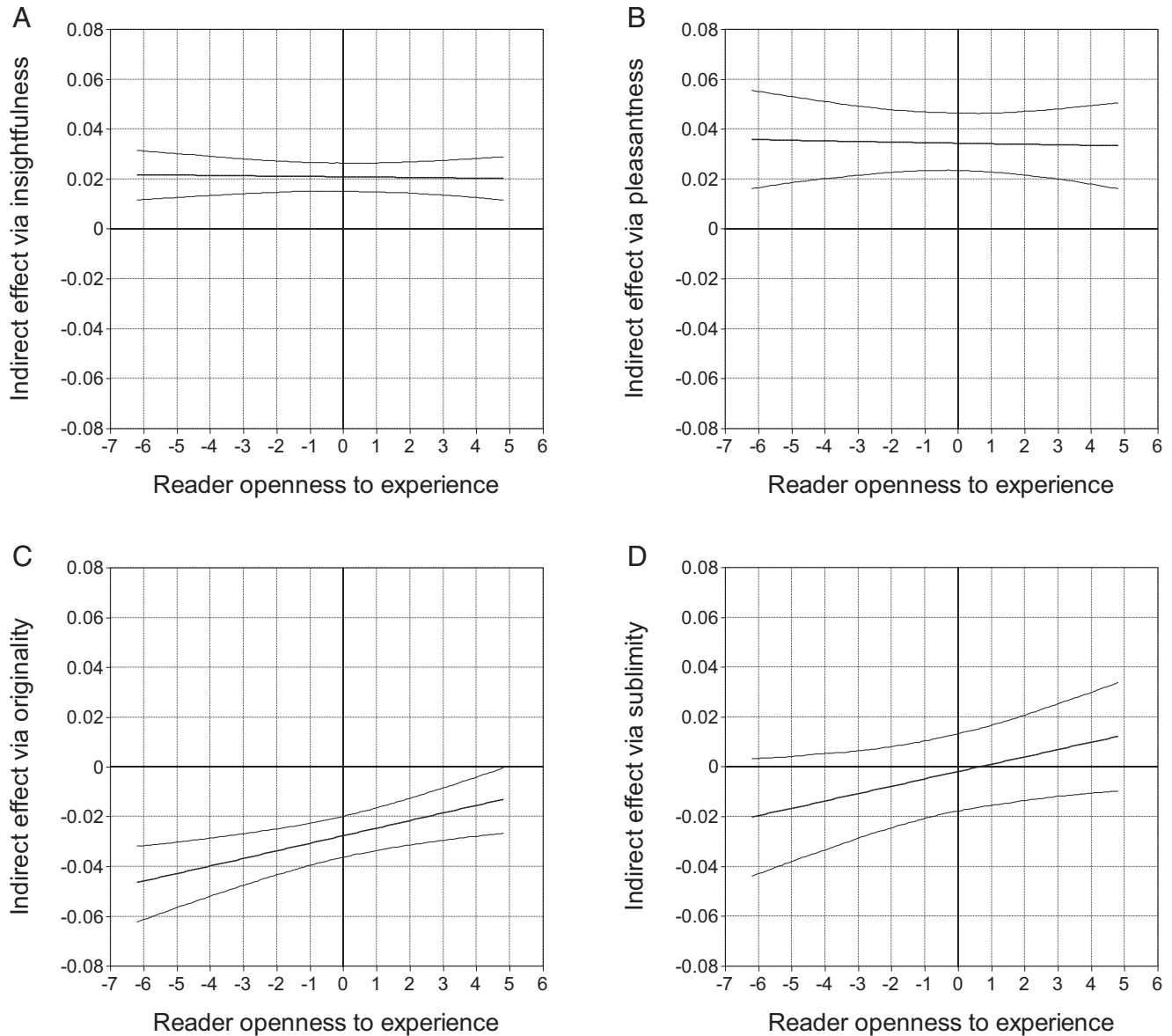


Figure 7. Moderation by reader openness to experience of the indirect effects of writer inspiration on reader inspiration via poem (A) insightfulness, (B) pleasantness, (C) originality, and (D) sublimity.

salience evoked by an original text yields an unflattering social comparison (Lockwood & Kunda, 1997; e.g., originator vs. spectator or imitator). Another possibility is that originality per se, above and beyond insightfulness, pleasantness, and sublimity, is not regarded as intrinsically valuable and merely produces discomfort.

The fact that writer inspiration had both positive and negative indirect effects indicates inconsistent mediation. “Inconsistent” here does not mean unreliable; it means that the indirect effects vary in sign and therefore offset rather than augment one another. Thus, the total contagion effect ($r = .13$) indicates the net result of the inspiring and uninspiring effects of inspired writing. We note that the complexity of this model is not captured by the term *contagion*, which falsely implies that writer inspiration promotes

reader inspiration through a single transitive process. Nevertheless, we have embraced this term because it connects our findings to established literatures on contagion of emotion (Hatfield, Cacioppo, & Rapson, 1993), affect (Kramer et al., 2014), and motivation (Radel, Sarrazin, Legrain, & Wild, 2010).

Moderation of Inspiration Contagion

Reader response is widely recognized as having both generalized and idiosyncratic aspects (e.g., Fish, 1970). Whereas the contagion and mediation effects discussed above concern generalized (average) responses, our moderation analyses are attempts to explain idiosyncratic responses using basic personality traits as moderators of contagion.

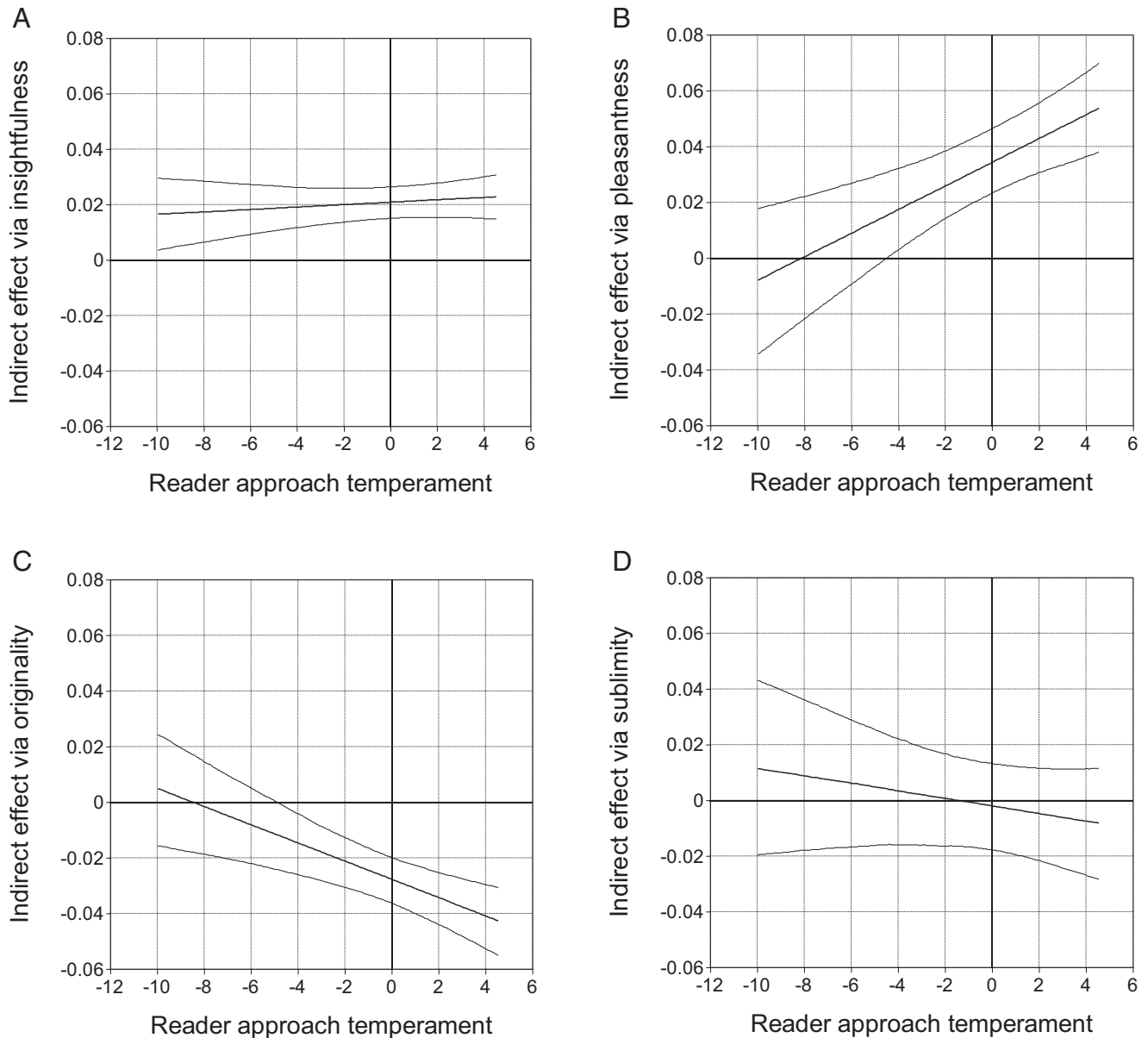


Figure 8. Moderation by reader approach temperament of the indirect effects of writer inspiration on reader inspiration via poem (A) insightfulness, (B) pleasantness, (C) originality, and (D) sublimity.

As hypothesized, readers' openness to experience was found to moderate inspiration contagion, such that writer inspiration predicted reader inspiration more strongly among readers higher in openness. Conditional effect analyses indicated that contagion was absent for readers low in openness but present for readers moderate or high in openness. These findings are consistent with past findings regarding the evocation of inspiration (Thrash & Elliot, 2004; Thrash, Maruskin, et al., 2010) and with Plato's model of contagion, which suggests that only certain kinds of individuals—poets and rhapsodes—are sufficiently receptive that they hold privileged positions in the dissemination of eternal wisdom.

Moderated Mediation of Inspiration Contagion

Although the mediation and moderation analyses address important "second-generation" research questions, they are limited in important respects. The mediation analysis focuses on indirect effects only for the average reader. The moderation analysis concerns moderation only of the overall (total) contagion effect, which may be attributable to moderation of one or more indirect effects. Accordingly, we also conducted moderated mediation analyses, which more fully exploit the power of conditional process analysis (Hayes, 2013). Two reader traits, openness and approach temperament, were found to moderate indirect effects. Given the complexity of these analyses, we focus on

Table 8
Total Effects of Writer States on Reader States

Writer state	Reader state				
	Inspiration	Awe	PA	NA	Chills
Not controlling other writer states					
Inspiration	.031 [.009, .056]	.059 [.037, .082]	.013 [−.003, .031]	−.035 [−.060, .006]	.042 [.018, .062]
Awe	.033 [.008, .059]	.052 [.028, .076]	.015 [−.004, .034]	−.083 [−.117, −.039]	.004 [−.020, .026]
PA	.050 [.029, .074]	.061 [.038, .083]	.022 [.005, .041]	−.072 [−.104, −.044]	.017 [−.007, .038]
NA	−.032 [−.057, −.006]	−.036 [−.062, −.011]	−.036 [−.053, −.013]	.072 [.039, .115]	.017 [−.009, .039]
Effort	.031 [.005, .056]	.011 [−.015, .033]	.010 [−.010, .032]	−.018 [−.054, .020]	.004 [−.019, .030]
Controlling other writer states					
Inspiration	−.007 [−.045, .026]	.037 [.014, .066]	−.007 [−.041, .026]	.050 [−.001, .099]	.069 [.038, .098]
Awe	.014 [−.017, .046]	.023 [−.004, .051]	.007 [−.021, .033]	−.073 [−.120, −.027]	−.022 [−.047, .006]
PA	.038 [.004, .076]	.026 [−.005, .057]	.020 [−.015, .054]	−.055 [−.107, −.005]	−.018 [−.050, .015]
NA	−.028 [−.060, −.000]	−.035 [−.061, −.012]	−.026 [−.054, −.002]	.084 [.044, .118]	.019 [−.007, .045]
Effort	.023 [−.009, .056]	−.014 [−.040, .011]	.011 [−.017, .037]	−.010 [−.062, .036]	−.005 [−.031, .020]

Note. For effects in bold, 95% CIs exclude zero.

the openness findings, which are particularly relevant to our theorizing. However, we encourage readers to also consider the provocative implications of the approach temperament findings and of the novel statistical phenomenon that we described above as *inconsistent moderation of mediation*.

Reader openness was found to positively moderate the indirect effect via originality, such that the conditional indirect effect was less negative for readers higher in openness. Reader openness was also found to positively moderate the indirect effect via sublimity, such that the conditional indirect effect initially became less negative, and then became more positive, with increasing levels of reader openness. In contrast, reader openness did not moderate indirect effects via insightfulness or pleasantness, which yielded uniformly positive conditional indirect effects. These findings explain why openness moderated contagion of inspiration. Readers higher in openness were more prone to contagion because they were less susceptible to the suppressing effect of the originality of inspired writing, and because the sublimity of inspired writing tended to promote rather than suppress contagion for these individuals.

A novel aspect of these findings is that the proneness of open readers to inspiration contagion appears not to be due to an openness to inspiring qualities per se. Open readers were not more responsive to the positively inspiring aspects of inspired writing (i.e., insightfulness, pleasantness)—these qualities were generally inspiring for readers regardless of their levels of openness. Rather, open readers were more open to incidental qualities of inspired writing (originality, sublimity) that undermined the inspiration of readers low in openness. We conclude that the potential for inspiration contagion via the written word lies in most individuals but tends to be manifest only in those who are sufficiently open to the more exotic (i.e., novel and sublime) writings in which inspired and inspiring (i.e., insightful and pleasant) ideas tend to be found.

Discrimination of Inspiration Contagion From Contagion of Related States

In addition to documenting writer–reader contagion of inspiration, we also documented contagion of an emotion, awe, and of two basic affective states, PA and NA. These findings indicate that

writer–reader contagion generalizes across a variety of motivational, emotional, and affective states.

Core findings regarding the mediation and moderation of these other states may be summarized as follows. As hypothesized, contagion of awe was mediated by sublimity rather than insightfulness, but contrary to our hypothesis, awe contagion was moderated by reader approach temperament and not openness. PA and NA contagion were mediated primarily by pleasantness (high or low levels, respectively) and were moderated by approach temperament and avoidance temperament, respectively. Approach temperament also moderated NA contagion.

These findings indicate that inspiration contagion cannot be reduced to contagion of emotion or affect. Insightfulness was distinctively implicated as a mediator of inspiration contagion, and openness was distinctively implicated as a moderator of inspiration contagion. Consistent with the epistemic function of inspiration, this mediator and moderator are cognitive in focus, whereas their counterparts for awe, PA, and NA are affective in focus. Evidence of distinct contagion processes is noteworthy given that awe and PA are closely related to inspiration, both theoretically and empirically (Thrash, Moldovan, Oleynick, et al., 2014).

Enthralling Effects of Inspiration

Moving beyond contagion, we found that writer inspiration predicted not only reader inspiration, but also two indicators of enthrallment: awe and chills. Enthrallment effects were positively mediated by insightfulness and sublimity and were negatively mediated by originality. (In addition, the pleasantness of inspired writing facilitated awe but undermined chills.) Thus, sublimity played a pivotal role in distinguishing the enthralling effects of writer inspiration from its inspiring effects—specifically, writer inspiration predicted sublimity, which, in turn, predicted awe and chills but not inspiration (see Figure 2A–C). Due to the additional positive indirect effect via sublimity, the effects of writer inspiration on reader awe ($r = .30$) and chills ($r = .24$) were stronger than the inspiration contagion effect ($r = .13$), significantly so in the case of reader awe.

These findings highlight the fact that reader inspiration is not the only consequence of writer inspiration and may not be its most

natural consequence. We emphasize that the function of inspiration is transmission (of ideas), not contagion (of inspiration). Contagion is merely one consequence of transmission by a writer, and enthrallment is another. Structural asymmetries in the writer–reader relation, particularly the reader’s relative passivity and less clearly specified avenues for action, may render enthrallment the more natural consequence. However, enthrallment states may themselves be viewed as incipient forms of inspiration that have the potential to become fully manifest following further contemplation of the inspired text.

Our inclusion of chills as an outcome is noteworthy given debates about the value of chills in pointing the way to truth and beauty in literature (Fish, 1970; Wimsatt & Beardsley, 1949) and to inspiration in the writer (Bowra, 1951; Lembke, 1973). Thus, it is striking that readers’ chills responses were predicted by both insightfulness and sublimity—which correspond roughly to truth and beauty (but see Burke, 1759, and Ishizu & Zeki, 2014, regarding the distinction between beauty and sublimity)—and were distinctively diagnostic of writer inspiration (see Table 8). These findings link deeply felt bodily responses of readers to a deeply felt motivation in writers, suggesting a resonance driven by a shared perception of what is true and sublime about the human experience.

Inspiration Versus Perspiration

Consistent with Valéry’s theorizing, poems written by writers who exerted more effort were more inspiring to the average reader. However, we note three caveats regarding this finding. First, the effect of effort on reader inspiration was (partially) mediated by low rather than high originality. Second, the effect of effort was not unique in the sense that all other writer states (inspiration, awe, PA, NA) also predicted reader inspiration. Third, effort was the only writer state that failed to predict any other reader states (awe, PA, NA, chills). These findings suggest that effortful processes do not play a central role in the generation of deeply affecting language.

In future theory and research, it may be useful to distinguish two roles of effort. In the case of *motivated effort*, one exerts oneself as an expression of an underlying motivational impetus such as inspiration. In the case of *volitional effort*, one exerts oneself through an act of willpower because motivational resources are lacking. Although both kinds of effort are important, neither is consistent with the suggestion that genius is 99% perspiration and 1% inspiration. In the case of motivated effort, the purported benefits of perspiration may be attributable to inspiration or other motivations that underlie it. In the case of volitional effort, it would be peculiar to suggest that a chronic preponderance of willpower (which is ego-depleting; Muraven, Tice, & Baumeister, 1998) over spontaneous inspiration (which is vitalizing; Thrash, Elliot, Maruskin, & Cassidy, 2010) is desirable, much less the mark of genius.

Broader Implications

Implications for the writer. Sadly, many students find writing to be a source of dread. Our diagnosis is as follows. Writing, like talking, is naturally a process of expression or articulation. However, many students understand this process in truncated

form, as an act of text generation, a creation of something from nothing. Exacerbating the problem, students are expected to be original and may be unaware that, as Collingwood (1938) and Barthes (1967) have argued, great writers draw heavily upon others’ work. Lacking inspiration, the student contrives a text through volitional effort. The result is a “brain-spun, invented work,” as Tolstoy (1897/2014) described it. “People are taught how to write a many-paged composition, without having anything they wish to say, on a theme about which they have never thought . . . This is taught in schools” (p. 135). Our finding that inspiration is infectious points to a solution: students could be encouraged to look for stimulation in the most inspired and insightful works in their field and beyond. The act of writing then presents itself as a natural vehicle for capturing ensuing insights and elaborating upon them. Such insights are valuable whether they are *revelatory* (i.e., they involve the discovery and unveiling of existing ideas that have been overlooked or underappreciated) or *creative* (i.e., they involve a novel and useful integration of existing ideas; see also Derrida, 2002). For students higher in openness, who are more tolerant of the novel and sublime, inspiration is likely to be maximized, we propose, by a literature search or reading list that is more integrative and cross-disciplinary.

A second implication for the student writer is that one’s level of inspiration while writing provides veridical feedback about the likely inspiration, awe, and chills of the average reader. This finding contradicts the presumption of some theorists that inspiration is merely subjective. For instance, Valéry (1958) stated, “The treasures [inspiration] illuminates in our own mind’s eye . . . are very far from having the same value in the eyes of others. *What is of value to us alone has no value*” (pp. 213–214). Valéry’s admirable concern about subjectivity is misplaced, because he implicates inspiration only by neglecting two kinds of base-rate information. Specifically, although it is true that inspired writing sometimes fails to inspire, (a) the fate of uninspired writing is worse, and (b) writing generated through other means (e.g., volitional effort) is also subject to falling flat, if not more so. The aspiring writer may also benefit from the knowledge that only readers high in openness are prone to contagion.

Implications for the self. In applying a general conceptualization of inspiration to writers and readers, we have implicitly identified the literary concept of *authorship* with the psychological concept of *selfhood*. We now develop a self-as-author metaphor more explicitly. First, both author and the self are implicated in writing—a text in one case and a life narrative in the other. Second, both encounter epistemic obstacles of existential significance. The author confronts a blank page, unsure what to say, and the self struggles with an unwritten future. Third, both have been celebrated as seats of an originating agency by some theorists (Deci & Ryan, 1985; Young, 1759/1918) and ridiculed as illusory by others, who instead emphasize deterministic effects of the stimulus environment (Barthes, 1967; Skinner, 1972). Finally, both find their voice when inspired (Bowra, 1951; Thrash & Elliot, 2004). During these elusive moments, determinism and agency are experienced as harmonized—inspiration is drawn (directly or indirectly) from the stimulus milieu, with the full endorsement of

and active collaboration by a vitalized author-self. The author-self, at last, speaks with authority and authenticity.¹³

We call for self and well-being researchers to attend to this emergent, mediating self, which is not purely *I* or *me*, nor purely agentic or communal—such bifurcations are serviceable in the realm of mundane experience but not in the realm of self-transcendence. Like Plato's poet and rhapsode, the individual who participates in the transcendent is in a mode of transmission—expressing, actualizing, or embodying (Thrash, Moldovan, Fuller, et al., 2014). As described by Nozick (1989), who used light as a metaphor for truth, beauty, goodness, and holiness, “The ethic of light calls for a being to be its vessel. To be a being of light is to be its transmitter” (p. 214). As long as psychologists neglect the mediating self and its embeddedness in transmission and contagion processes, they will misdiagnose the struggle to find one's voice as a case of, say, not working hard enough, not relating well enough to others, or not holding oneself in sufficiently high regard.

Implications for culture. Consistent with the self-as-author metaphor, inspiration contagion is posited to be broadly relevant across domains, rather than specific to the literary domain investigated herein. In the spiritual domain, for instance, the impulse to capture spiritual insight (revelation) in written form, coupled with a homologous impulse in readers to give voice to scriptural insights in their own lives, are arguably the cornerstones of the major world religions. Inspiration contagion is also applicable within the intellectual sphere, where the written text is the primary medium for transmitting insight in diverse academic fields. Even direct interpersonal contagion, which superficially has nothing to do with writing, may be viewed with greater fidelity through the self-as-author lens. Being inspired by another is not a result of encountering an individual of superlative virtue or standing, nor of social comparison with such individuals—this is the heteronomous realm of the *inspirational*, not the authentic realm of the *inspiring*. Rather, inspiration results from encountering another whose actions speak the things one had wanted to say but had not been prepared to say unaided.¹⁴

In addition to being broadly relevant, inspiration contagion is far-reaching in its implications, playing a role in both the origins and evolution of culture. Regarding origins, the literary processes examined herein have a primordial, oral-aural counterpart dating back at least to archaic Greece, in which wisdom was disseminated through the live performances of poets and rhapsodes (Clark, 1997; Nagy, 1989; Rubin, 1995). We propose further that cultural evolution (Henrich, 2001) is shaped by inspiration contagion processes, in which individuals high in openness—a trait that has also been called *culture*—are inspired to build upon one another's most insightful ideas, innovations, and ideologies. Thus our model brings attention to the motivational and personality dynamics of cultural evolution.

Limitations and Future Directions

Effect size. A critic might argue that the inspiration contagion effect ($r = .13$) is weak by traditional standards. However, traditional standards are not applicable to our paradigm because they do not take causal distance into consideration. Inspiration contagion is inherently indirect in a truly distal sense. We did not examine, say, mediators situated “between” the text and the reader, but rather examined the distal effects of the writer “behind” the text. In

addition, our paradigm is minimalistic relative to other contagion paradigms in that it concerns contagion of privately reported experiences (rather than of overt behavioral expressions) in entirely separate samples who never come into contact.

Moreover, for the following reasons, the impact of writer inspiration is greater than is suggested by the overall contagion effect. First, given inconsistent mediation, the overall contagion effect is necessarily less than the total absolute magnitude of the positive and negative effects of writer inspiration. Second, the contagion effect gauges impact for a single, average reader and therefore does not speak to total impact as multiplied across readers. Third, given moderation by reader openness, the contagion effect is stronger among open individuals—in whom contagion actually occurs—than it is on average. Finally, as noted, writer inspiration may lead more naturally to reader enthralment than inspiration, and therefore the stronger enthralment effects may provide a better indication of the impact of writer inspiration.

Generalizability. We expect our core findings to generalize beyond the particular writing domain, populations, study design, and cultural context investigated in this study, although additional research would be needed to test this prediction empirically. We have already discussed generalizability to spiritual and intellectual domains. We now consider generalizability to other populations, study designs, and cultural contexts.

A strength of this study is that writers (and their poems) and readers were modeled as crossed random factors, establishing generalizability from our student samples to the populations from which they were drawn. Although we expect our core findings to generalize from student populations to populations of experienced writers and their readership, some differences in findings may be anticipated. For instance, it is possible that writer effort would be more predictive of reader impact in a study of experienced writers, who have a fuller repertoire of skills that may be summoned at will. Because the inspiration-perspiration distinction is a false dichotomy, this possibility would not imply that inspiration is less valuable to experienced writers. On the contrary, this same repertoire of skills may allow experienced writers to translate inspired ideas into completed products with greater efficiency and fidelity. We caution that investigation of contagion with elite writers may call for a commensurate population of elite readers. Keltner (2009) reported that exposing college students to top-tier poetry left them confused rather than awestruck, apparently because they did not understand the poetry or found it irrelevant to their concerns.

Our experimental study design involved active assignment of readers to poems and their authors. A benefit of this design is that the resulting Writer \times Reader matrix had little missing data. A naturalistic design, in contrast, would likely yield a sparse matrix, because particular writer–reader pairings may not occur without experimenter intervention. This complication aside, we predict that contagion processes may be documented using a naturalistic design (see also Clark, 1997). Some important differences may be anticipated, however. In a naturalistic setting, readers have the freedom to selectively seek out preferred texts or genres. Our

¹³ The terms *author*, *authority*, and *authenticity* have common etymological roots.

¹⁴ We could not have articulated this point without the guiding voice of Collingwood (1938).

moderated mediation analyses suggest that if readers low in openness (see the left sides of Figures 7A–D) gravitate toward texts that are pleasant and insightful but not particularly novel or sublime—preventing the suppression of contagion that would otherwise occur—they too may participate in inspiration contagion processes. Thus, our model may explain the evolution not only of revelatory and creative aspects of culture, but also its more traditional and mainstream aspects.

We acknowledge cultural constraints on contagion processes. Although inspiration contagion is posited to occur in all cultures, cultural influences on perceptions of insightfulness are likely to constrain transcultural contagion. As an extreme example, it is possible that the propaganda of Al-Qaeda and ISIS terrorists (Sivek, 2013) is both inspired and inspiring, but contagion is likely to be limited to the population of readers sympathetic to Islamist extremism. The possibility that some ideas are inspiring regardless of culture awaits future research.

Causal inference. Our integrative writer–reader study design may be regarded as an experimental–correlational hybrid. As noted, readers were assigned to poem stimuli (as in a standard experiment); however, writers and poems were sampled and their attributes (writer states, poem characteristics) were measured (as in a standard correlational study) rather than varied through the direct control of an experimenter. Lack of direct experimental control compromises the isolation of causal factors, and therefore a strong causal interpretation of our documented contagion and enthrallment effects is not warranted. However, experimental control of writer states is not possible in principal, because experimental control applies to manipulated stimuli, not to resulting states, which are dependent variables (for details, see Thrash, Moldovan, Oleynick, et al., 2014).

Although experimental control of writer states is not possible, we controlled covariates statistically in ancillary analyses. We caution that controlling other writer states is a conservative strategy, as discussed in the Results section. In the following, we note two key findings from these analyses. First, regarding overall effects of writer states on reader states, the enthralling effects of writer inspiration remained significant, whereas contagion of most states (inspiration, awe, PA) and the effect of writer effort on reader inspiration became nonsignificant. These findings bolster our conclusion that, for the average reader, enthrallment may be a particularly important consequence of writer inspiration.

Second, regarding mediation, the hypothesized indirect effects remained significant in the cases of inspiration, PA, and NA contagion; however, in the case of awe contagion, the hypothesized indirect effect via sublimity became nonsignificant. Although this null finding raises questions about the role of sublimity as a mediator of awe contagion, it may be an artifact of controlling an additional mediator unwittingly. Specifically, we propose that awe contagion is mediated not only by sublimity but also by writer inspiration, as in the following sequence: writer awe → writer inspiration → poem sublimity → reader awe. This model introduces writer inspiration as a motivational intermediary (see also Adler, 2015), without which writer awe might not yield a text, much less an awe-inspiring one. We also note that this model is a straightforward extension of our enthrallment model. If this model is correct, then an indirect effect via sublimity would indeed be expected to become nonsignificant when writer inspiration is controlled, as in our ancillary analysis. However, firm conclusions

await future studies designed to examine the temporal precedence of awe and inspiration in the writer.

Conclusion

Previous research has demonstrated that inspiration is existentially exhilarating because the individual participates, as mediator, in the transmission of intrinsic value (Thrash, Elliot, et al., 2010; Thrash, Maruskin, et al., 2010). The present contagion and enthrallment findings situate the inspired individual in an even broader context of meaning. Our findings suggest that the inspired writer participates in the sweep of history, producing a text that is not just valuable but that enlightens, inspires, and raises the hairs on the arms of future generation of thinkers.

References

- Adler, N. J. (2015). Finding beauty in a fractured world: Art inspires leaders—Leaders change the world. *Academy of Management Review*, 40, 480–494. <http://dx.doi.org/10.5465/amr.2015.0044>
- Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.
- Asparouhov, T., & Muthén, B. (2009). Exploratory structural equation modeling. *Structural Equation Modeling*, 16, 397–438. <http://dx.doi.org/10.1080/1070510903008204>
- Asparouhov, T., & Muthén, B. (2010). *Bayesian analysis using Mplus: Technical implementation (version 3)*. Unpublished manuscript. Retrieved from <https://www.statmodel.com/download/Bayes3.pdf>
- Asparouhov, T., & Muthén, B. (in press). General random effect latent variable modeling: Random subjects, items, contexts, and parameters. *Advances in Multilevel Modeling for Educational Research: Addressing Practical Issues Found in Real-World Applications*.
- Barthes, R. (1967). *Death of the author*. *Aspen*, no. 5–6. Retrieved from <http://www.ubu.com/aspen/aspen5and6/threeEssays.html>
- Bennett, A. (2005). *The author: The new critical idiom*. New York, NY: Routledge.
- Bowra, C. M. (1951). *Inspiration and poetry*. New York, NY: Cambridge University Press.
- Burke, E. (1759). *A philosophical enquiry into the origin of our ideas of the sublime and beautiful*. New York, NY: Cambridge University Press.
- Clark, T. (1997). *The theory of inspiration: Composition as a crisis of subjectivity in romantic and post-romantic writing*. Manchester, UK: Manchester University Press.
- Collingwood, R. G. (1938). *The Principles of Art*. London, UK: Oxford University Press.
- Costa, P. T., & McCrae, R. R. (1992). *The Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum Press. <http://dx.doi.org/10.1007/978-1-4899-2271-7>
- Derrida, J. (2002). *Without alibi*. Stanford, CA: Stanford University Press.
- Elliot, A. J., & Thrash, T. M. (2010). Approach and avoidance temperament as basic dimensions of personality. *Journal of Personality*, 78, 865–906. <http://dx.doi.org/10.1111/j.1467-6494.2010.00636.x>
- Fehrman, C. (1980). *Poetic creation: Inspiration or craft*. Minneapolis, MN: University of Minnesota Press.
- Fish, S. E. (1970). Literature in the reader: Affective stylistics. *New Literary History*, 2, 123–162. <http://dx.doi.org/10.2307/468593>
- Geisler, N. L., & Nix, W. E. (1986). *A general introduction to the Bible* (2nd ed.). Chicago, IL: Moody Press.
- Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1993). Emotional contagion. *Current Directions in Psychological Science*, 2, 96–99. <http://dx.doi.org/10.1111/1467-8721.ep10770953>

- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Hayes, A. F. (2015). An index and test of linear moderated mediation. *Multivariate Behavioral Research*, *50*, 1–22. <http://dx.doi.org/10.1080/00273171.2014.962683>
- Henrich, J. (2001). Cultural transmission and the diffusion of innovations: Adoption dynamics indicate that biased cultural transmission is the predominate force in behavioral change. *American Anthropologist*, *103*, 992–1013. <http://dx.doi.org/10.1525/aa.2001.103.4.992>
- Hoffman, & Rovine. (2007). Multilevel models for the experimental psychologist: Foundations and illustrative examples. *Behavior Research Methods*, *39*, 101–117. <http://dx.doi.org/10.3758/BF03192848>
- Ishizu, T., & Zeki, S. (2014). A neurobiological enquiry into the origins of our experience of the sublime and beautiful. *Frontiers in Human Neuroscience*, *8*, 891. <http://dx.doi.org/10.3389/fnhum.2014.00891>
- Jones, S., Dodd, A., & Gruber, J. (2014). Development and validation of a new multidimensional measure of inspiration: Associations with risk for bipolar disorder. *PLoS ONE*, *9*, e91669.
- Judd, C. M., Westfall, J., & Kenny, D. A. (2012). Treating stimuli as a random factor in social psychology: A new and comprehensive solution to a pervasive but largely ignored problem. *Journal of Personality and Social Psychology*, *103*, 54–69. <http://dx.doi.org/10.1037/a0028347>
- Kant, I. (1960). *Observations on the feeling of the beautiful and the sublime*. Berkeley, CA: University of California Press. (Original work published 1764)
- Keltner, D. (2009). *Born to be good: The science of a meaningful life*. New York, NY: Norton.
- Keltner, D., & Haidt, J. (2003). Approaching awe, a moral, spiritual, and aesthetic emotion. *Cognition and Emotion*, *17*, 297–314. <http://dx.doi.org/10.1080/026999303022297>
- Kercher, K. (1992). Assessing subjective well-being in the old-old: The PANAS as a measure of orthogonal dimensions of positive and negative affect. *Research on Aging*, *14*, 141–168. <http://dx.doi.org/10.1177/0164027592142001>
- Konečni, V. J. (2008). Does music induce emotion? A theoretical and methodological analysis. *Psychology of Aesthetics, Creativity, and the Arts*, *2*, 115–129. <http://dx.doi.org/10.1037/1931-3896.2.2.115>
- Kramer, A. D., Guillory, J. E., & Hancock, J. T. (2014). Experimental evidence of massive-scale emotional contagion through social networks. *Proceedings of the National Academy of Sciences of the United States of America*, *111*, 8788–8790. <http://dx.doi.org/10.1073/pnas.1320040111>
- Laski, M. (1961). *Ecstasy in secular and religious experiences*. Los Angeles, CA: Tarcher, Inc.
- Lembke, J. (1973). *Bronze and iron: Old Latin poetry from its beginnings to 100 B. C.* Berkeley, CA: University of California Press.
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology*, *73*, 91–103. <http://dx.doi.org/10.1037/0022-3514.73.1.91>
- Longinus. (1890). *On the sublime*. New York, NY: Macmillan.
- MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science*, *1*, 173–181. <http://dx.doi.org/10.1023/A:1026595011371>
- Marsh, H. W., & Hau, K.-T. (2007). Applications of latent-variable models in educational psychology: The need for methodological-substantive synergies. *Contemporary Educational Psychology*, *32*, 151–171. <http://dx.doi.org/10.1016/j.cedpsych.2006.10.008>
- Martindale, C. (1989). Personality, situation, and creativity. In J. A. Glover, R. R. Ronning, & C. R. Reynolds (Eds.), *Handbook of creativity* (pp. 211–232). New York, NY: Plenum Press. http://dx.doi.org/10.1007/978-1-4757-5356-1_13
- Martindale, C. (2001). Oscillations and analogies. Thomas Young, MD, FRS, genius. *American Psychologist*, *56*, 342–345.
- Martindale, C., & Hasenpus, N. (1978). EEG differences as a function of creativity, stage of the creative process, and effort to be original. *Biological Psychology*, *6*, 157–167. [http://dx.doi.org/10.1016/0301-0511\(78\)90018-2](http://dx.doi.org/10.1016/0301-0511(78)90018-2)
- Maruskin, L. A., Thrash, T. M., & Elliot, A. J. (2012). The chills as a psychological construct: Content universe, factor structure, affective composition, elicitors, trait antecedents, and consequences. *Journal of Personality and Social Psychology*, *103*, 135–157. <http://dx.doi.org/10.1037/a0028117>
- McCrae, R. R., & Costa, P. T. (1997). Conceptions and correlates of openness to experience. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 825–847). San Diego, CA: Academic Press. <http://dx.doi.org/10.1016/B978-012134645-4/50032-9>
- Milyavskaya, M., Ianakieva, I., Foxen-Craft, E., Colantuoni, A., & Koenig, R. (2012). Inspired to get there: The effects of trait and goal inspiration on goal progress. *Personality and Individual Differences*, *52*, 56–60. <http://dx.doi.org/10.1016/j.paid.2011.08.031>
- Muraven, M., Tice, D. M., & Baumeister, R. F. (1998). Self-control as limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology*, *74*, 774–789. <http://dx.doi.org/10.1037/0022-3514.74.3.774>
- Muthén, B., & Asparouhov, T. (2012). Bayesian structural equation modeling: A more flexible representation of substantive theory. *Psychological Methods*, *17*, 313–335. <http://dx.doi.org/10.1037/a0026802>
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide (version 7)*. Los Angeles, CA: Author.
- Nagy, G. (1989). Early Greek views of poets and poetry. In G. A. Kennedy (Ed.), *The Cambridge history of literary criticism, Vol. 1, Classical criticism* (pp. 1–77). Cambridge, UK: Cambridge University Press. <http://dx.doi.org/10.1017/CHOL9780521300063.002>
- Nozick, R. (1989). *The examined life: Philosophical meditations*. New York, NY: Simon & Schuster.
- Oatley, K. (2003). Creative expression and communication of emotion in the visual and narrative arts. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of Affective Sciences* (pp. 481–502). New York, NY: Oxford University Press.
- Plato. (1936). Ion. In P. B. Shelley (Trans.), *Five dialogues of Plato*. New York: Dent.
- Poe, E. A. (1846). The philosophy of composition. *Graham's Magazine*, *28*, 163–167. Retrieved from <http://www.eapoe.org/works/essays/philcomp.htm>
- Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods*, *15*, 209–233. <http://dx.doi.org/10.1037/a0020141>
- Radel, R., Sarrazin, P., Legrain, P., & Wild, T. C. (2010). Social contagion of motivation between teacher and student: Analyzing underlying processes. *Journal of Educational Psychology*, *102*, 577–587. <http://dx.doi.org/10.1037/a0019051>
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Robinson, J. (2005). *Deeper than reason: Emotion and its role in literature, music, and art*. New York, NY: Oxford University Press. <http://dx.doi.org/10.1093/0199263655.001.0001>
- Roe, J., & Stanco, M. (2007). *Inspiration and technique: Ancient to modern views on beauty and art*. Oxford, UK: Peter Lang.
- Rubin, D. C. (1995). *Memory in oral traditions: The cognitive psychology of epic, ballads, and counting-out rhymes*. New York, NY: Oxford University Press.
- Sawyer, R. (2006). *Explaining creativity the science of human innovation*. New York, NY: Oxford.
- Shelley, P. B. (1977). A defense of poetry. In D. H. Reiman & S. B. Powers (Eds.), *Shelley's poetry and prose*. New York, NY: Norton.

- Shiota, M. N., Keltner, D., & John, O. P. (2006). Positive emotion dispositions differentially associated with Big Five personality and attachment style. *The Journal of Positive Psychology, 1*, 61–71. <http://dx.doi.org/10.1080/17439760500510833>
- Shiota, M. N., Keltner, D., & Mossman, A. (2007). The nature of awe: Elicitors, appraisals, and effects on self-concept. *Cognition and Emotion, 21*, 944–963. <http://dx.doi.org/10.1080/02699930600923668>
- Silvia, P. J., Fayn, K., Nusbaum, E. C., & Beaty, R. E. (in press). Openness to Experience and awe in response to nature and music: Personality and profound aesthetic experiences. *Psychology of Aesthetics, Creativity, and the Arts*.
- Silvia, P. J., & Nusbaum, E. C. (2011). On personality and piloerection: Individual differences in aesthetic chills and other unusual aesthetic experiences. *Psychology of Aesthetics, Creativity, and the Arts, 5*, 208–214. <http://dx.doi.org/10.1037/a0021914>
- Sivek, S. C. (2013). Packaging inspiration: Al Qaeda's digital magazine *Inspire* in the self-radicalization process. *International Journal of Communication, 7*, 584–606. Retrieved from <http://ijoc.org/ojs/index.php/ijoc/article/view/1670>
- Skinner, B. F. (Ed.). (1972). A lecture on "having" a poem. *Cumulative record* (3rd ed., pp. 345–355). New York, NY: Appleton-Century-Crofts.
- Thrash, T. M., & Elliot, A. J. (2003). Inspiration as a psychological construct. *Journal of Personality and Social Psychology, 84*, 871–889. <http://dx.doi.org/10.1037/0022-3514.84.4.871>
- Thrash, T. M., & Elliot, A. J. (2004). Inspiration: Core characteristics, component processes, antecedents, and function. *Journal of Personality and Social Psychology, 87*, 957–973. <http://dx.doi.org/10.1037/0022-3514.87.6.957>
- Thrash, T. M., Elliot, A. J., Maruskin, L. A., & Cassidy, S. E. (2010). Inspiration and the promotion of well-being: Tests of causality and mediation. *Journal of Personality and Social Psychology, 98*, 488–506. <http://dx.doi.org/10.1037/a0017906>
- Thrash, T. M., Maruskin, L. A., Cassidy, S. E., Fryer, J. W., & Ryan, R. M. (2010). Mediating between the muse and the masses: Inspiration and the actualization of creative ideas. *Journal of Personality and Social Psychology, 98*, 469–487. <http://dx.doi.org/10.1037/a0017907>
- Thrash, T. M., Moldovan, E., Fuller, A. F., & Dombrowski, J. T. (2014). Inspiration and the creative process. In J. C. Kaufman (Ed.), *Creativity and mental illness* (pp. 343–362). Cambridge, UK: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9781139128902.022>
- Thrash, T. M., Moldovan, E. G., Oleynick, V., & Maruskin, L. A. (2014). The psychology of inspiration. *Social and Personality Psychology Compass, 8*, 495–510. <http://dx.doi.org/10.1111/spc3.12127>
- Tolstoy, L. (2014). *What is art?* New York, NY: Bloomsbury Academic. (Original work published 1897)
- Valéry, P. (1958). Remarks on poetry. In D. Folliot (Trans.), *Collected works of Paul Valéry, Vol. 7, The art of poetry* (pp. 196–215). New York, NY: Pantheon Books.
- Valéry, P. (2007). Poetry and abstract thought. *The American Poetry Review, 36*, 61–66. Retrieved from <http://m.friendfeed-media.com/526799b134a9db2402a3ef922c11a65c29aa72c1>
- Wang, L., & Preacher, K. J. (2015). Moderated mediation analysis using Bayesian methods. *Structural Equation Modeling, 22*, 249–263. <http://dx.doi.org/10.1080/10705511.2014.935256>
- Watson, D., Wiese, D., Vaidya, J., & Tellegen, A. (1999). The two general activation systems of affect: Structural findings, evolutionary considerations, and psychobiological evidence. *Journal of Personality and Social Psychology, 76*, 820–838. <http://dx.doi.org/10.1037/0022-3514.76.5.820>
- Wimsatt, W. K., & Beardsley, M. C. (1946). The intentional fallacy. *The Sewanee Review, 54*, 468–488. Retrieved from <http://www.jstor.org/stable/27537676>
- Wimsatt, W. K., & Beardsley, M. C. (1949). The affective fallacy. *The Sewanee Review, 57*, 31–55. Retrieved from <http://www.jstor.org/stable/27537883>
- Young, E. (1918). *Conjectures on original composition*. Manchester, UK: Manchester University Press. (Original work published 1759)
- Yuan, Y., & MacKinnon, D. P. (2009). Bayesian mediation analysis. *Psychological Methods, 14*, 301–322. <http://dx.doi.org/10.1037/a0016972>

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