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When do Online Audiences Amplify Benefits of Self-Disclosure? The Role of Shared Experience and Anticipated Interactivity

Rachel F. Kornfield,
Northwestern University

Catalina L. Toma
University of Wisconsin-Madison

Abstract

As individuals increasingly write about their distressing experiences online, it is important to understand how perceived online audiences influence the effects of self-disclosure. In an experiment, participants wrote about recent breakups for online audiences purportedly varying in 1) whether they shared recent breakup experiences and 2) their ability to leave comments. Participants perceiving audiences with shared experience showed more cognitive processing in their writing and reported increased post-traumatic growth at follow-up than participants perceiving general audiences. Those anticipating comments wrote less about emotions than those who did not. Mechanisms accounting for the benefits of shared experience warrant further investigation.

Keywords

self-disclosure; identity shift; well-being; expressive writing; online support groups; interactivity; shared experiences

The expressive writing paradigm posits that individuals can improve their well-being through the simple act of writing about distressing experiences, such as illnesses, conflicts, or relationship problems (Pennebaker & Chung, 2011). Hundreds of experimental studies support this framework, finding that clinical and non-clinical populations obtain a range of benefits for weeks or months after writing, including improved psychological and physical health (Frattaroli, 2006). Scholars have proposed that, by focusing writers' attention on difficult events, expressive writing facilitates cognitive and emotional processing that individuals would otherwise inhibit (Greenberg & Lepore, 2004).

The original formulation of the expressive writing paradigm emphasized private or “diary” writing, reflecting the premise that privacy facilitates greater candor (Fratarolli, 2006). Yet, recent studies have extended the paradigm to consider possible benefits of writing for an audience. These studies have found that individuals who share their writing with others also

achieve benefits, sometimes exceeding those obtained in private writing (MacReady, Cheung, Kelly, & Wang, 2011; Radcliffe, Lumley, Kendall, Stevenson, & Beltran, 2010). Benefits are also sensitive to the perceived traits of audiences. One study found that those writing for a “warm” experimenter, relative to a “cold” one, showed more psychological growth (Rogers, Wilson, Gohm, & Merwin, 2007). Another found greater benefit for participants prompted to imagine an accepting confidant would read their writing, relative to those imagining a rejecting confidant (Rodriguez and Kelly, 2006). Thus, imagining particular audiences seems to impact the therapeutic processes underlying self-disclosure.

In the 21st century, Internet use has transformed the landscape of self-disclosure, allowing individuals to connect instantaneously to remote audiences of variable compositions. Online forums therefore constitute an ecologically valid setting for advancing our understanding of how perceived audiences impact self-disclosure. Individuals may write in online forums from comfortable and private locations and maintain anonymity, but disclosures are nevertheless *social*. As individuals sit down to write in online forums, they expect others to read and sometimes interact with their posts, and these mental representations of anticipated audiences may shape the writing process and its effects (Litt, 2012).

The present paper explores two qualities of audiences that vary across online forums: shared experience and interactivity. Scholars have proposed that a primary appeal of online disclosure is the potential to reach others who share understanding of one’s own challenges, as commonly occurs in online support forums (Rains & Wright, 2015). Furthermore, online disclosure venues may allow bi-directional communication, or interactivity, such that audiences can provide feedback or otherwise interact with posts. In the context of disclosure, interactivity holds appeal as a way to access social support (Ridings & Gefen, 2004; Chung, 2014). Yet effects of shared experience and interactivity may also occur *before* interaction takes place. For instance, perceiving shared experience may change how individuals orient themselves toward others (Walther et al., 2005), and anticipating future interaction may engage individuals more deeply with others’ perspectives (Honeycutt, Zagacki, & Edwards, 1990). In this study, we ask whether perceiving online audiences with or without shared experience, and who may or may not respond, changes the extent to which writers benefit from self-disclosure.

This project marries research on computer-mediated communication and expressive writing, offering contributions to both paradigms. For computer-mediated communication, we extend a body of research concerned with the effects of message composition, known as “self-effects” or “expression effects” (Valkenburg, 2017; Pingree, 2007). Work in this area shows that the simple act of posting online can enhance information processing and learning (Nekmat, 2012) and alter how people conceive their own identity (Gonzales & Hancock, 2008). Yet, despite the fact that perceived characteristics of online audiences might differ considerably from forum to forum, little research has examined how specific audience conceptions shape self-effects. We examine this question in the context of written self-disclosure, contributing to the expressive writing paradigm by testing perceived online audiences as a possible pathway to enhance therapeutic benefits.

Disclosure can help individuals facing an array of challenges. This study focuses on one common experience in the young people's lives that can be deeply disruptive: breakups of romantic relationships. Breakups often result in intrusive thoughts, depressed mood, and disrupted sense of identity (Field, Diego, Pelaez, Deeds, & Delgado, 2009; Slotter, Gardner, & Finkel, 2010). Yet, the outcomes of breakups are not strictly negative. Many young people eventually achieve psychological growth after breakups, including recognizing positive aspects of themselves and clarifying their future relationship goals (Tashiro & Frazier, 2003). As with other distressing events, disclosure can aid in recovery. One study found that undergraduates assigned to write about recent breakups (versus mundane topics) reported reduced respiratory symptoms, tension, and fatigue at follow-up (Lepore and Greenberg, 2002). Yet, how perceived online audiences could shape such effects is unknown. This study investigates how perceived online audiences may shape the benefits experienced two weeks after undergraduates disclose their breakups for an online audience.

The Expressive Writing Paradigm

In its most common iteration, "expressive writing" calls for participants to write privately about difficult events for 15 minutes a day over several days (Smyth & Pennebaker, 2008). In a meta-analysis of expressive writing studies, Fratarolli (2006) found that, after a period of weeks or months, these exercises produced small but reliable improvements in psychological outcomes (e.g., depression, anxiety) and physiological functioning (e.g., blood pressure).

Expressive writing is theorized to improve well-being via two routes: affective and cognitive processing. In the first route, expressive writing permits individuals to explore difficult emotions that they might otherwise suppress. Having expressed emotions, writers may become habituated to them, reducing their disruptiveness (e.g., Foa & Kozak, 1986). In the second route, expressive writing reformats troubling thoughts into language, allowing their integration with less troubling ones (Pennebaker & Chung, 2011). Finding connections between one's troubles and one's broader experience may inspire insights and more effective coping (Greenberg & Lepore, 2004). Importantly, both affective and cognitive processing can manifest in language used during disclosure, with studies showing enhanced benefits of disclosure for those using higher rates of words related to emotion or information processing (Pennebaker, Mayne, & Francis, 1997; Ullrich & Lutgendorf, 2002; Lee et al., 2016; Owen et al., 2005).

Affective and cognitive processing may be impacted when sharing with audiences. For instance, reaching sympathetic audiences may help disclosers realize social acceptance is possible (Rodriguez & Kelly, 2006; Radcliffe et al., 2010), and considering others' views may augment self-awareness or inspire new connections between ideas (Honeycutt, Edwards, & Zagacki, 1989; Seih, Chung, & Pennebaker, 2011). Thus, mentally engaging with audiences' perspectives represents a promising avenue for enhancing disclosure's benefits.

Online Audiences

In online communication, writers often lack objective information about those they are reaching, relying on imagination to form a working model of their audiences. Accordingly, in recent years, scholars have called for greater attention to “imagined audiences,” the mental representations of audiences that guide online interaction (Litt, 2012; Marwick & boyd, 2011). This work has focused largely on ways that individuals conceive of audiences reached via social network sites. For instance, those composing social media or blog content may alternate between imagining specific and indefinite audiences, and even “phantasmal” audiences who are not part of their actual network (Brake, 2012; Litt & Hargittai, 2016). Yet research has not examined the audience perceptions underlying online disclosure of distressing events, or how these perceptions might vary across disclosure forums.

When in public, individuals habitually monitor their social environments to understand how others perceive them (Burton & Dimbleby, 1995). The same principle applies online, but the technological features of online environments structure how Internet users perceive their communication partners (Baym & boyd, 2012). In the context of limited objective audience information, small design differences between online environments play an outsized role in shaping audience perceptions.

We focus on two features of online forums and that we theorize may alter users’ imagined audiences, impacting processes and outcomes of self-disclosure. First, we consider the extent to which forums purport to bring together audiences who share circumstance. Designers routinely make choices that emphasize or deemphasize shared experience between group members (Smithson et al., 2011). For instance, some forums may be joined by following a link from a search engine, enabling anyone with an Internet connection to join. Others require registration or limit entry to those vetted by medical providers or enrolled in formal studies, increasing shared experience.

Second, interactivity refers to the presence of feedback mechanisms through which audiences may (or may not) have opportunities to respond to content, including through recommendations (e.g. votes, ratings, shares, “likes”) or commentary (Walther et al., 2005). The level of anticipated interaction with audiences varies across websites (French & Bazarova, 2017). Some disclosure venues, like online support groups, are generally organized around mutual discourse, such that individuals may initiate discussions, receive responses, and respond to others. However, additional formats include blogs or “notes” where participants write for group members without extensive feedback (e.g., Chuang & Yang, 2014).

Perceived shared experience

Many online disclosure venues are designed around shared circumstances, reflecting that individuals view those sharing their experiences as especially qualified helpers (Helgeson & Gottlieb, 2000). Some experimental evidence supports this view, with manipulations typically involving assigning individuals to communicate with groups with shared (or divergent) characteristics. For instance, Lieberman and colleagues (2005) varied the composition of online Parkinson’s support groups to produce similar/dissimilar age and time

since diagnosis, finding that homogeneity produced more attraction and commitment to the groups, and greater well-being improvements. Centola (2011) created weight-loss groups in which members shared gender, age, and body mass index, or where these randomly varied, and found that homogenous groups produced more exercise initiation.

These studies show that similarity can affect participation and well-being, but remain unclear on whether benefits accrue from the *feedback* received from online audiences, or simply from *expressing oneself* to an audience perceived as sharing experience. In other words, prior work has confounded the effects of shared experience and interactivity.

To resolve this issue, the present study tests whether benefits of shared experience could manifest prior to receiving feedback. We propose that shared experience fosters affinity and normalization that may set the stage for productive self-disclosure – even before actual interaction – allowing individuals to engage in emotional and cognitive processing and supporting psychological growth. We posit the following hypotheses:

H1

Participants who believe their writing will be accessible to readers with shared experience will demonstrate more (a) emotional expression and (b) cognitive processing than those who believe their writing will be publicly available online.

H2

Participants who believe their writing will be accessible to readers with shared experience will demonstrate more psychological growth at follow-up than those who believe their writing will be publicly available online, and these effects will be mediated by (a) emotional expression and (b) cognitive processing.

Anticipated interactivity

While a number of studies have demonstrated that useful feedback can augment the well-being effects of self-disclosure (e.g., Lepore, Fernandez-Berrocal, Ragan, & Ramos, 2004), it remains unclear whether mere expectation of interactivity has effects prior to feedback delivery, through changing the way disclosers write and think about their experiences. In this study, we focus on anticipated interactivity, defined as the expectation of receiving comments that respond to one's writing.

Some prior research suggests that the possibility of future interaction may engage communicators and enhance processing. In face-to-face contexts, expectations of future interaction can manifest during an initial interaction in greater disclosure of biographical information (Calabrese, 1975), and better recall of conversations (Benoit & Benoit, 1994). Anticipating future interactions can also lead individuals to more clearly conceive the views of others (Honeycutt et al, 1990), and improve self-awareness or inspire novel connections between ideas (Berkos et al., 2001; Honeycutt et al., 1989). Individuals also relate positively to *online* partners when anticipating ongoing association, including reporting greater openness, rapport, and desire for relationship depth (Walther, 1994). While the effects of anticipated interactivity on expressive writing have not been tested, we could extend prior

findings to hypothesize that anticipating interactivity would prompt writers to disclose more, expend more effort in writing, and consider their experiences through others' eyes, ultimately inspiring psychological growth.

An alternative hypothesis, however, might hold that anticipating interactivity could negatively influence disclosure by distracting or inhibiting writers. For instance, Brake (2012) found that many bloggers enjoy the delayed and limited interactivity of blogging platforms, which allow them to project a welcoming reception without threat of disconfirmation. Thus, expecting interaction could increase concern for others' approval, potentially reducing candor. Given contrasting hypotheses, we pose the following research questions:

RQ1

Will participants who believe that online comments are enabled demonstrate more (a) emotional expression and (b) cognitive processing than those who believe online comments are disabled?

RQ2

Will participants who believe that comments are enabled demonstrate increased psychological growth at follow-up, relative to those who believe comments are disabled? Will this effect be mediated by (a) emotional expression and (b) cognitive processing?

Interaction Effects of Audience Similarity and Interactivity

One additional possibility is that anticipating interactivity could enhance or diminish therapeutic processes depending on qualities of the imagined audience. Specifically, since audiences with shared experiences might offer empathy or relevant information, anticipating interactivity from those with shared experience might allow writers to express more emotions and engage in cognitive processing, allowing for psychological growth. In contrast, given common experiences of incivility in anonymous forums (Rösner et al., 2016), expecting comments from general Internet users might lead to envisioning less beneficial interactions, reducing candor and impeding growth. We thus propose:

H3

When online disclosers expect comments from audiences with shared experiences, they will demonstrate more (a) emotional expression and (b) cognitive processing, relative to those who expect comments from general audiences.

H4

When online disclosers expect comments from audiences with shared experience, they will demonstrate increased psychological growth at follow-up, and these effects will be mediated by (a) emotional expression and (b) cognitive processing.

Methods

Participants

We recruited 255 undergraduate students from Communication courses at a large Midwestern university and granted extra credit for completing the two-part study, with sessions two weeks apart. We informed participants that the study would involve writing a journal entry about a breakup that occurred in the past year. Of those who completed the first session, 217 (85%) completed the second session. We later excluded two students who had not experienced a breakup in the specified timeframe, 18 who reconciled with their partners between study sessions, and 22 who could not demonstrate comprehension of the written instructions in our manipulation checks (see below). This resulted in an effective sample size of $N = 175$ (age $M = 19.9$ years, $SD = 1.44$; 80.6% women; 78.3% white, 17.1% Asian, and 4.6% of another race). Participants' breakups occurred an average of 5.8 months ($SD = 3.60$) before starting the study. Upon review, all journal entries focused on the assigned topic of a breakup.

Procedure

Both study sessions took place online. Students were instructed to participate from a quiet location where they would not be disturbed, using their personal computers. During the first session, participants completed a questionnaire including demographics, breakup details, and post-traumatic growth. Next, participants wrote for at least 20 minutes using the following prompt (adapted from Lepore & Greenberg, 2002): "Really let go and write about your very deepest thoughts and feelings about this breakup and how this breakup affected you and your life when it happened, or the effect of the breakup on your life in the present." Participants were advised that they were contributing content for a new "journaling website" that the researchers were developing, and that the website would "go live" soon, once additional content was solicited, creating the expectation that individuals' writing would be available to online audiences. Participants were told they would have an opportunity to test the website and provide feedback during the second study session. They were asked to omit personally identifying information from their journals.

In a two-by-two design, study conditions varied the stated audience of the website. In the "shared experience" condition, instructions stated that the website would limit access to those who had gone through recent breakups ("Access to this website will be restricted only to other individuals who, just like you, have recently gone through breakups").¹ In the "public" condition, instructions advised that the website would be freely available ("It will be accessible to anybody with an Internet connection. This includes individuals from all walks of life and from all over the world"). In the interactivity manipulation, instructions stated that readers' ability to comment on journal entries was either enabled ("The audience will be able to read your journal entry as well as post comments to it") or disabled ("The

¹Participants were told that they would eventually access the journaling website, thus acting as an audience to others who had contributed content. As an extension of this, participants likely inferred that their own audiences would include others recruited via research opportunities in college classes. Informal interviews with several participants during debriefing revealed that those in the shared experience condition expected their audiences to comprise other participants who had also reported a breakup in the past year to qualify for the study.

audience will be able to read your journal entry; however, comments are disabled. Therefore, nobody will be able to respond to you”). Subsequent to 20 minutes on the writing page, participants were invited to submit their entry.

Two weeks after completing session one, participants were emailed a link to session two, during which post-traumatic growth was again assessed. They were debriefed and informed that the journaling website was fictitious and that their writing was not posted online.

Measures

To assess emotional expression and cognitive processing, participants' writing was subject to analysis via the 2015 Linguistic Inquiry and Word Count program (LIWC), which counts the frequency of words in a text falling within theoretically derived psychological and linguistic categories (Pennebaker, Booth, Boyd, & Francis, 2015). LIWC includes internal dictionaries for approximately 90 categories, including parts of speech (e.g., articles, nouns), psychological processes (e.g., affect, cognition), and personal concerns (e.g., work, religion). Running each journal entry through LIWC produced an output with the *percentage* of total words within that entry in each category. For example, a 200-word entry containing 15 “affect” words would receive a score of 7.5 for that category.

Our hypotheses and research questions focus on two LIWC categories representing our constructs of interest: affective and cognitive processing. “Affect” captures words associated with negative and positive emotions (e.g., “happy,” “ugly,” “bitter”). “Cognitive processing,” captures words asserting relationships between concepts or objects, differentiating what does or does not belong within a category, and expressing knowledge and insight (e.g., “cause,” “know,” “ought”). Participants used a mean of 16.18% cognitive processing words ($SD = 2.81$; range: 9.53% – 25.00%) and 6.14% affective words ($SD = 1.49$; range: 2.84% – 11.36%).

Our dependent variable, psychological growth, was measured with the 10-item short form of the Post-Traumatic Growth Inventory (Cann et al., 2010). On a 7-point Likert-type scale, participants evaluated their agreement with items describing positive changes after their breakups (e.g., “I established a new path for my life”). Scale items were averaged for session one ($M = 3.8$; $SD = 1.44$; Cronbach's $\alpha = 0.89$) and session two ($M = 3.9$; $SD = 1.46$; Cronbach's $\alpha = 0.90$).

Variables that may be associated with self-disclosure and/or breakup recovery, as indicated by prior research, were treated as control variables; these include: 1) age, because younger people may disclose more online (Kim & Dindia, 2011); 2) gender, because women may also disclose more, particularly about relationships (Consedine, Sabag-Cohen, Krivoshekova, 2007); 3) relationship length ($M = 15.78$ months, $SD = 13.15$), because the breakup of longer relationships may produce more distress (Simpson, 1987); 4) infidelity, a binary variable coded as “yes” if participants reported infidelity in the relationship (64% reported their partner was faithful, 10.9% reported their partner was not, 18.3% reported they were not sure, and 6.9% reported the relationship was not-exclusive; 85% reported they themselves were faithful and 7.4% reported they were not); 5) *initiator status*, which assessed whether the participant's partner had initiated the breakup (44% of participants

reported having initiated their breakups; 33.7% reported that their partner had, and 22.3% reported a mutual initiation); and 6) breakup distress, six items measured on a 7 Likert-type scale adopted from Marshall (2012) (e.g., “How heartbroken are you when you think about the breakup?”; $M = 3.61$; $SD = 1.47$; Cronbach’s $\alpha = 0.88$). When including these covariates, our goal was to isolate effects of our experimental manipulations from effects of other variables that may impact post-breakup recovery.

After reading the instructions and website descriptions but prior to commencing writing, participants responded to two multiple choice manipulation checks: 1) “who will be able to read your anonymous journal?” (“Only those who have gone through a recent breakup,” “Anyone with an internet connection,” “Only participants in a separate study of language processing,” or “Only the study investigator”), and 2) “Does the website allow people to respond to your journal by submitting comments?” (“Yes” or “No”). Responses were recorded as correct or incorrect relative to participants’ assigned conditions. For the shared experience manipulation check, 97.5% responded correctly, $\chi^2(1,197) = 177.53$ $p < .001$. For the interactivity manipulation check, 90.4% responded correctly, $\chi^2(1,197) = 139.41$, $p < .001$. The 22 participants who responded incorrectly to one or more of these questions were removed from analyses.

Results

Participants spent an average of 22.6 minutes writing journal entries comprising an average of 673.89 words ($SD = 319.23$). They imagined a wide range of audience sizes, with the average being 85 and the median being 10. Those in the interactivity condition expected 5 comments on average.

We used two-way analyses of covariance (ANCOVA) to examine the effects of website features (shared experience, interactivity) on the dependent variables (affective language, cognitive processing language, post-traumatic growth at follow-up), while controlling the covariates above and baseline post-traumatic growth.² We used the PROCESS macro for SPSS (Hayes, 2012) to assess proposed mediation models, with 10,000 bootstrap samples. Table 1 presents ANCOVA results and Table 2 presents means for each condition.

Our first hypotheses concerned the effects of perceiving audiences’ shared experience, predicting it would increase affective expression (H1a), cognitive processing (H1b), and post-traumatic growth at follow-up (H2). Contrary to H1a, we found no main effect of shared experience on affective language $F(1,164) = 0.42$, $p = .52$, $\eta^2 p = 0.00$. Consistent with H1b, a main effect of shared experience on cognitive processing emerged, $F(1,164) = 4.85$, $p = .03$, $\eta^2 p = 0.03$, such that participants who perceived audiences to share experience used more cognitive processing language ($M = 16.6$; $SD = 2.85$) than those who did not ($M = 15.76$; $SD = 3.00$). Consistent with H2, a main effect of shared experience on post-traumatic growth emerged, $F(1,164) = 4.12$, $p = 0.04$, $\eta^2 p = 0.03$, with participants who

²We also examined effects of our manipulations while excluding these covariates, which yielded similar, albeit slightly weaker effects. In the ANOVA model predicting affective processing, we observed a significant effect of interactivity, $F(1,171) = 3.99$, $p = .05$, $\eta^2 p = 0.02$. In the model predicting cognitive processing, we observed a significant effect of shared experience, $F(1,171) = 3.78$, $p < .05$, $\eta^2 p = 0.02$. We finally conducted ANCOVA for the PTGI outcome, controlling only baseline PTGI, which revealed a significant effect of shared experience, $F(1,170) = 4.04$, $p < .05$, $\eta^2 p = 0.02$.

perceived shared experience reporting more growth ($M = 4.06$; $SD = 1.47$) than those who did not ($M = 3.75$; $SD = 1.44$). However, the effect of shared experience on post-traumatic growth was not mediated by cognitive processing language, indirect effect: $M(SE) = -0.01$ (0.03); 95% BCa $CI = -0.08, 0.04$. See Appendix A for mediation results.

With regard to anticipated interactivity, we asked whether it would increase affective expression (RQ1a), cognitive processing (RQ1b), and post-traumatic growth at follow-up (RQ2). A significant main effect of interactivity emerged on affective language, $F(1,164) = 4.84, p = .03, \eta^2 p = 0.03$, suggesting that participants who expected comments wrote less about affect ($M = 5.93, SD = 1.35$) than those who did not expect comments ($M = 6.38, SD = 1.60$). There was no main effect of interactivity on cognitive processing language, $F(1,164) = 0.44, p = .51, \eta^2 p = 0.00$, or post-traumatic growth, $F(1,164) = 0.49, p = .49, \eta^2 p = 0.00$, and no significant indirect effect on post-traumatic growth via affective language: $M(SE) = 0.05$ (0.03); 95% BCa $CI = -0.01, 0.13$.

Our final hypotheses concerned the interaction of the audience's shared experience and interactivity. There was no interaction effect on affective language (H3a), $F(1,164) = 1.31, p = .25, \eta^2 p = 0.01$, no interaction effect on cognitive processing language (H3b), $F(1,164) = 0.04, p = .84, \eta^2 p = 0.00$, and no interaction effect on post-traumatic growth (H4), $F(1,164) = 0.76, p = .39, \eta^2 p = 0.01$. We additionally conducted planned contrasts between our hypothesized "optimal" condition (interactive audience with shared experience) and the reference condition (non-interactive general audience), revealing a marginally significant difference in the non-hypothesized direction for affective language ($p = .05$), no significant difference for cognitive processing ($p = .28$), and a marginally significant difference in the hypothesized direction for the post-traumatic growth dependent variable ($p = .06$). Planned contrasts comparing the "optimal" condition and the combination of the three remaining conditions did not reveal significant differences for our dependent variables. In sum, while shared experience had main effects on cognitive processing and post-traumatic growth, and interactivity had a main effect on affective processing, our manipulations did not produce the "joint effect" wherein benefits would be heightened by an audience perceived as both interactive and sharing experience. Given that the interaction was not related to either the proposed mediators or the dependent variable, we did not test the mediation model proposed in H4.

As for covariates, cognitive processing was positively associated with infidelity ($p = .04$), and post-traumatic growth at time two was positively associated with baseline post-traumatic growth ($p < .001$) and relationship length ($p = .04$).

Discussion

This study considered how the process and outcome of expressive writing might be impacted by perceptions of online audiences. We focused on two characteristics of this perceived audience: whether audience members shared the experience of the writer (in this case, a recent breakup), and whether they could interact with the writer via commenting. The results show that audience perceptions affected how writers expressed themselves and the psychological growth they achieved. Relative to writers who believed commenting was

disabled, those who anticipated interactivity expressed less emotion in their writing but did not alter their linguistic markers of cognitive processing or report greater psychological growth. Relative to those who imagined general audiences, writers who imagined audiences with shared experience used more language indicative of cognitive processing and reported more psychological growth but did not exhibit shifts in affective language. Contrary to predictions, well-being benefits of imagining audiences' shared experience occurred independently of the increased use of cognitive processing words. We also did not find expected interaction effects between perceived shared experience and anticipated interactivity; that is, writers expecting comments from audiences with shared experiences did not show benefits compared to those in other conditions. These findings advance our understanding of the mechanisms behind expressive writing, clarify how well-being benefits accrue in online disclosure, and have practical implications for the design of online forums.

Our findings suggest directions for theoretical advancement within the expressive writing paradigm. Scholars working within this paradigm have proposed a range of mediating processes by which writers obtain benefits, including cognitive and emotional processing. Although perceiving shared experience increased both cognitive processing language and post-traumatic growth, we did not find support for mediation. It is possible that unmeasured mechanisms account for participants' greater psychological growth in the shared experience condition. For instance, some accounts of self-disclosure writing propose that self-perception changes occur by seeing oneself as more open and honest via the act of disclosure (Pingree, 2007). These effects might be amplified by the presence of an audience, consistent with Cooley's (1902) notion of the "looking-glass self," wherein individuals imagine how others view them in social interactions and come to see themselves in accordance. Thus, viewing oneself through the eyes of sympathetic others may spur positive self-evaluations in order to promote growth.

It is also possible that the mechanisms underlying psychological growth might not be evident in writing because they manifest *after* disclosure, as individuals continue to reflect on their experience. Such a sequence would be consistent with one prior study where investigators instructed participants to imagine sympathetic (versus unsympathetic) readers either before or after expressive writing; results suggested comparable effects regardless of when audiences were introduced (Rodriguez and Kelly, 2006). This is consistent with research on "imagined interactions" suggesting that individuals regularly envision past, future, and hypothetical interactions with others (Honeycutt et al., 1990), including those reached online (French and Bazarova, 2017). Likewise, online disclosure could prompt *ongoing* imagined interactions that achieve impact over time.

Our findings also have implications for understanding the ways online disclosure venues function. While research has documented benefits of participating in online support forums (Rains & Wright, 2015), a number of factors could contribute. Many accounts emphasize feedback received after self-disclosure, through which commenters deliver social support and build bonds (e.g., Chung, 2014). One of the innovations of our study lies in documenting effects *prior* to any such interaction, with the act of writing with a certain audience in mind apparently setting in motion psychological growth. Prior research has similarly identified potential for "identity shift" through online self-presentation, wherein

presenting a trait to an online audience (e.g., extraversion or introversion) led to greater internalization of that trait than private expression (Gonzales & Hancock, 2008). This study extends the “self-effects” paradigm to online disclosure venues, suggesting potential to impact writers’ psychological growth by emphasizing shared experience.

Our results suggest practical implications for the design of online forums. In particular, our findings reinforce the logic behind a common decision to emphasize shared circumstances in online groups. Further, we found that benefits of perceiving shared experience preceded actual feedback. This suggests that, without altering actual group composition, designers might enhance therapeutic self-disclosure simply by highlighting shared experience before or during the act of writing (e.g., a reminder that group members have experiences “just like yours”). Broadly, to the extent that online forums can make audience characteristics like shared experience salient, they might amplify the positive benefits of writing. On the other hand, anticipated interactivity had no effect on psychological growth, and it suppressed emotional expression, perhaps because writers felt their disclosures would be subject to criticism. In order to facilitate emotional processing, it may be worth considering whether support forums should deemphasize or even deactivate audiences’ abilities to comment in some contexts.

Future Directions and Limitations

This study has implications for future research. First, as mentioned above, future studies may investigate the mechanisms by which audiences affect disclosure outcomes. Some mechanisms may be apparent in writing exercises, when using a more focused content analysis approach than we employed, such as hand coding for positive self-evaluations or reappraisal of negative thoughts. Second, future work may seek to identify an optimal level of perceived shared experience. The imagined audiences in our study presumably included individuals who initiated breakups themselves as well as those whose former partners did; thus, it might be possible to further increase perceived shared experience by creating groups bounded by initiator status or other characteristics (gender, age, etc.). Third, it is important to understand how the effects of anticipated interactivity set the stage for the actual provision of feedback. In real world disclosure contexts, individuals’ expectations of feedback may be met, frustrated, or exceeded by actual comments received (Carr & Hayes, 2017). Finally, there may be additional relevant disclosure outcomes. Indeed, post-traumatic growth has been proposed to involve multiple factors (e.g., relating to others, personal strength, etc.), and these may be affected in different ways by perceived audiences. Work seeking to distinguish these factors should use the longer-form post-traumatic growth inventory (Cann et al., 2009).

Audience perceptions also likely reflect individuals’ traits. The relative influence of individual differences and forum design is unclear. For instance, writers with high self-esteem might project an accepting audience in most circumstances, whereas those with lower self-esteem might project a critical audience. The extent to which writers respond positively to audiences’ shared experience may also reflect whether the characteristic shared with the audience has personal relevance. For instance, some individuals see themselves as perpetually “unlucky in love,” whereas others do not connect a breakup to an enduring

personal characteristic. Other challenges, such as stigmatized issues, may also magnify the importance of shared experience due to the need for normalization and acceptance. Future work should examine these and other potential moderators of audience effects.

This study has limitations. Importantly, we relied on written instructions to convey the features of the supposed journaling website, yet individuals who disclose online typically interact with a user interface before contributing, likely reading others' posts and replies to these posts (if applicable). To enhance ecological validity, future studies should design actual online forums where participants can post their writing. In addition, perhaps contributing to the small effect sizes, our manipulations of shared experience might have been weak. In the general audience condition, participants might have believed that anyone with an Internet connection *could* read their writing but might have nonetheless expected that only those interested in breakups would bother to do so. In the shared experience condition, participants may not have expected that the website could realistically exclude participants who had not had a breakup in the specified timeframe. Feedback from participants suggested that they accepted the credibility of the website but assumed the similar audience condition would involve other students participating for course credit. Thus, students were aware that establishing a recent breakup relied on self-report. It is important to note that participants were prompted to leave the researchers feedback subsequent to debriefing, and while students did not indicate suspicion about the deception, suspiciousness could be better assessed via funneled debriefing.

Additional limitations emerge in adapting expressive writing to an online context. First, studies of expressive writing recruit individuals willing to write about their distressing experiences, which may introduce selection bias. Second, effects of audience perceptions are likely more robust if participants write over multiple sessions and are followed beyond two weeks, as generally occurs in expressive writing studies. Given that we deceived writers about the existence of the journaling website, we opted for one writing session and one follow-up assessment, as participants might otherwise expect to eventually see their writing appear online. The fact that we found effects in spite of these limitations is promising. Finally, we did not compare effects of online sharing to those effects obtained in private writing. Thus, it is unclear if those who do *not* share their writing would benefit more or less than those perceiving particular online audiences.

Conclusions

While disclosing challenging experiences increasingly occurs online, the extent to which perceiving online audiences enhances processing of these experiences is not well understood. This study suggests that manipulating design elements of online disclosure venues may influence disclosure and its effects. Specifically, our findings suggest that individuals may achieve greater psychological growth after a breakup simply by addressing their online writing to audiences who they perceive to share their experiences. The mechanisms accounting for these benefits warrant further investigation. It is also worth considering how other design features of online communication environments might be manipulated to change audience perceptions in ways that encourage therapeutic processing.

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APPENDIX A

Table A1

Mediation Model Testing the Indirect Effect of Shared Experience (X) on Post-traumatic Growth (Y) via Cognitive Processing Language (M)

Sample Size = 175

Number of Bootstrap Resamples = 10,000

Direct and Total Effects	<i>b</i>	<i>SE</i>	<i>T</i>
Total effect of X on Y	-0.32	0.15	-0.04*
Effect of X on M	-0.95	0.43	-2.22*
Effect of M on Y (controlling X)	0.02	0.03	0.55
Effect of X on Y (controlling M)	-0.30	0.15	-2.0

Bootstrap Results for Indirect Effect	<i>mean</i>	<i>SE</i>	95% BCa CI
Indirect effects through M	-0.01	0.03	{-0.08, 0.04}

Note. The assessed mediation model controlled the following covariates: Age, Gender, Relationship Length, Partner Initiated, Infidelity, Baseline Distress, and Baseline PTGI

* $p < .05$

** $p < .01$

*** $p < .001$.

Table A2

Mediation Model Testing the Indirect Effect of Anticipated Interactivity (X) on Post-traumatic Growth (Y) via Affective Language (M)

Sample Size = 175

Number of Bootstrap Resamples = 10,000

Direct and Total Effects	<i>b</i>	<i>SE</i>	<i>t</i>
Total effect of X on Y	-0.10	0.15	-0.65
Effect of X on M	0.49	0.22	2.20*
Effect of M on Y (controlling X)	0.10	0.05	1.90
Effect of X on Y (controlling M)	-0.15	0.15	-0.96

Bootstrap Results for Indirect Effect	<i>mean</i>	<i>SE</i>	95% BCa CI
Indirect effects through M	0.05	0.03	{-0.01, 0.13}

Note. The assessed mediation model controlled the following covariates: Age, Gender, Relationship Length, Partner Initiated, Infidelity, Baseline Distress, and Baseline PTGI

* $p < .05$

** $p < .01$

*** $p < .001$.

Biography

Catalina Toma is Associate Professor of Communication Science in the Department of Communication Arts at the University of Wisconsin-Madison. Her research is concerned with how people understand and relate to one another when interacting via new communication technologies. She focuses on relational processes such as self-presentation, impression formation, deception, trust, and psychological well-being.

Rachel Kornfield (Ph.D. University of Wisconsin-Madison) is a Post-doctoral Research Fellow at Northwestern University. Her research interests center on understanding how emerging communication technologies can facilitate therapeutic self-disclosure and enhance social support delivery to improve mental health and well-being.

References

- Baym NK, & boyd d. (2012). Socially Mediated Publicness: An Introduction. *Journal of Broadcasting & Electronic Media*, 56(3), 320–329.
- Benoit PJ, & Benoit WL (1994). Anticipated future interaction and conversational memory using participants and observers. *Communication Quarterly*, 42(3), 274–286.
- Berkos KM, Allen TH, Kearney P, & Plax TG (2001). When norms are violated: Imagined interactions as processing and coping mechanisms. *Communication Monographs*, 68(3), 289–300.
- Brake DR (2012). Who do they think they're talking to? Framings of the audience by social media users. *International Journal of Communication*, 6(0), 21.
- Burton G, & Dimbleby R (1995). *Between ourselves*. London: Arnold.
- Calabrese RJ (1975). The effects of privacy and probability of future interaction on initial interaction patterns. Unpublished doctoral dissertation, Northwestern University.
- Cann A, Calhoun LG, Tedeschi RG, Taku K, Vishnevsky T, Triplett KN, & Danhauer SC (2010). A short form of the Posttraumatic Growth Inventory. *Anxiety, Stress, & Coping*, 23(2), 127–137.
- Carr CT, & Hayes RA (2017). Identity Shift Effects of Self-Presentation and Confirmatory and Disconfirmatory Feedback on Self-Perceptions of Brand Identification. *Media Psychology*, 1–27.
- Centola D (2011). An Experimental Study of Homophily in the Adoption of Health Behavior. *Science*, 334(6060), 1269–1272. [PubMed: 22144624]
- Chung JE (2014). Social networking in online support groups for health: how online social networking benefits patients. *Journal of health communication*, 19(6), 639–659. [PubMed: 23557148]
- Chuang KY, & Yang CC (2014). Informational support exchanges using different computer-mediated communication formats in a social media alcoholism community. *Journal of the Association for Information Science and Technology*, 65(1), 37–52.
- Consedine NS, Sabag-Cohen S, & Krivoshekova YS (2007). Ethnic, gender, and socioeconomic differences in young adults' self-disclosure: Who discloses what and to whom? *Cultural Diversity and Ethnic Minority Psychology*, 13(3), 254–263. [PubMed: 17638483]
- Cooley CH (1902). *Human Nature and the Social Order*. New York: Scribner's.
- Field T, Diego M, Pelaez M, Deeds O, & Delgado J (2009). Breakup distress in university students. *Adolescence*, 44(176), 705–727. [PubMed: 20432597]
- Foa EB, & Kozak MJ (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, 99(1), 20. [PubMed: 2871574]
- Frattaroli J (2006). Experimental disclosure and its moderators: A meta-analysis. *Psychological Bulletin*, 132(6), 823–865. [PubMed: 17073523]
- French M, & Bazarova NN (2017). Is anybody out there?: Understanding masspersonal communication through expectations for response across social media platforms. *Journal of Computer-Mediated Communication*, 22(6), 303–319.

- Gonzales AL, & Hancock JT (2008). Identity shift in computer-mediated environments. *Media Psychology*, 11(2), 167–185.
- Greenberg MA, & Lepore SJ (2004). Theoretical mechanisms involved in disclosure: From inhibition to self-regulation. *Emotional expression and health: Advances in theory, assessment and clinical applications*, 43–60.
- Hayes AF (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.
- Helgeson VS, & Gottlieb BH (2000). Support groups. *Social Support Measurement and Intervention: A Guide for Health and Social Scientists*, 221–245.
- Honeycutt JM, Edwards R, & Zagacki KS (1989). Using Imagined Interaction Features to Predict Measures of Self-Awareness: Loneliness, Locus of Control, Self-Dominance, and Emotional Intensity. *Imagination, Cognition and Personality*, 9(1), 17–31.
- Honeycutt JM, Zagacki KS, & Edwards R (1990). Imagined interaction and interpersonal communication. *Communication Reports*, 3(1), 1–8.
- Kim J, & Dindia K (2011). Online self-disclosure: A review of research. *Computer-mediated communication in personal relationships*, 156–180.
- Lepore SJ, Fernandez-Berrocal P, Ragan J, & Ramos N (2004). It's not that bad: Social challenges to emotional disclosure enhance adjustment to stress. *Anxiety, Stress & Coping*, 17(4), 341–361.
- Lepore SJ, & Greenberg MA (2002). Mending Broken Hearts: Effects of Expressive Writing on Mood, Cognitive Processing, Social Adjustment and Health Following a Relationship Breakup. *Psychology & Health*, 17(5), 547–560.
- Lee SW, Kim I, Yoo J, Park S, Jeong B, & Cha M (2016). Insights from an expressive writing intervention on Facebook to help alleviate depressive symptoms. *Computers in Human Behavior*, 62, 613–619.
- Lieberman MA, Wizlenberg A, Golant M, & Di Minno M (2005). The impact of group composition on Internet support groups: Homogeneous versus heterogeneous Parkinson's groups. *Group Dynamics: Theory, Research, and Practice*, 9(4), 239.
- Litt E (2012). Knock, Knock. Who's There? The Imagined Audience. *Journal of Broadcasting & Electronic Media*, 56(3), 330–345.
- Litt E, & Hargittai E (2016). The Imagined Audience on Social Network Sites. *Social Media + Society*, 2(1).
- MacReady DE, Cheung RM, Kelly AE, & Wang L (2011). Can Public Versus Private Disclosure Cause Greater Psychological Symptom Reduction? *Journal of Social and Clinical Psychology*, 30(10), 1015–1042.
- Marshall TC (2012). Facebook Surveillance of Former Romantic Partners: Associations with Post-Breakup Recovery and Personal Growth. *Cyberpsychology, Behavior and Social Networking*, 15(10), 521–526.
- Marwick AE, & boyd d. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society*, 13(1), 114–133.
- Nekmat E (2012). Message Expression Effects in Online Social Communication. *Journal of Broadcasting & Electronic Media*, 56(2), 203–224.
- Owen JE, Klapow JC, Roth DL, Shuster JL, Bellis J, Meredith R, & Tucker DC (2005). Randomized pilot of a self-guided internet coping group for women with early-stage breast cancer. *Annals of Behavioral Medicine*, 30(1), 54–64. [PubMed: 16097906]
- Pennebaker JW, Booth RJ, Boyd RL, & Francis ME (2015). Linguistic Inquiry and Word Count: LIWC 2015 [Computer software]. Pennebaker Conglomerates.
- Pennebaker JW, & Chung CK (2011). Expressive writing: Connections to physical and mental health. *Oxford handbook of health psychology*, 417–437.
- Pennebaker JW, Mayne TJ, & Francis ME (1997). Linguistic predictors of adaptive bereavement. *Journal of personality and social psychology*, 72(4), 863. [PubMed: 9108699]
- Pingree RJ (2007). How Messages Affect Their Senders: A More General Model of Message Effects and Implications for Deliberation. *Communication Theory*, 17(4), 439–461.

- Radcliffe AM, Lumley MA, Kendall J, Stevenson JK, & Beltran J (2007). Written emotional disclosure: Testing whether social disclosure matters. *Journal of Social and Clinical Psychology*, 26(3), 362–384.
- Rains SA, & Wright KB (2015). Social Support and Computer-Mediated Communication: A State-of-the-Art Review and Agenda for Future Research. *Annals of the International Communication Association*, 40(1), 175–211.
- Ridings CM, & Gefen D (2004). Virtual community attraction: Why people hang out online. *Journal of Computer-mediated communication*, 10(1).
- Rodriguez RR, & Kelly AE (2006). Health Effects of Disclosing Secrets to Imagined Accepting Versus Nonaccepting Confidants. *Journal of Social and Clinical Psychology*, 25(9), 1023–1047.
- Rogers LJ, Wilson KG, Gohm CL, & Merwin RM (2007). Revisiting Written Disclosure: The Effects of Warm Versus Cold Experimenters. *Journal of Social and Clinical Psychology*, 26(5), 556–574.
- Rösner L, Winter S, & Krämer NC (2016). Dangerous minds? Effects of uncivil online comments on aggressive cognitions, emotions, and behavior. *Computers in Human Behavior*, 58, 461–470.
- Seih YT, Chung CK, & Pennebaker JW (2011). Experimental manipulations of perspective taking and perspective switching in expressive writing. *Cognition & Emotion*, 25(5), 926–938. [PubMed: 21824030]
- Simpson JA (1987). The dissolution of romantic relationships: Factors involved in relationship stability and emotional distress. *Journal of Personality and Social Psychology*, 53(4), 683–692.
- Slotter EB, Gardner WL, & Finkel EJ (2010). Who Am I Without You? The Influence of Romantic Breakup on the Self-Concept. *Personality and Social Psychology Bulletin*, 36(2), 147–160. [PubMed: 20008964]
- Smithson J, Sharkey S, Hewis E, Jones RB, Emmens T, Ford T, & Owens C (2011). Membership and Boundary Maintenance on an Online Self-Harm Forum. *Qualitative Health Research*
- Smyth JM, & Pennebaker JW (2008). Exploring the boundary conditions of expressive writing: In search of the right recipe. *British Journal of Health Psychology*, 13(1), 1–7. [PubMed: 18034917]
- Tashiro T, & Frazier P (2003). “I’ll never be in a relationship like that again”: Personal growth following romantic relationship breakups. *Personal Relationships*, 10(1), 113–128.
- Ullrich PM, & Lutgendorf SK (2002). Journaling about stressful events: Effects of cognitive processing and emotional expression. *Annals of Behavioral Medicine*, 24(3), 244–250. [PubMed: 12173682]
- Valkenburg PM (2017). Understanding Self-Effects in Social Media. *Human Communication Research*, 43(4), 477–490.
- Walther JB (1994). Anticipated ongoing interaction versus channel effects on relational communication in computer-mediated interaction. *Human communication research*, 20(4), 473–501.
- Walther JB, Pingree S, Hawkins RP, & Buller DB (2005). Attributes of Interactive Online Health Information Systems. *Journal of Medical Internet Research*, 7(3).

Table 1

ANCOVA Models Predicting Affective Language, Cognitive Processing Language, and Post-Traumatic Growth

	Affective Language		Cognitive Processing Language		Post-traumatic Growth	
	<i>F</i>	η^2p	<i>F</i>	η^2p	<i>F</i>	η^2p
Main Effects						
Shared Experience	0.42	0.00	4.85*	0.03	4.12*	0.03
Interactivity	4.84*	0.03	0.44	0.00	0.49	0.00
Shared Experience x Interactivity	1.31	0.01	0.04	0.00	0.76	0.01
Covariates						
Age	0.02	0.00	0.02	0.00	0.251	0.00
Gender	0.93	0.01	0.38	0.00	0.235	0.00
Relationship length	0.28	0.00	1.30	0.01	5.377*	0.04
Partner Initiated	0.44	0.00	0.04	0.00	0.001	0.00
Infidelity	3.26	0.02	4.97*	0.03	0.05	0.00
Baseline Distress	0.77	0.01	1.60	0.01	0.095	0.00
Baseline PTGI	2.02	0.01	1.33	0.01	148.22***	0.48

Note. For gender, 1=male, 2=female; For partner initiated, 0=no, 1=yes; For infidelity, 0=no, 1=yes; R^2 values for models predicting the affective language, cognitive processing language, and post-traumatic growth were .09, .09, and .57, respectively

*
 $p < .0$

**
 $p < .01$

 $p < .001$.

Table 2

Means, Adjusted Means, Standard Deviations and Standard Errors for the Experimental Groups

Experimental Group		Affective Language					Cognitive Processing Language				Post-Traumatic Growth			
		N	M	SD	<i>M_{adj}</i>	SE	M	SD	<i>M_{adj}</i>	SE	M	SD	<i>M_{adj}</i>	SE
Interactivity	SE	46	5.79	1.32	5.71	0.22	16.3	2.51	16.5	0.41	4.36	1.38	4.18	0.15
	Public	47	6.07	1.39	6.11	0.22	15.7	2.52	15.6	0.41	3.77	1.5	3.74	0.15
No Interactivity	SE	43	6.46	1.61	6.46	0.23	16.9	2.65	16.8	0.43	3.74	1.5	3.94	0.15
	Public	39	6.30	1.59	6.35	0.24	15.8	3.52	15.8	0.45	3.73	1.38	3.76	0.16

Note. SE=Shared Experience; For adjusted means, covariates were evaluated at the following values: Age = 19.88; Gender = 1.81; Relationship Length = 15.01; Partner Initiated = 0.34; Infidelity = 0.33; Baseline Distress = 3.61; Baseline PTGI = 3.80.