The Stories We Tell Ourselves About Ourselves: A Narrative-Based Intervention to Shape Aspects of Identity

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ABSTRACT We present a collaborative, theory-informed intervention to help shape aspects of identity in prosocial ways. We integrate theory from several fields of psychology to develop and test a storytelling-based approach to bolster specific aspects of consumers' identities. We outline how expertise possessed by different stakeholder groups (i.e., storytelling expertise, population expertise) can be collaboratively combined. This combination yields an approach that can be tailored to influence specific aspects of identity in various consumer domains and generate a broader societal impact. We provide a guide that can aid other researchers and practitioners in enacting their own identity-focused interventions, contributing to the literature on collaborative approaches to create positive societal impact. We also report both qualitative and quantitative results as an illustrative case. We further conclude with a robust set of directions for future research on the topic.

> "I was the last to walk out of class, confused and unhappy. A month into this, I am struggling with the material even though I put in the time to study. And I don't feel like I fit in with my other classmates, who seem to understand the material with no effort. I'm probably not smart enough for this. Maybe I should drop out . . ."

Stories of impostorism are widespread among people transitioning into new professional roles (Kark et al. 2022). Many students who possess the ability to become future engineers, businesspeople, or healthcare providers do not persist because of the stories they tell themselves—about not belonging, about not being the type of person who can fulfill the desired role. Questions about one's professional identity are not confined to one's college years; professionals frequently question their competence and the legitimacy of their achievements (Jaremka et al. 2020). Indeed, feelings of impostorism may emerge at many points in life (Sakulku 2011).

Feelings of impostorism and questions about professional identity are a problem at multiple levels: Impostorism, often referred to as impostor syndrome, is a societal problem because it reflects and reinforces systemic inequalities, particularly in fields like science, technology, engineer, and mathematics (STEM). Impostorism disproportionately affects individuals from marginalized or underrepresented groups, such as women, people of color, and first-generation professionals, contributing to the lack of diversity and representation in STEM fields (Jaremka et al. 2020). Given that the stories people tell themselves are at the root of this problem, helping students begin to tell more positive stories about themselves

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might be a way to address this problem. Psychological literature suggests that people form an identity by integrating their life experiences into an internalized, evolving story of the self (McLean et al. 2020; Rogers et al. 2023). This literature also suggests that the internal narratives people hold about themselves guide their future behavior. Shifts in these narratives can lead to corresponding changes in action and well-being.

Given this, we set out to develop a collaborative, theory-informed intervention to help shape aspects of identity in prosocial ways, contributing to the literature on collaborative approaches to create positive societal impact. Specifically, we collaborated with The Story Collider (a national nonprofit whose expertise lies in teaching the art and science of storytelling) to develop, implement, and test a storytelling intervention on engineering students' professional identity, sense of belonging, and persistence in their major. Our research suggests that this intervention has the potential to make a positive impact on two levels: for individual participants, as well as society at large, through (*a*) increasing the representation of marginalized identity groups in STEM-related careers and (*b*) fracturing broader stereotypes regarding who belongs in STEM.

In this work, we develop and test a collaborative, theory-informed intervention to bolster specific aspects of consumers' identities. While we report results of our intervention activities, our main contribution is to provide a guide that can aid other researchers and practitioners in enacting their own identity-focused interventions. To our knowledge, we are the first to collaboratively develop and test a storytelling performance-based intervention designed to influence the storyteller's self-perception. In this article, we outline key literature, our intervention approach, and conclude with directions for future research on the topic.

CONCEPTUAL DEVELOPMENT

Identity

Identity is a foundational concept to consumer research, with decades of research illustrating that how people see themselves (i.e., their identity) drives what they do and how they consume (Shavitt et al. 2009; Reed et al. 2012; Escalas 2013). Gee's (2000) multiple identity framework posits that all people possess multiple coexisting identities. These identities are continually shaped through personal, social, and contextual forces; people are all recognized as certain types of people based on their actions and interactions with others and institutions. Furthermore, reminding people of a certain identity can guide behavior in relevant ways. For instance, making prosocial aspects of identity salient can nudge consumers to behave in a socially responsible manner (e.g., highlighting the alignment between a particular action and one's identity-relevant values; White et al. 2020).

Narrative Identity

A stream of research in personality psychology proposes that identity is fundamentally narrative in form: individuals develop an identity by integrating their life experiences into an internalized, evolving story of the self—with characters, episodes, imagery, a setting, plots, and themes—that provides the individual with a sense of unity and purpose in life (McLean et al. 2020). According to this perspective, interpreting past experiences is not the objective event central to a personal understanding but rather how the person constructs and assigns meaning to their story (McAdams 2001). Narrative identity research typically examines how differences in the themes of personal identity narratives (e.g., associated with redemption or contamination) influence an individual's overall flourishing (Adler et al. 2015). For instance, narrators who find redemptive meanings in adversity and who construct life stories that feature themes of personal agency enjoy higher levels of overall well-being (McLean et al. 2020).

Reflection and Identity Change

Narrative identity research (and identity research, more generally) converges on the notion that identity is constructed and thus malleable. For instance, a common theme in research on role transitions explores the interplay between external changes (e.g., a new job) and one's internal self-view (trying on provisional selves; Ibarra 2023). People construct and amend their identities through reflection, a process where an individual revisits an experience and assigns meaning(s) to it to guide future action (Dewey 1933). Through reflection, one imposes meaning on situations by framing and reframing events retrospectively to achieve coherence and continuity (McAdams 2001). When a person tells stories about the self, reflection and sense-making occur innately and spontaneously (Boje 2001). This approach is often leveraged during psychotherapy (Adler et al. 2015). More recently, Rogers et al. (2023) showed that story-based prompts encouraging people to view their lives in terms of the hero's journey—a common cultural narrative—are associated with shifts in self-view and meaning in life.

In summary, prior identity-related research suggests three key points: (1) identity is a fundamental aspect of human psychology that can influence consumer behavior in

prosocial ways; (2) identity takes the form of a story; (3) and that shifting aspects of one's identity narratives can lead to positive changes in self-view and relevant behavior. We next review one additional literature stream, which suggests that the mere act of telling a personal story may have consequences for identity.

Storytelling and the Cognitive Consistency Principle

Storytelling is a communicative and often performative act. While telling stories about oneself may shape people's identities through the private act of reflection, communicating self-related stories to others may shape identity through another mechanism: cognitive consistency (Abelson et al. 1968). Humans have a basic need for personal consistency in internal views and external communications (Cialdini 2001) and, in turn, find cognitive dissonance aversive (Festinger 1957). For instance, people change their personal beliefs to achieve cognitive consistency whenever the potential for dissonance exists. Sharing a story about a time when one overcame a challenge (or publicly committing a certain type of identity) may shape an individual's subsequent behavior such that it accords with the agency or resilience-related theme in the original story. Indeed, research shows that openly communicating a stance helps people further internalize and behave consistently with that view (Cialdini 2001) and is further supported by research on the phenomenon of self-persuasion (Aronson 1999).

Broader Societal Impact

While bolstering aspects of identity offers undeniable benefits to individuals, there is also a clear potential for societal gain. Although the need for workers in STEM and health-related fields is growing, recent labor reports suggest that many of these job opportunities will go unfilled due to a lack of qualified candidates (Varas 2016; Lehne 2024). While there are many places where the educational pipeline can break down, student attrition from STEM and healthcare fields negatively impacts workforce development. Especially problematic, evidence shows that this phenomenon is more likely to occur among women, racially and ethnically underrepresented, and socioeconomically underrepresented students (Godfrey et al. 2010; Sithole et al. 2017). Research has shown the benefits of a more diverse set of professionals in terms of innovation and effectiveness (Gomez and Bernet 2019). Furthermore, the July 2021 Persistence and Retention report from the National Student Clearinghouse makes an urgent case for improving student persistence, showing that the COVID-19 pandemic has only exacerbated these inequities and has negatively impacted national rates of college student persistence and retention (Lederman 2021; National Student Clearinghouse 2021). Thus, bolstering aspects of individual professional identity may contribute to the retention of diverse skilled workers in societally critical professions.

The narrative intervention we outline also represents an opportunity to address broader societal stereotypes regarding who belongs in STEM and related fields. A growing body of literature on narrative persuasion reveals that stories can powerfully influence audience beliefs (van Laer et al. 2014). Hearing stories told by speakers who may not align with common stereotypes of engineers may lead to broader cultural normative shifts in perceptions that foster greater inclusivity and acceptance, shaping society at the macro level.

A NARRATIVE-BASED INTERVENTION TO SHAPE PROFESSIONAL IDENTITY

In this section, we describe the narrative-based intervention we collaboratively developed with The Story Collider that leverages research on narrative identity and cognitive consistency outlined above to bolster professional identity (yielding broader societal benefits associated with reduced attrition of underrepresented minorities and stereotypes associated with STEM professionals). We outline three steps: Identify collaborative intervention components, implement intervention activities, and measure intervention outcomes.

We focus on the broad outcome of professional identity for three main reasons. First, professional identity is widely relevant for the general population. A strong sense of professional identity has positive consequences for individual flourishing and, thus, broad consequences for societal well-being (Ibarra 2023). Second, while professional identity-related challenges are relevant to all consumers, historically excluded groups, including women and racial/ethnic minorities, are particularly vulnerable (Smith and Nkomo 2021). Finally, because professional identity beliefs are often grounded in an external (vs. internal) causal attribution process, a storytelling intervention (which by its nature necessitates the identification of event causality) may be well suited to help shift relevant beliefs in a positive direction. Here we describe the general steps in our collaborative intervention. In the following section, we outline its application to a specific population.

Step 1: Identify Collaborative Intervention Components (Who, What, When)

Identify Collaborative Partners. First, credible intervention facilitators must be identified, ideally possessing two

forms of distinct expertise: (1) population-based expertise and (2) storytelling-based expertise. Facilitators with population-based expertise (likely the initiators of the intervention) will possess a deeper understanding of the problem to be solved, as well as the incentive structure that is likely to motivate the target population effectively. Such facilitators may be instructors (in the context of students), team leaders (in the context of workplace teams), or community leaders (in the case of general community participants). Facilitators with storytelling-based expertise will possess a deep understanding of and ability to educate about storytelling fundamentals. A number of national and local nonprofits whose missions center on the importance of personal storytelling are equipped with these skills (e.g., The Story Collider), as are instructors and practitioners who operate in the study of or professional development/performance of narratives (e.g., local arts-based groups or departments on campus).

Identify Target Outcomes. Second, it is critical to understand the focal identity deficit or challenge among the target population. As previously described, we focused on shifting professional identity beliefs, but this broad category subsumes a number of more specific identities (e.g., researcher identity, leader identity, nursing identity, etc.). A detailed understanding of the identity problem to be solved is key to subsequent steps of the intervention. For instance, STEM graduate students may vary in their self-identification as scientists, researchers, and engineers—all of which are distinct aspects of professional identity, but not all of which may be problematic.

Identify Embedding Context and Enrollment Incentives. Finally, one must outline the embedding context for the intervention and the participation incentive. Human behavior is shaped by incentives (Gneezy et al. 2011). Students may participate in a course-based intervention because it is required, and early career professionals may participate in a workplace-sponsored intervention because of a financial incentive offered (e.g., extrinsic motivations). Alternatively, students and professionals may be recruited to participate in community organization-sponsored programs that promise an opportunity to develop their communication skills or social bonding opportunities (e.g., intrinsic motivations).

One might question why collaborating with an external partner is needed for this intervention. We have found that involving an external storytelling organization in this intervention is important for three reasons: first, teaching storytelling techniques and providing feedback on participants' stories (described subsequently) require deep subject matter expertise to perform effectively. Second, internal facilitators may possess conflicts of interest, biases, and power relationships with participants that may reduce the efficacy of the intervention and which may be less likely to pose an issue when executed by (or in conjunction with) an external partner. Finally, a storytelling organization possesses credibility and standing that can foster participant engagement, maximizing the impact of the intervention.

Step 2: Implement Intervention Activities (How, Why)

Identify Participation Incentives. It is critical to obtain participants' buy-in. This is different from the initial incentive for participants to sign up for the storytelling intervention. Buy-in pertains to the active motivation to participate in the intervention activities on the day they are executed (Kotter and Whitehead 2010). One potential way to obtain buy-in is to help participants realize at the beginning of the session how participation will benefit them (e.g., by helping them become better communicators or helping with job-specific tasks), through a learning activity or through citing relevant research (e.g., by citing studies illustrating the persuasive power of narratives relative to fact-based communication). The facilitator with population-based expertise will be best positioned to determine the way to obtain participant buy-in.

Conduct Storytelling Workshop. The facilitator with storytelling-based expertise conducts a workshop in which the participants learn the fundamentals of storytelling. This can be extremely basic: the notion that a story contains characters and a plot; stories usually feature a beginning, middle, and end; and that good stories involve conflict and stakes for the protagonist are all fundamentals of storytelling that are not necessarily obvious to the general public (see Cron 2012). These concepts can be covered in as little as an hour but can be expanded far beyond. During this workshop, participants are given the opportunity to start developing their own personal story. Participants may start by brainstorming meaningful events that relate to their professional self or events that illustrate an aspect of their professional identity. A number of additional exercises can be used to help participants learn the basics of storytelling, as well as start to develop an outline of their story (see online app. A for example activities).

Identify Focal Storytelling Prompt. During and following the workshop, participants are tasked with developing a story based on a specific prompt (that they complete in a take-home assignment). This prompt is key to the intervention and must be tied to the identity-related problem identified in step one. For instance, if a sense of belonging is a focal problem, participants may be prompted to tell a story about an event where they felt they fit into a professional setting. If resilience is a focal problem, participants may be prompted to tell a story about a time when they failed but eventually learned or overcame it. Participants are given a period of time (e.g., 1 week) to develop a short (e.g., 1,200 word) story draft based on this prompt.

Provide Feedback. Participants submit a written draft and receive feedback from facilitators. The facilitators with storytelling-based expertise will be well suited to comment on the participant's story craft. In contrast, the facilitator with population-based expertise will be well suited to provide feedback on contextually relevant details. After several drafts and rounds of editing, the participant submits a polished written draft and a video recording of themselves performing the story.

Host Performance. The culminating step is to host a storytelling performance with a subset of the participants (who may be selected with attention to diversity in backgrounds, storylines, or both). Participants may be coached by the facilitator with storytelling-based expertise to develop a 5 minute (or less) oral version of their story. This performance can be hosted on campus (for students), in an organizational conference room (for workers), in a community event space (for community groups), or even online. Broader community members should be invited to the performance in order to increase the significance of the event.

Step 3: Measure Intervention Outcomes

This intervention presents an opportunity to enact (and measure) change in at least three groups of people. First, it will likely be of interest to determine whether change occurred in the target population (individuals who participated in the workshop). A simple pretest/posttest design measuring the focal identity-related construct of interest with a validated scale can provide insight into the efficacy of the intervention activities (e.g., change in STEM identity). Ideally, this effort would be paired with a control group (matched on key criteria, e.g., other STEM students) who complete the same set of measures in order to determine whether changes are potentially due to a maturation effect. Qualitative interviews with a subset of workshop participants can also provide insight into how the participants view themselves in light of the intervention activities (e.g., "How did your participation in the storytelling activity shape the way you think about yourself?"). The participants' stories could also be coded for themes (e.g., agency and communion; Abele and Wojciszke 2007) and used to triangulate findings from the interviews.

A second set of measures could capture the extent to which the storytelling and story sharing activities foster a sense of community or team building. Research on interpersonal closeness suggests that mutual self-disclosure—often in the form of storytelling—can develop trust and other outcomes that are conducive to team-related functioning (Aron et al. 1997; Sprecher et al. 2013). The act of sharing personal stories reveals one's values and emotions, which can foster connection between people and potentially bridge group divides (Pettigrew 1998).

Finally, changes in audience members' stereotypes about the target population may occur as a result of attending the storytelling performance, and a general audience survey can be disseminated to examine whether such change occurred. The stereotype content model suggests that people perceive other individuals on two basic dimensions: warmth (trustworthiness, friendliness) and competence (capability, assertiveness). Businesspeople, scientists, and engineers, for instance, are perceived as high in competence but low in warmth (Fiske 2018). Audience members' perceptions of engineers' warmth may, for instance, increase after attending a show where engineering students share their personal stories. See figure 1 for an overview of the intervention process.

ILLUSTRATIVE CASE STUDY

In this section, we describe one implementation of the previously outlined narrative-based intervention in collaboration with The Story Collider. The Story Collider is a national storytelling-focused nonprofit that reaches a broad general audience worldwide, featuring a regular presence in 14 cities on three continents, offering around six shows per month. The Story Collider conducts workshops in partnership with both academic and nonprofit organizations. In the context of these case studies, the author team possesses the population-level expertise, and the Story Collider possesses storytelling expertise. In this section, we outline the adoption of the previously described intervention in one specific context (target population of undergraduate engineering

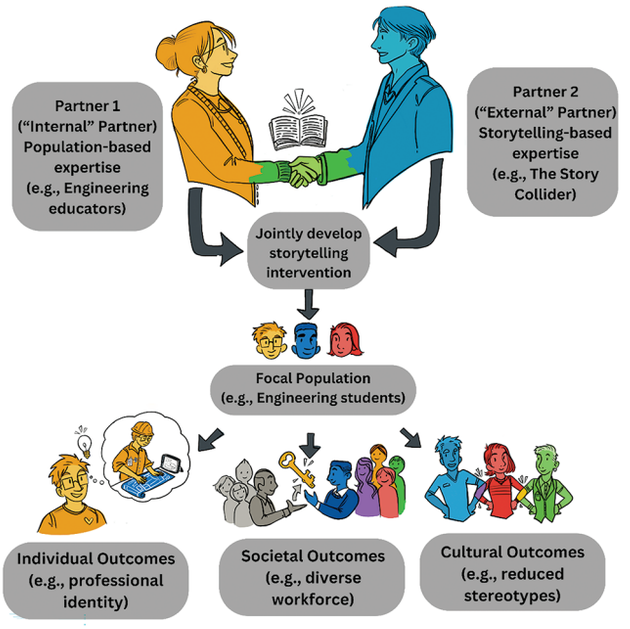

Figure 1. Overview of the intervention process.

students). See online appendix B for an overview of additional case examples.

METHOD

We obtained National Science Foundation funding to test this intervention with undergraduate engineering students over two years. Each semester, we collaborated with a professor of a sophomore-level engineering course to embed this intervention as a class assignment. In total, 140 students participated in the study, and 114 completed both pretest and posttest measures (M_{age} = 22.57, SD = 5.58, 26.1% female).

Students first completed a baseline survey at the beginning of the semester measuring their engineering identity (which contains three subdimensions: engineering performance/competence, engineering interest, and recognition by others as an engineer; Patrick et al. 2016), sense of belonging in engineering (Hurtado and Carter 1997), and intentions to persist in their major (Lent et al. 2003). All scales exhibited good internal consistency (all $\alpha > .82$). A confirmatory factor analysis (CFA) provides support for the theorized factor structure; the measured items load on their focal factor (and do not cross load on another factor), and that the engineering identity scale consists of three subdimensions, as theorized (pretest CFA: $\chi^2(179) = 277.43$, $p < .001$, CFI = .94, RMSEA = .06, SRMR = .08; posttest CFA: $\chi^2(179) = 301.94$, $p < .001$, CFI = .93, RMSEA = .07, SRMR = .07).

Participants completed a 90-minute, in-class storytelling workshop (led by the Story Collider), where they began working on their storytelling assignment (see table 1). Students are instructed to "tell a story about an experience in engineering education that is important to you." Over 4 weeks, students received feedback on their stories and eventually submitted a video-recorded and finalized written version of their story. After submitting their assignment, students completed the posttest survey, and a subset of students (approximately six students per semester; 17 in total) were interviewed about their experience participating in the workshop and completing the assignment. The semester culminated in an event in which members of the campus

Table 1. Storytelling Activities

Process	Activity
Step 1	Workshop: Learning storytelling and story development. Trained workshop leaders from the Story Collider introduce the science and practice of personal storytelling. Participants develop community, brainstorm elements, and create a personal story draft by working through activities. The focal activity involves developing a story specific to the workshop aims (i.e. the focal identity *problem to be solved*)
Step 2	Workbook submission. During the Story Collider workshop described in step 1, participants submit a workbook containing a rough draft (800–1200 words) of their initial story idea. These ideas will be reviewed and critiqued by The Story Collider members and the project facilitators for basic suitability.
Step 3	Polished first draft. Participants refine and submit a polished first draft of their stories. The Story Collider members and project facilitators will provide more detailed feedback.
Step 4	Polished second draft. Participants finalize the written version of their stories based on feedback.
Step 5	Video performance. Participants record themselves performing their story and submit it to the program facilitators.
Step 6	Storytelling performance. The participants gather and a subset of students will share their stories in a performance open to the community.

and the broader local community attended a performance that was professionally produced by the Story Collider. The performance was free, but audience members signed up for a ticket to the event and, in that process, entered their email addresses. Audience members received a link to a preshow survey measuring judgments of engineers' warmth (eight items) and competence (eight items; Fiske et al. 2007), as well as STEM nerd-genius stereotypes (13 items; Starr 2018; e.g., People who work in STEM are obsessed with computers; are socially awkward; are introverted). A survey with the same measures was sent a day following the performance, comprising a pretest-posttest measurement design (all $\alpha >$ .92). Audience participation was incentivized by offering the opportunity to win one of four $25 gift cards. We conducted follow-up interviews with a subset of participants about their experiences participating in the storytelling workshop, which were transcribed verbatim for coding.

ANALYSIS AND RESULTS

Students' Quantitative Results and Discussion

Paired samples *t*-tests were conducted to compare participants' pretest and posttest scores on each of the measured constructs. There were no significant differences in the engineering interest and recognition-by-others subscales of the engineering identity scale, but performance competence significantly increased ($t(113) = 2.77, p = .003, d = .58$). There was a significant increase in sense of belonging ($t(113) = 1.17$, $p = .035$, $d = .72$). The change in persistence intentions was not significant ($p = .122$) but was directionally consistent with expectations. Thus, the intervention enacted significant change in participants' sense of performance competence and sense of belonging, but not engineering interest or recognition-by-others. This may be due to the nature of the stories that students told (e.g., focusing on competence or belonging), or may suggest that some aspects of identity are less influenced by the focal storytelling intervention than others. This is a direction for future research.

Students' Qualitative Results and Discussion

Thematic coding of the students' interviews yielded three major themes aligned with the quantitative results: reflecting on impostor syndrome, using adverse stories to build stories of resilience, and using narrative as a tool for professional identity building.

Reflecting on Imposter Syndrome. Participants mentioned that the storytelling workshop helped address their imposter syndrome. They cited the pressures of coursework and grades as contributing to the experience of impostor syndrome, expressing feelings of insecurity about their merit and intelligence. Participants shared how the storytelling assignment helped revise their preconceptions about the types of people who become engineers as well as their ability to fit into engineering based on stereotypes about their gender and race, as noted in the following quote:

> I'd say the impact [on my intentions to continue in engineering] was pretty great. At the start of this semester I was having some second thoughts about my major choice, and I still have conflicting views on that. It's just like more so probably before the story Collider Project, I don't see myself as an engineer. You have the stereotypes of "engineers are just super robotic and only like math." And to me, I'm just more of an interpersonal kind of person. So I always had family members and friends telling me like I see more as a lawyer, a news spokesperson, or something like that. (Participant 3)

Participants noted that hearing their peers' stories about feelings of impostorism and struggle within the program helped them address their own insecurities and combat intrusive thoughts. It gave them the opportunity to take a step back and consider the difficulty of their courses. It also facilitated a new understanding that engineering courses are hard for the majority of students. Some participants noted that this awareness helped them to mitigate intrusive thoughts and imposter feelings:

> I found myself taking the advice I was giving in the story a lot, because I was again talking a lot about imposter syndrome, and during this I was feeling a lot of it. I'm juggling two jobs and an undergraduate degree while trying to do this big professional presentation. And so I would be writing it and be like "This just sounds awful. This is horrible," and I'd be like "Stop, stop doing that. Read the words on your screen that are telling you not to do it. You've learned this lesson already," and so iterating on it a couple of times I kept building this confidence. (Participant 1)

Participants expressed that having the opportunity to hear their classmates' stories about struggle and impostorism helped normalize their own feelings as they attempted to

progress in a difficult degree program while pushing themselves to achieve high grades.

Using Adverse Experiences to Build Stories of Resilience

Through participation in the reflective activities built into the storytelling workshop, participants transformed stories of adversity into ones in which they overcame obstacles and improved their skills. Participants who had previously internalized feelings of low potential due to stereotyping were able to reframe those beliefs into resilience narratives, as noted by the following participant:

> When I was developing my story, I really got to connect with my past self. . . . I was able to reflect on how far I had come. . . . I went from being a really below average student in every single category that I was tested in, to being an engineering student at state university in the honors college. And so it helped me see myself in a way that I could know and see that I am a person that can grow. Help me see that I did indeed go out of the label, saying that I had no potential. It made me see myself as a person with tenacity, where I will keep on trying to be a better person, a better version of myself, a better student, a better sister, a better daughter. So I could see myself as a person who is always trying to be better. I recognized that through this story development. (Participant 16)

Participants emphasized the utility of their stories in relating to others and highlighted the potential positive aspects of their tenacity and ability to "do hard things" for future employers. Initially, participants expressed a strong aversion to communicating with others about negative occurrences and reflected on how beneficial it was for their confidence to openly share about them. Participants highlighted how reflection facilitated a deeper understanding of their transformation through these experiences and contributed to their professional growth.

Narrative as a Tool for Professional Identity Building. Participants noted they were not given much opportunity within their program to reflect upon their professional identities, although they frequently expressed how much value they found in the experience. Often, when asked about their engineering identity, participants shared that they did not fully see themselves as engineers due to their student status. However, through participation in the storytelling workshop, students began to see themselves as engineers. Participants found that reflecting on their accomplishments transformed 'being an engineer' from a concept that felt far removed from their current student status into something that they were in the process of becoming and, in many ways, already embodying:

> I was like, "Wait a minute. Future scientist? My title is research technician. I'm a scientist now," and I heard that come out of my mouth, and I kind of looked down, and I'm like "I'm a scientist now, holy . . . ," and I had a similar thing while I was writing this. This is not something that's going to happen. This is not something I'm preparing for. This is where I am. This is my life. These are my accomplishments. And I think that iterating on the story gave me a chance to reflect on, really the first professional STEM work I had done. . . . And so it was just a really awesome opportunity for me to reflect on and legitimize how far I've come. (Participant 1)

When given the opportunity to reflect upon and form professional identities, participants began to refer to themselves as engineers.

AUDIENCE SURVEY RESULTS

To examine whether the pretest measures differed from the post-test measures, we conducted one-way ANOVA, treating time of measurement as the independent variable (York 2016).[1] No differences in competence emerged between measurements (time 1: $M = 5.58$, SD = .77; time 2 $M = 5.68$, $F(1, 144) = .36$, $p = .55$, $\eta^2 = .002$), but perceptions of warmth increased (time 1: $M = 4.87$, SD = 1.06; time 2 = 5.60; time 2 $M = 1.08$, $F(1, 144) = 15.78$, $p < .001$, $\eta^2 = .10$) and nerd-genius stereotypes decreased (time 1 $M = 3.69$, SD = 1.10; time 2 = 3.27; time 2: $M = 1.02$, $F(1, 144) = 5.05$, $p = .03$, $\eta^2 = .11$). Thus, engineers were already perceived as very competent before the storytelling intervention. The results demonstrate that the stories students told did not increase competence perceptions. The stories did, however, increase warmth perceptions

1. Given the unmatched nature of the data, we were unable to conduct a repeated-measures ANOVA. We replicated the reported analysis with an alternative approach in which the mean on the pretest measures is used as a benchmark comparison for the posttest measures in a one-sample *t* test, and the results replicate.

(and reduce nerd-genius stereotypes), as would be expected based on exposure to personal stories about overcoming challenges.

GENERAL DISCUSSION

In the current work, we outlined a collaborative storytelling-based intervention informed by theory on narrative identity to help shape aspects of identity in prosocial ways. We described a step-by-step approach to implementing this intervention, as well as a case study illustrating the results of this approach. We found both qualitative and quantitative support that participating in the intervention enhanced students' professional identity and sense of belonging. We also found support that hearing students' stories influenced the audience's nerd-genius and (low) warmth stereotypes of engineers.

We have made several contributions to research on collaborative approaches to create a positive societal impact. To our knowledge, we are the first to collaboratively develop and test a storytelling performance-based intervention designed to influence the storyteller's self-perception. While a wealth of research has examined how audiences can be persuaded (often for prosocial ends) by narratives (van Laer et al. 2014), we show that the stories people tell themselves (and others) about themselves shape their self-view in positive ways. No prior work (again, to our knowledge) has examined how the construction and performance of personal narratives affect students' professional identity, sense of belonging, and persistence. We incorporate the element of public performance into our storytelling intervention as a novel application of the cognitive consistency principle (Aronson 1999; Cialdini 2001) to bolster students' professional identity self-views. The process of externalizing their internal narrative makes this form of identity more salient and concrete, reinforcing a shift in professional self-view. Furthermore, making professional identity salient to oneself and others may bolster one's sense of belonging in that community. Publicly communicating about one's professionally related experiences connotes a personal connection to that profession—which, per the cognitive consistency principle, should extend to the relevant professional community and a corresponding sense of belonging.

Second, we outline how the successful implementation of this intervention involves the joining of two distinct forms of expertise: population-based expertise (who possess a deeper understanding of the specific identity problem to be solved, as well as the incentive structure that is likely to be effective in motivating the target population) and storytelling-based expertise (who understand and can educate about storytelling fundamentals, and provide developmental feedback on story draft). Involving an external storytelling organization in this intervention is important because of their subject matter expertise (with regards to both teaching storytelling principles and providing feedback on story development), lack of conflicts of interest or power dynamics with participants that might adversely affect participants' authentic vulnerability, and participant engagement-enhancing credibility; all of which may enhance the efficacy of the intervention.

We also contribute to research on narrative identity. Most research on narrative identity examines how "macro" life stories influence broad well-being outcomes (McLean et al. 2020). One exception is Rogers et al. (2023), who examined specific story prompts encouraging people to view their lives specifically in terms of the hero's journey, which predicted shifts in self-view and meaning in life. We harness contextually specific storytelling prompts to shape correspondingly specific aspects of professional identity, yielding a more tailored intervention approach.

Finally, our outlined intervention is flexible and can be tailored to other settings of interest. In the next section, we outline directions for future research that leverage the core ideas of the current work and that may continue to build the literature on collaborative approaches to create a positive societal impact.

DIRECTIONS FOR FUTURE RESEARCH AND APPLICATION IN OTHER DOMAINS

Leveraging Collaborative Interventions Across Other Contexts

This collaborative intervention, centered on identity-building storytelling, can be effectively leveraged across diverse contexts by tailoring prompts and frameworks to address specific identity challenges relevant to each setting. The intervention's emphasis on reflecting on personal experiences and aligning them with broader values or organizational goals creates a versatile tool for fostering engagement and growth.

In contexts outside organizations, such as environmental sustainability, health promotion, or social justice, storytelling can help individuals connect their personal experiences (e.g., enjoying nature, standing up for a cause, or adopting healthy habits) with their identities as green consumers, activists, or health-conscious individuals. This process not only reinforces their sense of self but also motivates them to engage more deeply with these values in their personal and communal lives.

Within organizational settings, the intervention can be adapted to enhance workplace dynamics and employee satisfaction. For example, prompts that focus on feeling a sense of belonging, aligning with organizational values, or finding meaning in work tasks can foster deeper connections among employees and between individuals and their organizations. By encouraging reflections on moments of competence or shared values, organizations can create environments that support self-efficacy and purpose, ultimately driving higher performance and retention. See table 2 for additional detail.

Underlying Mechanisms, Optimal Dosage, and Unintended Consequences

Future research remains to examine the underlying mechanisms of change in our outlined intervention. Our activities leverage both internal, reflective processes (Dewey 1933), as well as external, public commitment-related processes (Cialdini 2001). Which explains more variance in self-identity related changes, and does the relative efficacy of each pathway depend on aspects of the individual and the context? Future research can also examine how the outlined narrative intervention influences other outcomes, such as students' ability to share stories during job interviews.

Additionally, future work examining the optimal dosage of the outlined activities would be beneficial, as well as how long the change in self-perception from the intervention lasts. There are several dosage-related questions relevant to the present work: how long and intensive should the workshop be (90 minutes or several days?), the length of the developed story (1 minute? 10 minutes?), the amount of feedback given on the developed story (none? five rounds?), the nature of the public performance (video recording only vs. public, in-person presentation on a stage).

Finally, the potential for unintended negative consequences exists, and exploring ways to shape the storytelling experience to lead to primarily positive outcomes is an important area for future work. We address the potential negative consequences before the storytelling curriculum is introduced in the workshop through a review of the community norms. While these norms vary in specifics, they all share themes of being openly curious, nonharassing, and inclusive. Students will be urged to be honest in their storytelling, as well as empathetic in their responses to their peers.

Table 2. Leveraging Collaborative Interventions Across Other Contexts

Substantive area and identity challenge	Potential storytelling prompts: Tell a story about a time you . . .	Relevant literature
Identity-building outside the organization:		
Climate change; *Green* consumer identity	Enjoyed nature; took action to preserve natural resources.	Haws et al. (2014); Barbarossa and De Pelsmacker (2016); Ltief et al. (2024)
Social entrepreneurs; Human rights and social justice; upstander identity, activist identity	Stood up for an ideal or a cause; acted to improve the lot of others.	Kozinets and Handelman (2004); Nardini et al. (2021); Bublitz et al. (2024)
Health; healthy eater identity, athletic identity, physical activity identity	Enjoyed a healthy/plant-based meal; enjoyed being physically active.	Strachan and Brawley (2009); Rhodes et al. (2016); Bublitz et al. (2023)
Open-mindedness and diversity tolerance; cosmopolitan identity, intellectual identity, growth mindset	Reconsidered a position or changed your mind; initially believed one thing but then realized you were wrong	Riefler et al. (2012), Mathur et al. (2016)
Identity-building inside the organization:		
Belonging or feeling close to and accepted by others within the organization	Felt connected to others in your organization; felt that other people in your workplace accepted you	Ashforth and Schinoff (2016); Bryer (2020)
Identifying with or feeling connected to the values of the organization	Realized your values aligned with your organization's values; saw your organization's *values in action*	Ashforth and Mael (1989); Riketta (2005)
Meaningfulness of work; finding significance or purpose in one's work tasks	Felt your work made a significant difference to someone; felt a sense of purpose in your role	Williams et al. (2022)
Self-efficacy, a sense of capability and competence in conducting one's work	Felt capable or competent at work; did an excellent job on a work task	Abele and Wojciszke (2007); Cannon and Ricker (2022)

Our project team has a phrase for guiding those considering sharing sensitive topics: "Talk about scars, not wounds." This aphorism is meant to lead storytellers toward stories that are finished rather than stressful or traumatic events they are still living through. Nonetheless, despite these guardrails, it is possible that the outlined activities could have additional, unforeseen negative consequences, and future work addressing this possibility is important.

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