



Volume 18, 2023

HIGH IMPACT, LOW MOOD: AN ANALYSIS OF GRADUATE STUDENT ATTITUDES AND PERCEPTIONS THROUGH PHD MEMES

Gordon W. Maples

North Carolina State University,
Raleigh, NC, USA

gwmaple2@ncsu.edu

ABSTRACT

Aim/Purpose	Graduate students face immense pressures and challenges as part of the graduate school experience, with few avenues to express their frustrations. While the crisis of graduate student mental health is well-documented quantitatively, and the stresses of graduate school are explored on the institutional level, there are few qualitative studies of these issues.
Background	This study aims to explore graduate student attitudes and perceptions about graduate school and academia through the analysis of niche, graduate student-focused memes. Theories of emotional selection, emotional contagion, and collective coping predict that the creation and sharing of niche-interest memes reflect dominant attitudes and perceptions within niche communities under stress.
Methodology	This study utilizes content analysis to thematically categorize a sample of 208 meme images created by and posted to the social media account <i>High-Impact PhD Memes</i> . The data is additionally categorized to measure resonance – how well each image was received by the page audience – and visualized using bar codes.
Contribution	This study offers a new method for examining the attitudes and perceptions of niche groups online by proposing the measurement of emotional resonance, presents a novel visualization for the presentation of thematic coding and offers a new means to analyze internet memes for both content and emotional resonance.
Findings	Findings indicate that the most frequently occurring themes in niche memes are not necessarily the ones that most highly emotionally resonate with the niche community of interest. The population of current and recent graduate students following <i>High-Impact PhD Memes</i> most highly resonated with the issues of literature access, financial/employment stresses, and overwork.

Accepting Editor Nicole A. Buzzetto-Hollywood | Received: April 22, 2022 | Revised: January 16, January 20, 2023 | Accepted: January 21, 2023.

Cite as: Maples, G. W. (2023). High Impact, Low Mood: An Analysis of Graduate Student Attitudes and Perceptions Through PHD Memes. *International Journal of Doctoral Studies*, 18, 1-23.
<https://doi.org/10.28945/5075>

(CC BY-NC 4.0) This article is licensed to you under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/). When you copy and redistribute this paper in full or in part, you need to provide proper attribution to it to ensure that others can later locate this work (and to ensure that others do not accuse you of plagiarism). You may (and we encourage you to) adapt, remix, transform, and build upon the material for any non-commercial purposes. This license does not permit you to use this material for commercial purposes.

Impact on Society	The findings of this study should encourage both researchers and higher education administrators to consider memes as reflections of the emotional states and perceptions of graduate students both collectively and individually, given how they comment on current, pressing issues. Based on the findings here, memes could feasibly be used as elicitation materials in well-being assessments or qualitative research studies to better understand and prompt reflections on the perspectives of graduate students, and ultimately improve programming and supports for the population.
Future Research	Future research could apply similar methods to study other niche groups under pressure that use memes as a means of collective coping in order to better understand their attitudes and perceptions. Groups such as LGBTQ+ people, those with niche political affiliations, and neurodivergent people could all be studied with a similar approach.
Keywords	graduate students, internet memes, online communities

INTRODUCTION

In recent years, a subset of internet culture has arisen centered on the experiences of graduate students. Memes pages such as *High-Impact PhD Memes* and *grad school memes with relatable themes* and web-comics like *Piled Higher and Deeper* have readerships from the hundreds of thousands to millions, focusing largely on the stresses and perils of graduate education, indicating a robust audience that resonates with these themes (Grad school memes with relatable themes, n.d.; High impact PhD memes, n.d.; “Piled higher and deeper,” 2017). The many issues that arise in the graduate school experience for students have been well-documented, including high rates of mental health issues in the population, financial hardship, conflicts with advisors and professors, and the extreme pressures to compete for scarce post-graduate faculty and research positions (Hyun et al., 2006; Jones-White et al., 2020; Liu et al., 2019; Sverdlik et al., 2018; UC-Berkeley Graduate Assembly, 2014). However, these themes have not been explored within the setting of graduate student meme culture, which research has indicated is an important outlet for expression, protest, and support among many populations under stress (Ask & Abidin, 2018; de Deus et al., 2022; Newton et al., 2022; Ortiz et al., 2021; Zidani, 2021). This study will explore, via content analysis of seven months of original memes posted to the *High-Impact PhD Memes* Facebook page, what attitudes and experiences are conveyed and most highly resonate with a primarily graduate student social media audience. The research questions for this study are:

1. What themes appear most frequently in PhD memes – memes about the graduate student experience?
2. What themes within PhD memes – memes about the graduate student experience – resonate most strongly with a graduate student audience?

LITERATURE REVIEW

This literature review will first summarize applications and methodologies behind a selection of meme-centered research studies to justify the approach of the current study. Following, common key themes identified as significant stressors in the graduate school experience by recent studies of the population are described. Namely, the current mental health crisis among graduate students, the phenomenon of imposter syndrome, the culture of overwork in graduate education, the financial hardships and poor employment prospects for many students, and the stresses of advisor relationships are discussed using the findings of relevant research studies and articles.

THE STUDY OF MEMES

The rise and subsequent proliferation of internet memes is a relatively recent phenomenon. However, prior to its modern usage, the term ‘meme’ was coined by Richard Dawkins (1976) to refer to replicable and viral entities like “tunes, ideas, catch-phrases” (p. 192). Dawkins (1976) described the function and perpetuation of memes as both viral and parasitic:

When you plant a fertile meme in my mind you literally parasitize my brain, turning it into a vehicle for the meme’s propagation in just the way that a virus may parasitize the genetic mechanism of a host cell. (p. 192)

Based on Dawkins’ definition, there is at least one study of memes that pre-dates the current, internet-centered usage of the term: an analysis of themes that influence the spread of urban legends (Bell & Sternberg, 2001). On the internet, however, memes have risen to prominence since the mid-2000s, with definitions varying to cover images, videos, and texts that spread through social media as part of participatory digital culture, with a range of topical sub-themes (Johann & Bulow, 2019). While debate exists as to the exact parameters of what constitutes an internet meme, Shifman (2013) proposed the following, modernized definition:

... a group of digital items sharing common characteristics of content, form, and/or stance, which were created with awareness of each other, and were circulated, imitated, and/or transformed via the Internet by many users. (p. 42)

The use of internet memes has been studied among numerous populations as means of political speech, teaching, emotional expression, protest, and community-building (Ask & Abidin, 2018; Boa Sorte, 2019; Mielszarek, 2018; Moody-Ramirez et al., 2021; Moreno-Almeida, 2021; Ortiz et al., 2021; Szablewicz, 2014; Williams, 2020; Zidani, 2021; Zidjaly, 2017). Memes have also been the subject of study for their ability to spread (Guadagno et al., 2013; Mielszarek, 2018; Wiggins & Bowers, 2015) and the ways they condense and reflect complex messages and ideologies (Bellar et al., 2013; Brubaker et al., 2018; de Deus et al., 2022; Howley, 2016; Moreno-Almeida, 2021; Shomova, 2020). Memes have also been the subject of exploration for their manifestations of sexism, racism, and fringe political positions (Al-Natour, 2021; Askanius, 2021; Drakett et al., 2018; Greene, 2019; Moody-Ramirez et al., 2021; Siddiqi et al., 2018). Methodologically, memes have primarily been examined using semiotic analysis (Calimbo, 2016; Cannizzaro, 2016), discourse analysis (Destira et al., 2021; El-Masry, 2021; Huntington, 2016; Milner, 2013; Moreno-Almeida, 2021; Procházka, 2016), and content analysis (Al-Natour, 2021; Askanius, 2021; Brubaker et al., 2018; Norstrom & Sarna, 2020; Siddiqi et al., 2018; Wiggins, 2016). Relevant to this study, memes have previously been examined for their representation of mental health themes (Adams, 2019), and have specifically been used for the study of college students (Ask & Abidin, 2018; Smith, 2021). Only recently has the subset of graduate student memes been the subject of study, with Papapicco and Mininni (2020) examining the use of humor in the visual and rhetorical devices of 70 PhD memes collected from social media. However, that study was not particularly interested in the perspectives reflected in the content of the memes, but rather focused on isolating the mechanisms of their composition.

Various studies of memes have indicated that they are manifestations of collective identities and shared experiences of sub-populations that can serve as an outlet for collective coping, and can reflect themes that may not be accessible through traditional interviews (Ask & Abidin, 2018; de Deus et al., 2022; Newton et al., 2022; Ortiz et al., 2021; Zidani, 2021). Ask and Abidin’s (2018) study of ‘student problem’ memes indicated that college students are such a population that expresses experiences through memes. Based on the wealth of literature attesting to the litany of unique challenges graduate students face, they seem likely to engage in the collective coping that niche memes have been known to provide. For the purpose of this study, PhD memes should provide a reflection of the shared experiences, perceptions, and attitudes of the graduate students who create, support, and share them, similar to the undergraduate students from Ask and Abidin’s (2018) research. Based on

prior studies, content analysis has been established as a viable methodology for the study of these images, justifying its use in the present research.

GRADUATE STUDENT STRESS EXPERIENCES

Mental health of graduate students

The mental health of graduate students has been the subject of academic study since as far back as the 1990s when Kreger (1995) conducted a study to identify levels of “self-esteem, stress, and depression” (p. 345) among graduate students. In 1997, a group of scholars studied stress and depression among medical, law, and graduate students at McGill University (Helmets et al., 1997). While the existence of studies like Kreger’s and Helmets et al.’s indicate that the mental health and low moods of graduate students are not a new focus for inquiry, there are indications that the collective state of mental health within this population has declined over the years. A 2018 study reported rates of severe anxiety and severe depression as six times higher among graduate students compared to the general population (Evans et al., 2018). A 2014 study conducted on graduate students at the University of California-Berkeley indicated that rates of depression were at 47% (UC-Berkeley Graduate Assembly, 2014), and a 2019 survey found that 36% of respondents said that they “have sought help for anxiety or depression caused by their PhD studies” (Woolston, 2019b). High-profile publications and news outlets have even covered the issue in recent years, including *Scientific American*, *Nature*, and *Science* (“The mental health of PhD researchers,” 2019; Pain, 2018; Puri, 2019; Woolston, 2017, 2019a).

Studies of mental health in graduate education have explored the effect across disciplines: law, economics, psychology, life sciences, arts & humanities, and medicine, just to name a handful, and have generally found the issue to be present across field lines (Barreira et al., 2018; Borgogna et al., 2021; Dyrbye et al., 2005; Gin et al., 2021; Hyun et al., 2006; Peluso et al., 2011; UC-Berkeley Graduate Assembly, 2014). Additionally, there are indications that the rates are higher among various marginalized populations of graduate students, including LGBTQ+, Latinx, women, and international students (Barreira et al., 2018; Charles et al., 2021; Chirikov et al., 2020; Evans et al., 2018). An aspect that has been relatively less studied, however, is the consequences of the crisis. Research has indicated how mental health issues and persistent low moods can lead to the interruption of studies for graduate students (González-Betancor & Dorta-González, 2020) and recurring mental health crises later in life (Mongrain & Blackburn, 2005). More concerning is the comparatively elevated risk for suicide among graduate students when compared to undergraduates, and indications that mental health declines and suicide contemplations rise the longer students remain in graduate school (Barreira et al., 2018; Garcia-Williams et al., 2014).

A handful of studies have proposed interventions to remedy the current graduate student mental health crisis. Saul and Fish (2012) advocated for the adoption of mindfulness meditation practices for graduate students, while Coffino et al. (2020) noted the association between graduate student depression, stress, anxiety, and food insecurity as an area for potential improvement through institutional policies. Other studies indicated the potential usefulness of more robust institution-led social supports, like formal graduate student social events and peer advising and mentoring programs, for attenuating the crisis (Charles et al., 2021; Hyun et al., 2006). Studies have also suggested that stigma around mental health persists as an extant concern that likely prevents some graduate students from utilizing existing institutional resources, despite concerted institutional efforts to combat it (Eisenberg et al., 2009; Evans et al., 2018; Garcia-Williams et al., 2014; Hyun et al., 2006; Nash, 2021).

Imposter syndrome

Imposter syndrome – a term that describes when individuals worry that they are fooling others about their abilities and that their fraudulence will be exposed – is a phenomenon that has been documented in the population of graduate students (Clance & Imes, 1978; Cohen & McConnell, 2019). One study found a statistically significant relationship between reported mental health needs from

graduate students and their perceived competitiveness within their programs (Hyun et al., 2006). This could be a manifestation of imposter syndrome, where the high-quality work of their competitive peers makes graduate students feel anxiety or inadequacy about their own work. Of note is that there is an established link between imposter syndrome and depression in the general population, which is likely to hold within the sub-population of graduate students, where the state of mental health is in crisis (McGregor et al., 2008). One study of graduate students found a strong link between expressed “negative inferential style” (Mongrain & Blackburn, 2005, p. 748) surrounding academic performance – defined as a belief in personal worthlessness and the unreasonable anticipation of negative events – and the recurrence of major depression later in life. A critical literature review of studies of graduate student mental health from 2000-2017 identified a common emergent theme of a low sense of academic self-worth among the population, which is an element of imposter syndrome (Sverdlik et al., 2018). Similarly, a 2014 report based on a study of UC-Berkeley graduate students found that students who felt more well-prepared for their graduate work were less likely to exhibit depressive symptoms than those who expressed feeling “ill-prepared” (UC-Berkeley Graduate Assembly, 2014). Though not explicitly stated, this expression of feeling ill-prepared is likely partially an expression of imposter syndrome in the population – some of the respondents likely feel ill-prepared or inadequate, even if they are not. According to a recent study of graduate students at Oklahoma State University, just under 50% of participants explicitly identified experiencing imposter syndrome (Almy, 2020). Another study of graduate students from across eight universities reported an even higher rate of identification with imposter syndrome – 61% (Barreira et al., 2018). A qualitative exploration of mental health among graduate students found a theme of “low self-esteem or overly self-critical” in 58% of their sample, including in vivo mentions of imposter syndrome by name (Gin et al., 2021, p. 11).

Financial hardship and employment prospects

Graduate students today are likely to have low pay, and subsequently experience the negative effects that are associated with it, including food insecurity and financial stress (Almy, 2020; Coffino et al., 2020; Dyrbye et al., 2005). Costs of attendance, including institutional fees, tuition, and books remain high, with additional financial pressure coming from access and publication charges from academic journals (González-Solar & Fernandez-Marcial, 2019; Liu et al., 2019; Pjesky et al., 2019; Solomon & Bjork, 2012; Youngclaus et al., 2017). Worse still, the employment prospects for graduate students in many fields are minimal, as the academic job market has stagnated or shrunk within many disciplines concurrently with an influx of new graduates (Larson et al., 2014). As a result, the ‘publish or perish’ pressure to publish as much as possible in order to compete for scarce faculty and postdoctoral positions has become a significant stressor for graduate students (Larson et al., 2014; Waaijer et al., 2018). One study found that graduate students tended to report more financial stress than undergraduates (Borgogna et al., 2021). There is also an established link between financial distress and poorer psychological health among graduate students across multiple studies (Charles et al., 2021; di Pierro, 2017; Evans et al., 2018; Hyun et al., 2006; Jones-White et al., 2020). A prominent report on graduate student mental health out of UC-Berkeley reported that the participants “mentioned financial concerns more than any other topic in their written comments” (UC-Berkeley Graduate Assembly, 2014, p. 4). Similarly, in their study of graduate student stress experiences, Grady et al. (2014) found finances to be one of the most frequently cited causes of stress and quoted a number of participant interviews for emphasis, including one who stated, “I can barely manage to live like this” (p. 12).

Advisor relationships

A graduate student’s relationship with their advisor can be crucial to whether the graduate school experience is overall positive or negative. In cases where advisors act as active and supportive mentors, it can lead to a happier and more empowered experience overall for their graduate students (Almy, 2020; Barreira et al., 2018; Charles et al., 2021; Evans et al., 2018; Hyun et al., 2006; Liu, et al., 2019; Stubb et al., 2011; Sverdlik et al., 2018; UC-Berkeley Graduate Assembly, 2014). One theoretical piece

even proposed attentive virtual advising as a preventative measure for anticipated rises in mental health crises among graduate students due to the COVID-19 pandemic (Nash, 2021).

However, there is also documentation of intense conflicts and scandals between advisors and their graduate students. As chronicled by Braxton et al. (2011), advising faculty have exhibited sexual impropriety, demeaning behavior, and neglect towards their graduate students, and occasionally exploitatively taken credit for graduate student work or set unreasonable demands of their workload. According to Barreira et al. (2018), 16% of PhD students experienced sexual harassment within their department, including 13% of men and 21.5% of women (p. 20). In exceptionally rare and dramatic cases, conflicts between advisors and advisees have resulted in violence, as was the case with Theodore Streleski, who bludgeoned his advisor to death with a hammer, and Frederick M. Davidson, who shot and killed his entire thesis committee at his defense (Overbye, 2007).

Graduate students likely feel trapped by the power dynamics with their advisors, as well as their low social position within their colleges, which makes filing complaints an intimidating prospect (Braxton et al., 2011; Grady et al., 2014). A study found that only 36% of graduate students would be willing to seek help in the event of an issue with their advisor (Barreira et al., 2018). That study further indicated that 42% of graduate students are unaware of who to go to in the event that an issue arose with their advisor (Barreira et al., 2018). Additionally, 16% of surveyed graduate students felt that their advisors did not care about their academic success (Barreira et al., 2018). A hostile or negative relationship with an advisor can have consequences for the student beyond academics. Multiple studies of graduate students have established a predictive relationship between reported advisory relationship dissatisfaction and depressive symptoms (Hyun et al., 2006; Jones-White, et al., 2020; Levecque et al., 2017; Liu et al., 2019; Pelayo, 2018; Peluso et al., 2011), and one study specifically indicated that 20% of graduate students who regretted their advisor choice had contemplated suicide within two weeks of completing the survey (Barreira et al., 2018).

Overwork and work-life balance

Graduate education has been referred to as having a “toxic culture of overwork” (Woo, 2019). A study of graduate students at Stanford University found that they averaged 50 hours a week on university-related tasks – including teaching, research, and coursework – with a quarter of graduate students reporting 60 hours a week or more (Stanford Graduate Student Council, 2018). Consistently overworking and neglecting work-life balance have consequences for graduate students: multiple studies have found that the lack of good work-life balance made them more susceptible to anxiety and depression (Evans et al., 2018; Jones-White et al., 2020; Liu et al., 2019). Other studies have indicated that graduate students were more prone to burnout – the work-related stress syndrome – than the general population (Gallea et al., 2021; Gin et al., 2021). Procrastination can be a byproduct of overwork through chronic burnout, which is not only a hindrance to academic work but is also associated with depression among graduate students (Washington, 2004). Numerous other studies have identified poor work-life balance and excessive workload as major issues and key contributors to poor graduate student mental health (Almy, 2020; Levecque et al., 2017; Mattijssen et al., 2021; Meijer et al., 2018; UC-Berkeley Graduate Assembly, 2014; Woolston, 2019b).

LITERATURE SYNTHESIS

This review of the literature has made a handful of points abundantly clear. First, internet memes are a valid subject of study and have a rich – if short – body of diverse research focused on their composition, spread, and content. Notably, the sole study of PhD memes to this point in time did not address the attitudes expressed by the memes, but rather focused on the mechanisms of their composition, meaning that the present study is situated in an evident gap for both content and methodology.

An additional outcome of this review is the sheer volume of research studies and documentation of the recent crisis surrounding the mental health of graduate students, and how often common themes

are reiterated throughout them. Based on the findings of these studies, it would be surprising if issues like imposter syndrome, overwork, or advisor relationships didn't emerge in the memes created and spread by today's graduate students, given how frequently these themes have been documented. However, there are still gaps in the research on graduate student mental health that could be explored in future studies. For instance, there was surprisingly little work on the mental health of graduate students along different racial lines – it would be worth exploring how effects like racial battle fatigue might be compounded by the other imminent stressors of the graduate student experience.

There also seems to be an imminent need for a qualitative exploration of the negative experiences of graduate students with their advisors. Braxton et al. (2011) noted that instances of faculty misconduct regarding graduate students are common, but largely unreported, which is supported by Barreira et al.'s (2018) findings from graduate student respondents. The report on graduate student well-being from Stanford University indicated dramatic, horrifying experiences of graduate students with racist, sexist, and/or cruel advisors (Stanford Graduate Student Council, 2018). Taking into account the rates of harassment that graduate students reported within their departments (Barreira et al., 2018), this is a critical and extant issue for the well-being of graduate students that has received relatively little attention in the literature on the topic.

THEORETICAL BASE

This study operates with multiple theories relating to internet memes. First, the similar principles of emotional contagion (Guadagno et al., 2013) and emotional selection (Bell & Sternberg, 2001) indicate that memes that are most widely shared and reacted to are reflective of emotional resonance in their target audiences. Emotional selection describes the phenomenon that memetic materials that elicit emotions in an audience are more likely to successfully spread (Bell & Sternberg, 2001). Emotional contagion describes the “convergence of one's emotional state with the emotional states of those with whom one is observing or interacting” (Guadagno et al., 2013, p. 2312), which has been linked to the successful and rapid spread of memes in like-minded communities through emotion-driven sharing among community members. While most internet memes are made and spread among a more general audience of internet users, niche memes - such as PhD memes - are focused on and spread among highly specific populations that share key common traits or experiences, making them ideal media for examining the emotional state of the niche populations they target. In the case of PhD memes, this common niche community is made up of people who have experienced graduate school.

Populations under stress have been documented as creating and spreading memes among niche community peers as a form of “collective coping” (Ortiz et al., 2021, p. 69) to mitigate the effects of stress through humor (Newton et al., 2022; Zidani, 2021). Collective coping consists of “the learned and uniform responses that culture manifests with the purpose of eliminating a stressor to change the interpretation of a situation,” which can be measured by analyzing the shared experiences, feelings, and symbolic values that memes reflect (Ortiz et al., 2021, p. 69). This study applies Collective Coping Theory, emotional contagion, and emotional selection as key principles that justify measuring both the content and spread of memetic images to explore the emotional conditions within the graduate student population.

METHODS

This section will cover the details of the collection of the PhD memes used for analysis, a summary of the content analysis approach utilized for the analysis, a description of the bar codes used to visualize the data, and a quick note on my positionality as the researcher.

DATA COLLECTION

The data source for the project is the social media account *High-Impact PhD Memes*: a Facebook and Twitter account with roughly 290,000 followers. Seven months (August 2021 - February 2022) of posts, making a total sample of 208 images, are used as data for this project. The page was selected for its popular following in the niche community, its emphasis on originally generated content, and its collaborative group of contributors that create the memes for the page. Of the 208 initially collected images, only 180 ultimately fit the developed thematic categorizations, leaving 28 images uncategorized. These images varied in their content, but ultimately did not line up with any of the identified themes or correlated thematically with each other. For example, a handful of the images were announcements of various milestones for the page.

DATA ANALYSIS

This study uses content analysis to categorize themes for the posted memes. Elements are borrowed from both directed and conventional content analysis approaches. The initial coding frame used categories derived from literature on graduate students, and additional thematic categories were emergently identified in the remaining uncoded data after the initial round of a priori coding, and then applied to the entire sample (Hseih & Shannon, 2005). Instances of each code were tallied for a frequency distribution for each month, as well as the entire sample. Each code was then assigned a color, and bar codes were created for each month of the sample, as well as for the entire sample. The bar codes consist of vertical bars representing each individual image within the sample, organized chronologically and having a uniform width. Each bar was color coded for each represented image's identified theme. An example of a basic bar code is shown in Figure 1. The color code for the themes, which will be discussed in detail in the *Findings* section, is in Figure 2.

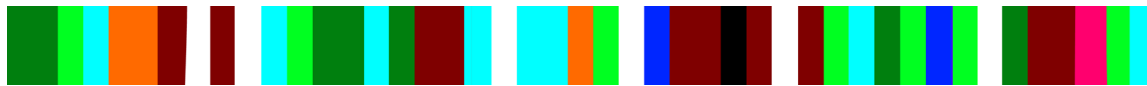


Figure 1. Bar code visualization of themes in PhD memes – December 2021



Figure 2. Themes color key for bar codes

To operationalize emotional resonance for each of the images, a formula was developed using metrics on Facebook: reactions and shares. Reactions included any of the included reaction options on Facebook, including 'like' and 'love'. The total number of shares was divided by 100 and added to the number of reactions divided by 1000. This weights a share as having ten times the value of a reaction, as a share is a more direct reflection of emotional contagion and selection. In the absence of

published guidance on how to formally weight shares against likes, the ratio of 10:1 lined up with the ratio of reaction to shares for the community for *High-Impact PhD Memes*, which provides a loose rationale for the formula. The two numbers (shares/100 and reactions/1000) were added together, generating a number that ranged from 2 to 42. The mean score for the entire sample was just below 13. Based on this number, four categories of resonance were developed and applied: high resonance (19+), high-average resonance (13-18.99), low-average resonance (7-12.99), and light resonance (0-6.99). Each level was associated with a level of color saturation when put into the aforementioned color-coded bar codes: 100% saturation for high resonance, 75% for high-average resonance, 50% for low-average resonance, and 25% for light resonance. The differences in these resonances are apparent when visualized, particularly when compared to the same bar codes without the resonance saturations, as lower-saturation bars are evidently ‘paler’ (Figure 3).

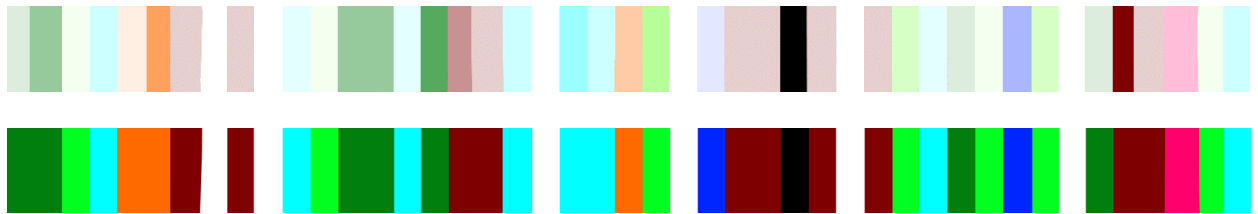


Figure 3. Bar code visualization of themes in PhD memes – December 2021 (resonance v. no filter)

An alternative visualization of the data is contained in Table 1 and Table 2 in the *Findings* section. Table 1 reports a frequency count of each theme within the sample, and the percentage of the total sample made up of images coded with that theme. Table 2 integrates the resonance measure by assigning points to each coded image, weighting each instance of the theme according to its resonance: a point multiplier between 1x and 4x. Table 2 additionally reports the percentage of points from the entire sample accounted for by each theme.

FINDINGS

THEMES

A total of nine themes were repeated throughout the sample. Six of these themes were identified a priori based on the literature on graduate students (Imposter Syndrome, Advisor Relationships, Financial Hardship/Employment Challenges, Mental Health, Overwork, Publishing Process). The remaining three themes (Procrastination, Literature Access, PhD as Trap) were identified emergently through the examination of images that defied the initial coding frame. Imposter Syndrome was applied to any images that reflected feelings of inadequacy among academics or peers or mentioned ‘imposter syndrome’ by name. An example of an Imposter Syndrome coded image is shown in Figure 4. Advisor Relationships was applied to images that depicted conflicts, neglect, or excessive pressure from advisors. An example of an Advisor Relationships coded image is shown in Figure 5. Financial Hardship/Employment Challenges was coded for images that depicted concern about current financial struggles or worry about long-term employment prospects, as shown in Figure 6. The Mental Health code was applied to images that depicted or explicitly mentioned depression, anxiety, or other mental health issues, but specifically excluded mentions of ‘imposter syndrome.’ Figure 7 provides an exemplar of such a coded image. Overwork was coded on images that portrayed poor work/life balance or stress relating to excessive workload, as illustrated in Figure 8. Publishing Process was applied to depictions of frustrations with journal editors, reviewers, or the publication process at large, such as the meme shown in Figure 9. Procrastination was coded for images of self-perceived laziness or explicit mentions of ‘procrastination,’ such as the image in Figure 10. Literature Access was applied to memes supporting free access to academic literature, such as images supporting or advocating the use of the free repository tool *Sci-Hub* (Figure 11). Lastly, PhD as Trap was

applied to images that depicted graduate school or the PhD process as a trap, scam, or deception (Figure 12).

"You did an awesome job! Well done!"



Imposter syndrome:



Figure 4. Example of 'Imposter Syndrome' coded image (September 16, 2021)

When I go to my advisor asking for support



Figure 5. Example of 'Advisor Relationships' coded image (September 8, 2021)



Figure 6. Example of 'Financial Hardship/Employment Challenges' coded image (February 27, 2022)

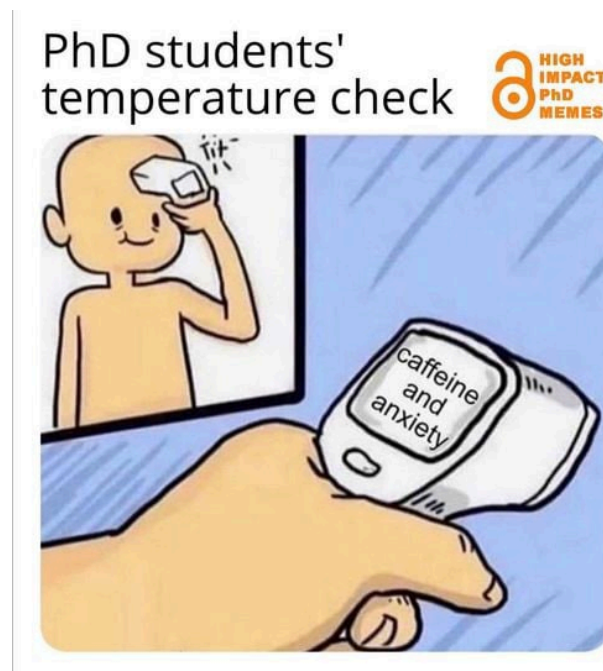


Figure 7. Example of 'Mental Health' coded image (November 29, 2021)



Figure 8. Example of 'Overwork' coded image (December 9, 2021)

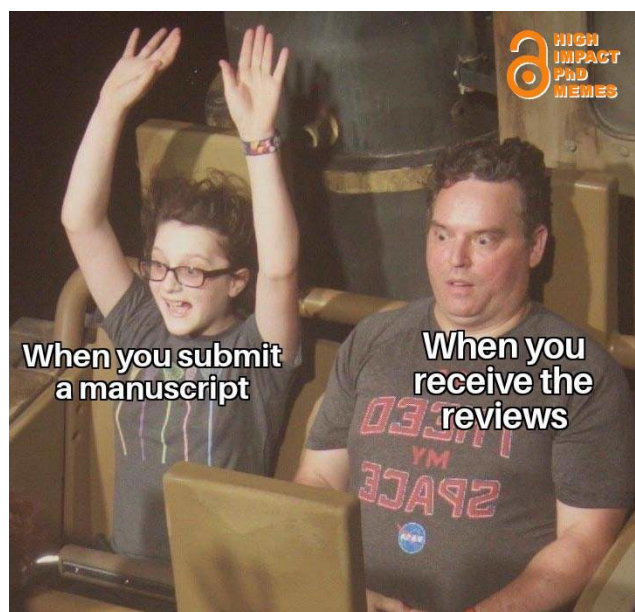


Figure 9. Example of 'Publishing Process' coded image (August 9, 2021)



Figure 10. Example of 'Procrastination' coded image (September 2, 2021)

When you supply to
your class articles
from sci-hub



Figure 11. Example of 'Literature Access' coded image (November 4, 2021)

Most dangerous traps in the world



Figure 12. Example of ‘PhD as Trap’ coded image (October 4, 2021)

Themes were applied to a total of 180 of the 208 images in the sample, leaving 28 images uncategorized. Of these 180 images, each was applied one of the thematic codes deemed to be most dominant in the image, which are displayed in Table 1 with their frequency tallies and percentage of the total coded images.

Table 1. Frequency of coded themes with percentage of total coded images represented by each

CODE	FREQUENCY	PERCENT OF IMAGES
Imposter Syndrome	37	20.55%
Advisor Relationships	32	17.77%
Publishing Process	36	20.00%
Mental Health	8	4.44%
PhD as Trap	2	1.11%
Financial Hardship / Employment Challenges	18	10.00%
Procrastination	15	8.33%
Overwork	20	11.11%
Literature Access	12	6.66%

RESONANCE

Only a handful of the posted memes (~7%) highly resonated with the audience. In order to represent resonance in tallies, every image deemed as having high resonance was given four points, high-average resonance three points, low-average resonance two points, and low resonance one point. A total of 334 points in total was given to the coded sample of 180 images. Table 2 provides the point frequency by themes, as well as the percentage of points earned by each theme.

Table 2. Resonance points of coded themes with percentage of total points earned by each

CODE	POINTS	PERCENT OF POINTS
Imposter Syndrome	71	21.01%
Advisor Relationships	50	14.79%
Publishing Process	59	17.46%
Mental Health	15	4.43%
PhD as Trap	3	0.89%
Financial Hardship/ Employment Challenges	40	11.83%
Procrastination	24	7.10%
Overwork	43	12.72%
Literature Access	33	9.76%

To compare the resonance of each theme, Table 3 presents the percentage of total represented images for every theme compared to the percentage of resonance points earned for each theme. This demonstrates which themes generally resonated most highly with the *High-Impact PhD Memes* audience.

Table 3. Coded themes with percentage of total images represented, percentage of total resonance points earned, and difference between representation percentage and points earned percentage

CODE	PERCENT OF IMAGES	PERCENT OF POINTS	Δ
Imposter Syndrome	20.55%	21.01%	0.46
Advisor Relationships	17.77%	14.79%	-2.98
Publishing Process	20.00%	17.46%	-2.54
Mental Health	4.44%	4.43%	-0.01
PhD as Trap	1.11%	0.89%	-0.22
Financial Hardship/ Employment Challenges	10.00%	11.83%	1.83
Procrastination	8.33%	7.10%	-1.23
Overwork	11.11%	12.72%	1.61
Literature Access	6.66%	9.76%	3.10

The average resonance scores for each theme varied – the highest average point score was for Literature Access (2.75), followed by Financial Hardship/Employment Challenges (2.22), Overwork (2.15), Imposter Syndrome (1.92), and Mental Health (1.88). The lowest average point scores were for PhD as Trap (1.50), Advisor Relationships (1.56), Procrastination (1.60), and Publication Process (1.64).

The full bar code visualization for the entire sample is located in Figure 13, which visually depicts the resonance measures and themes for each image in chronological sequence through color coding and

color saturation. The color key that associates each theme with a specific color is in Figure 2 in the *Methods* section.

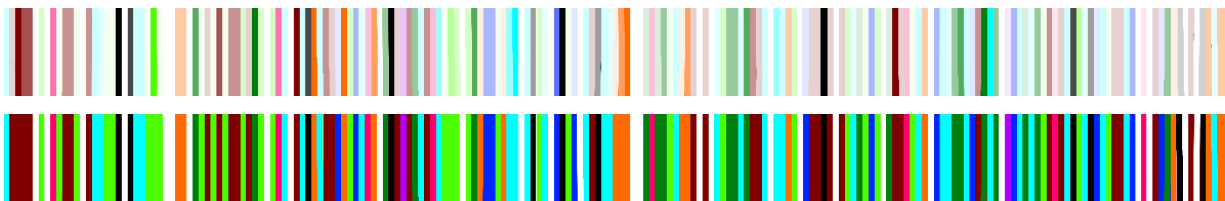


Figure 12. Bar codes representing theme frequency (bottom) and emotional resonance with audience (top) throughout sample (August 1, 2021 – February 28, 2022)

DISCUSSION

One of the most intriguing findings is that the most frequently appearing themes did not resonate as highly with the audience on average. It is possible that these themes – such as Advisor Relationships and Publishing Process – met with diminishing returns as they were frequently presented to the audience, fatiguing the emotional resonance that they felt with those images. Therefore, the lack of resonance with these images may not be attributable to the target audience seeing them as irrelevant, particularly given the documentation of their represented issues in the population (Barreira et al., 2018; Waaijer et al., 2018). Conversely, the rarely occurring Literature Access theme resonated remarkably well with the audience. There are a few possible explanations for this. First, the scarcity of the theme may have led to higher resonant reactions when it did appear. Additionally, Literature Access is particularly an issue with online journals, and the audience of *High-Impact PhD Memes* are active online users de facto, which may make the issue particularly relevant to them. Showing the images to graduate students who don't spend significant amounts of time online likely wouldn't lead to the same amount of resonance.

Another notable finding is that Mental Health did not resonate as highly as expected, given the theory that memes are used as collective coping (Ortiz et al., 2021; Zidani, 2021). Even Imposter Syndrome, which is Mental Health adjacent and similarly well documented among graduate students, did not resonate highly with the audience on average (Barreira, et al., 2018; Gin et al., 2021). It is possible that the audience resonated with more specific day-to-day frustrations, such as Overwork and Financial Hardship / Employment Concerns, which are both also well-documented concerns for the population (Almy, 2020; Evans et al., 2018; Jones-White et al., 2020; Levecque et al., 2017; Mattijssen et al., 2021; Meijer et al., 2018). This could indicate that alleviating issues like low pay and poor work-life balance are ideal foci for institutional efforts and may help with partially remedying the connected meta-issue of poor mental health and persistent low moods among graduate students.

It is evident that, had the themes been considered without the measure of emotional resonance of the audience, the findings would have looked quite different, and led to different conclusions. This supports the consideration of resonance/reception in conjunction with measuring frequency when considering the impact and content of internet memes within niche communities, as it offers a different dimension of data about a population of interest.

LIMITATIONS

This study has a handful of notable limitations. First, only one researcher coded the themes, which is not ideal for the purposes of qualitative reliability. It is feasible that another researcher would have categorized some of the individual images differently or identified different categories entirely. Additionally, the reception to the messages and themes in the analyzed memetic images is highly subjective, and it is possible that different audiences – individual students – could interpret them differently from each other. The analysis of the memes in this study is based on the subjective interpretation of

the researcher, which may differ from the perspectives of other audiences. While the codes and their definitions were designed to minimize ambiguity in their applications, there is still some room for differing interpretations.

Due to the subjectivity of the analysis, the positionality of the sole researcher carries both advantages and limitations for the study. Being an insider to the population of interest ideally positions the researcher to perform this analysis. However, there are likely elements of the researcher's positionality (such as privileged identities and backgrounds) that color the recognition and identification of themes – and ultimately the overall analysis – which would have been mitigated by the inclusion of additional coders.

The resonance measure proposed in this paper is experimental, and not validated by other studies. The rationale for the developed formula is based on observations of the performance of memes and the predictions of cited theories of emotional contagion and selection. There may be better means to assess emotional resonance for internet memes, however, this study is meant to spur other scholars interested in improving upon this measure. Of note, there are almost certainly more factors than emotional resonance that combine to contribute to the success of individual meme images – such as the appeal of their visual “packaging” (Shifman, 2013, p. 69) and their successful integration of humor (Shifman, 2013, p. 67) – which this study does not take into account.

High-Impact PhD Memes, while popular, is not the only venue for PhD memes. The choice to sample solely from that page was based on its comparative popularity to other pages, but also partially out of convenience. It is possible that audiences for other pages would resonate with different themes, or other pages focus on different thematic content.

A key limitation of working with visual outputs - including color codes - is their lack of universal accessibility. The findings on resonance and theme frequency are therefore additionally reported in tables as opposed to only being contained in the bar code visualizations, which could be illegible to many readers. Likewise, the tables allow the findings to be read and interpreted in printings and renderings that are not full-color.

Lastly, while the population of followers of *High-Impact PhD Memes* is almost certainly largely graduate students and former graduate students due to its niche focus, this cannot be verified without looking into the available data on every Facebook user following the page. It is possible – even likely – that some number of the reactions and shares for any given image come from individuals outside of the population of focus.

IMPLICATIONS AND CONCLUSION

The well-documented crisis of mental health and stress among graduate students is a pressing concern for higher education as a field. The analysis of PhD memes provides a new avenue to explore the crisis and can help to better understand the experiences and attitudes of graduate students related to it – in ways that may not emerge from conventional techniques such as surveying and interviewing (de Deus et al., 2022). Assessing the emotional resonance of the population with various issues may provide guidance for programmatic improvement and help identify issues of the highest or most imminent concern for the group. This study offers methodological innovation in how to use internet memes as data, by presenting a measure of the emotional response to posted images in relation to other images posted to the same audience. The methods here could be used to analyze the attitudes and perceptions of other niche-interest meme communities through emotional resonance, which is a novel dimension of memes that has not been explored in a data-driven way in the past. This can also allow access to elusive or sensitive populations that are difficult to sample or survey but might maintain active online communities that offer a degree of anonymity.

REFERENCES

- Adams, J. (2019). *Relatable oddities: The quirky intimacy of mental health memes* [Master's thesis, Vanderbilt University]. <https://etd.library.vanderbilt.edu/etd-09272019-132059>
- Almy, A. (2020). *An examination of social support during graduate school and how they moderate stressors, anxiety, depression, flourishing, and positive well-being* [Master's thesis, Oklahoma State University]. https://shareok.org/bitstream/handle/11244/328640/Almy_okstate_0664M_16835.pdf?sequence=1&isAllowed=y
- Al-Natour, R. (2021). The digital racist fellowship behind the anti-Aboriginal internet memes. *Journal of Sociology*, 57(4), 780–805. <https://doi.org/10.1177/1440783320964536>
- Ask, K., & Abidin, C. (2018). My life is a mess: Self-deprecating relatability and collective identities in the memification of student issues. *Information, Communication & Society*, 21(6), 834–850. <https://doi.org/10.1080/1369118X.2018.1437204>
- Askanius, T. (2021). On frogs, monkeys, and execution memes: Exploring the humor-hate nexus at the intersection of neo-Nazi and alt-right movements in Sweden. *Television & New Media*, 22(2), 147–165. <https://doi.org/10.1177/1527476420982234>
- Barreira, P., Basílico, M., & Bolotnyy, V. (2018). Graduate student mental health: Lessons from American economics departments (Working Paper). Harvard University. https://scholar.harvard.edu/files/bolotnyy/files/bbb_mentalhealth_paper.pdf
- Bell, C., & Sternberg, E. (2001). Emotional selection in memes: The case of urban legends. *Journal of Personality and Social Psychology*, 81(6), 1028–1041. <https://doi.org/10.1037//0022-3514.81.6.1028>
- Bellar, W., Campbell, H., Cho, K., Terry, A., Tsuria, R., Yadlin-Segal, A., & Ziemer, J. (2013). Reading religion in internet memes. *Journal of Religion, Media, and Digital Culture*, 2(2), 1–39. <https://doi.org/10.1163/21659214-90000031>
- Boa Sorte, P. (2019). Internet memes: Classroom perspectives in the context of digital cultures. *Educação & Formação, Fortaleza*, 4(12), 51–66. <https://doi.org/10.25053/redufor.v4i12.1385>
- Borgogna, N. C., Smith, T., Berry, A., & McDermott, R. (2021). An evaluation of the mental health, financial stress, and anticipated debt-at-graduation across clinical and counseling PhD and PsyD students. *Teaching of Psychology*, 48(4), 328–338. <https://doi.org/10.1177/0098628320980856>
- Braxton, J., Proper, E., & Bayer, A. (2011). *Professors behaving badly: Faculty misconduct in graduate education*. John Hopkins University Press. <https://doi.org/10.1353/book.10325>
- Brubaker, P., Church, S. H., Hansen, J., Pelham, S., & Ostler, A. (2018). One does not simply meme about organizations: Exploring the content creation strategies of user-generated memes on Imgur. *Public Relations Review*, 44(5), 741–751. <https://doi.org/10.1016/j.pubrev.2018.06.004>
- Calimbo, A. C. (2016). Deconstructing myths via humor: A semiotic analysis of Philippine political internet memes. *CASS Langkit Journal*, 6, 1–20. <https://msuiit.edu.ph/academics/colleges/cass/research/langkit/2016/1-20.pdf>
- Cannizzaro, S. (2016). Internet memes as internet signs: A semiotic view of digital culture. *Sign Systems Studies*, 44(4), 562–586. <https://doi.org/10.12697/SSS.2016.44.4.05>
- Charles, S. T., Karnaze, M. M., & Leslie, F. M. (2021). Positive factors related to graduate student mental health. *Journal of American College Health*, 70(6), 1858–1866. <https://doi.org/10.1080/07448481.2020.1841207>
- Chirikov, I., Soria, K. M., Horgos, B., & Jones-White, D. (2020). *Undergraduate and graduate students' mental health during the COVID-19 pandemic*. Center for Studies in Higher Education, UC Berkeley. <https://escholarship.org/uc/item/80k5d5hw>
- Clance, P., & Imes, S. (1978). The imposter phenomenon in high achieving women: Dynamics and therapeutic intervention. *Psychotherapy: Theory, research, and practice*, 15(3), 241–247. <https://doi.org/10.1037/h0086006>
- Coffino, J., Spoor, S., Drach, R., & Hormes, J. (2020). Food insecurity among graduate students: Prevalence and association with depression, anxiety and stress. *Public Health Nutrition*, 24(7), 1889–1894. <https://doi.org/10.1017/S1368980020002001>

- Cohen, E. D., & McConnell, W. R. (2019). Fear of fraudulence: Graduate school program environments and the impostor phenomenon. *Sociological Quarterly*, *60*(3), 457–478. <https://doi.org/10.1080/00380253.2019.1580552>
- Dawkins, R. (1976). *The selfish gene*. Oxford University Press.
- de Deus, E. P., Campos, R. D., & Rocha, A. R. (2022). Memes as shortcut to consumer culture: A methodological approach to covert collective ideologies. *Revista de Administração Contemporânea*, *26*(4), e210005. <https://doi.org/10.1590/1982-7849rac2022210005.en>
- Destira, Y., Hidayat, D. N., Alek, A., & Sufyan, A. (2021). A discourse analysis of education memes on Instagram. *Loquen: English Studies Journal*, *14*(1), 48–57. <https://doi.org/10.32678/loquen.v14i1.3214>
- di Pierro, M. (2017). Mental health and the graduate student experience. *The Journal for Quality and Participation*, *40*(1), 24–27. <https://www.proquest.com/scholarly-journals/mental-health-graduate-student-experience/docview/1895913017/se-2>
- Drakett, J., Rickett, B., Day, K., & Milnes, K. (2018). Old jokes, new media: Online sexism and constructions of gender in internet memes. *Feminism & Psychology*, *28*(1), 109–127. <https://doi.org/10.1177/0959353517727560>
- Dyrbye, L. N., Thomas, M. R., & Shanafelt, T. D. (2005). Medical student distress: Causes, consequences, and proposed solutions. *Mayo Clinic Proceedings*, *80*(12), 1613–1622. <https://doi.org/10.4065/80.12.1613>
- Eisenberg, D., Downs, M. F., Golberstein, E., & Zivin, K. (2009). Stigma and help seeking for mental health among college students. *Medical Care Research and Review*, *66*(5), 522–541. <https://doi.org/10.1177/1077558709335173>
- El-Masry, M. (2021). Humor and social media: A linguistic analysis of some Egyptian coronavirus memes. *Nile Valley Journal of Human, Social and Educational Studies and Research*, *30*, 707–754. <https://doi.org/10.21608/jwadi.2021.72327.1007>
- Evans, T. M., Bira, L., Gastelum, J. B., Weiss, L. T., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature Biotechnology*, *36*(3), 282–284. <https://doi.org/10.1038/nbt.4089>
- Gallea, J. I., Medrano, L., & Morera, L. (2021). Work-related mental health issues in graduate student population. *Frontiers in Neuroscience*, *15*, 1–8. <https://doi.org/10.3389/fnins.2021.593562>
- Garcia-Williams, A., Moffitt, L., & Kaslow, N. J. (2014). Mental health and suicidal behavior among graduate students. *Academic Psychiatry*, *38*(5), 554–560. <https://doi.org/10.1007/s40596-014-0041-y>
- Gin, L. E., Wiesenthal, N. J., Ferreira, I., & Cooper, K. M. (2021). PhDepression: Examining how graduate research and teaching affect depression in life sciences PhD students. *CBE - Life Sciences Education*, *20*(3). <https://doi.org/10.1187/cbe.21-03-0077>
- González-Betancor, S. M., & Dorta-González, P. (2020). Risk of interruption of doctoral studies and mental health in PhD students. *Mathematics*, *8*(10). <https://doi.org/10.3390/math8101695>
- González-Solar, L., & Fernandez-Marcial, V. (2019). Sci-Hub, a challenge for academic and research libraries. *Profesional De La Información*, *28*(1). <https://doi.org/10.3145/epi.2019.ene.12>
- Grad school memes with relatable themes. (n.d.). *Discussion* [Facebook group]. Facebook. Retrieved March 25, 2022 from <https://www.facebook.com/groups/224499005098179>
- Grady, R. K., La Touche, R., Oslawski-Lopez, J., Powers, A., & Simacek, K. (2014). Betwixt and between: The social position and stress experiences of graduate students. *Teaching Sociology*, *42*(1), 5–16. <https://doi.org/10.1177/0092055X13502182>
- Greene, V. (2019). “Deplorable” satire: Alt-right memes, white genocide tweets, and redpilling normies. *Studies in American Humor*, *5*(1), 31–69. <https://doi.org/10.5325/studamerhumor.5.1.0031>
- Guadagno, R., Rempala, D., Murphy, S., & Okdie, B. (2013). What makes a video go viral? An analysis of emotional contagion and Internet memes. *Computers in Human Behavior*, *29*(6), 2312–2319. <https://doi.org/10.1016/j.chb.2013.04.016>

High Impact, Low Mood

- Helmets, K. F., Danoff, D., Steinert, Y., Leyton, M., & Young, S. N. (1997). Stress and depressed mood in medical students, law students, and graduate students at McGill University. *Academic Medicine*, 72(8), 708–714. <https://doi.org/10.1097/00001888-199708000-00018>
- High impact PhD memes. (n.d.). Home [Facebook page]. Facebook. Retrieved March 25, 2022, from <https://www.facebook.com/MemingPhD>
- Howley, K. (2016). 'I have a drone': Internet memes and the politics of culture. *Interactions: Studies in Communication & Culture*, 7(2), 155–175. https://doi.org/10.1386/iscc.7.2.155_1
- Hsieh, H., & Shannon, S. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9). <https://doi.org/10.1177/1049732305276687>
- Huntington, H. (2016). Pepper spray cop and the American dream: Using synecdoche and metaphor to unlock internet memes' visual political rhetoric. *Communication Studies*, 67(1), 77-93. <https://doi.org/10.1080/10510974.2015.1087414>
- Hyun, J., Quinn, B., Madon, T., & Lustig, S. (2006). Graduate student mental health: Needs assessment and utilization of counseling services. *Journal of College Student Development*, 47(3), 247-266. <https://doi.org/10.1353/csd.2006.0030>
- Johann, M., & Bulow, L. (2019). One does not simply create a meme: Conditions for the diffusion of internet memes. *International Journal of Communication*, 13(1), 1720–1742. <https://ijoc.org/index.php/ijoc/article/viewFile/9169/2622>
- Jones-White, D. R., Soria, K. M., Tower, E. K., & Horner, O. G. (2020). Factors associated with anxiety and depression among US doctoral students: Evidence from the gradSERU survey. *Journal of American College Health*, 70(8), 24332444. <https://doi.org/10.1080/07448481.2020.1865975>
- Kreger, D. (1995). Self-esteem, stress, and depression among graduate students. *Psychological Reports*, 76, 345–346. <https://doi.org/10.2466/pr0.1995.76.1.345>
- Larson, R. C., Ghaffarzadegan, N., & Xue, Y. (2014). Too many PhD graduates or too few academic job openings: The basic reproductive number R_0 in academia. *Systems Research and Behavioral Science*, 31(6), 745–750. <https://doi.org/10.1002/sres.2210>
- Levecque, K., Anseel, F., De Beuckelaer, A., Van der Heyden, J., & Gisle, L. (2017). Work organization and mental health problems in PhD students. *Research Policy*, 46(4), 868–879. <https://doi.org/10.1016/j.respol.2017.02.008>
- Liu, C., Wang, L., Qi, R., Wang, W., Jia, S., Shang, D., Shao, Y., Yu, M., Zhu, X., Yan, S., Chang, Q., & Zhao, Y. (2019). Prevalence and associated factors of depression and anxiety among doctoral students: The mediating effect of mentoring relationships on the association between research self-efficacy and depression/anxiety. *Psychology Research and Behavior Management*, 12, 195–208. <https://doi.org/10.2147/PRBM.S195131>
- Mattijssen, L., Bergmans, J., van der Weijden, I., & Teelken, J. C. (2021). In the eye of the storm: The mental health situation of PhD candidates. *Perspectives on Medical Education*, 10, 71–72. <https://doi.org/10.1007/s40037-020-00639-4>
- McGregor, L. N., Gee, D. E., & Posey, K. E. (2008). I feel like a fraud and it depresses me: The relation between the imposter phenomenon and depression. *Social Behavior and Personality: An International Journal*, 36(1), 43–48. <https://doi.org/10.2224/sbp.2008.36.1.43>
- Meijer, I., van der Weijden, I., van der Ven, I., & Beukman, J. (2018, September). Academic working conditions and mental health of PhD candidates. *Proceedings of the 23rd International Conference on Science and Technology Indicators, Leiden, The Netherlands*, 1083-1089.
- The mental health of PhD researchers demands urgent attention [Editorial]. (2019, November 13). *Nature*, 575, 257–258. <https://doi.org/10.1038/d41586-019-03489-1>
- Mielszarek, N. (2018). The “pepper-spraying cop” icon and its internet memes: Social justice and public shaming through rhetorical transformation in digital culture. *Visual Communication Quarterly*, 25(2), 67–81. <https://doi.org/10.1080/15551393.2018.1456929>

- Milner, R. (2013). Pop polyvocality: Internet memes, public participation, and the Occupy Wall Street movement. *International Journal of Communication*, 7(1), 2357–2390. <https://ijoc.org/index.php/ijoc/article/view/1949/1015>
- Mongrain, M., & Blackburn, S. (2005). Cognitive vulnerability, lifetime risk, and the recurrence of major depression in graduate students. *Cognitive Therapy and Research*, 29, 747–768. <https://doi.org/10.1007/s10608-005-4290-7>
- Moody-Ramirez, M., Tait, G., & Bland, D. (2021). An analysis of George Floyd-themed memes. *Journal of Social Media in Society*, 10(2), 373–401. <https://theisms.org/index.php/JSMS/article/view/847>
- Moreno-Almeida, C. (2021). Memes as snapshots of participation: The role of digital amateur activists in authoritarian regimes. *New Media & Society*, 23(6), 1545–1566. <https://doi.org/10.1177/1461444820912722>
- Nash, C. (2021). Improving mentorship and supervision during COVID-19 to reduce graduate student anxiety and depression aided by an online commercial platform narrative research group. *Challenges*, 12(11), 1–18. <https://doi.org/10.3390/challe12010011>
- Newton, G., Zappavigna, M., Drysdale, K., & Newman, C. (2022). More than humor: Memes as bonding icons for belonging in donor-conceived people. *Social Media + Society*, 8(1), 1–13. <https://doi.org/10.1177/20563051211069055>
- Norstrom, R., & Sarna, P. (2020). Memes de internet en tiempos de confinamiento por Covid-19 en Polonia [Internet memes in Covid-19 lockdown times in Poland]. *Comunicar: Revista Científica de Comunicación y Educación*, 67(1). <https://doi.org/10.3916/C67-2021-06>
- Ortiz, J., Corrada, M., Lopez, E., & Dones, V. (2021). Analysis of the use of memes as an exponent of collective coping during COVID-19 in Puerto Rico. *Media International Australia*, 178(1), 168–181. <https://doi.org/10.1177/1329878X20966379>
- Overbye, D. (2007, March 27). When student-adviser tensions erupt, the results can be fatal. *The New York Times*. <https://www.nytimes.com/2007/03/27/science/27murd.html>
- Pain, E. (2018, March 6). Graduate students need more mental health support, study highlights. *Science*. <https://doi.org/10.1126/science.caredit.aat5139>
- Papapicco, C., & Mininni, G. (2020). Impact memes: PhDs HuMor(e). *Multimedia Tools & Applications*, 79(1), 35973–35997. <https://doi.org/10.1007/s11042-020-09166-0>
- Pelayo, J. (2018). *A review on depression in graduate school students* [Unpublished manuscript]. <https://eric.ed.gov/?id=ED590560>
- Peluso, D. L., Carleton, R. N., & Asmundson, G. (2011). Depression symptoms in Canadian psychology graduate students: Do research productivity, funding, and the academic advisory relationship play a role? *Canadian Journal of Behavioral Science*, 43(2), 119–127. <https://doi.org/10.1037/a0022624>
- Piled higher and deeper: The comic relief of Jorge Cham. (2017, December). *Stanford Magazine*. <https://stanfordmag.org/contents/piled-higher-and-deeper-the-comic-relief-of-jorge-cham>
- Pjesky, R., Spaulding, A., & Wood, J. (2019). Factors determining attendance in graduate programs: Differences in admitted and enrolled students. *Research in Higher Education Journal*, 36. <https://eric.ed.gov/?id=EJ1204024>
- Procházka, O. (2016). Cohesive aspects of humor in internet memes on Facebook: A Multimodal sociolinguistic analysis. *Ostrava Journal of English Philology*, 8, 7–38.
- Puri, P. (2019, January 31). The emotional toll of graduate school. *Scientific American*. <https://blogs.scientificamerican.com/observations/the-emotional-toll-of-graduate-school/>
- Saul, A., & Fish, M. (2012). Anxiety and college students: the benefits of mindfulness-based meditation. *Recreation, Parks, and Tourism in Public Health*, 3(1), 139–154. <https://doi.org/10.2979/rptph.3.1.09>
- Shifman, L. (2013). *Memes in digital culture*. MIT Press. <https://doi.org/10.7551/mitpress/9429.001.0001>

- Shomova, S. (2020). Meme literacy in Russia: Perceptions of internet memes by a student audience and issues of critical thinking. *Central European Journal of Communication*, 13(2), 266–283. [https://doi.org/10.19195/1899-5101.13.2\(26\).7](https://doi.org/10.19195/1899-5101.13.2(26).7)
- Siddiqi, N., Bains, A., Mushtaq, A., & Aleem, S. (2018). Analysing threads of sexism in new age humor: A content analysis of internet memes. *Indian Journal of Social Research*, 59(3), 355–367.
- Smith, S. (2021). *What do you meme? An analysis of how college students at Central Washington University use memes* [Honors thesis, Central Washington University]. https://digitalcommons.cwu.edu/undergrad_hontheses/39
- Solomon, D., & Bjork, B. (2012). Publication fees in open access publishing: Sources of funding and factors influencing choice of journal. *Journal of the American Society for Information Science and Technology*, 63(1), 98–107. <https://doi.org/10.1002/asi.21660>
- Stanford Graduate Student Council. (2018, April 2). *Final Report: 2017 Stanford University Graduate Student Life Survey*. <https://static1.squarespace.com/static/5a371f50bfff200aa91b5113a/t/5ac1dcb8a922d9f466b040d/1522654403498/GSC-DAC+2017-18+Survey+Report.pdf>
- Stubb, J., Pyhältö, K., & Lonka, K. (2011). Balancing between inspiration and exhaustion: PhD students' experienced socio-psychological well-being. *Studies in Continuing Education*, 33(1), 33–50. <https://doi.org/10.1080/0158037X.2010.515572>
- Sverdlík, A., Hall, N., McAlpine, L., & Hubbard, K. (2018). The PhD experience: A review of the factors influencing doctoral students' completion, achievement, and well-being. *International Journal of Doctoral Studies*, 13(1), 361–388. <https://doi.org/10.28945/4113>
- Szablewicz, M. (2014). The 'losers' of China's internet: Memes as 'structures of feeling' for disillusioned young netizens. *China Information*, 28(2), 259–275. <https://doi.org/10.1177/0920203X14531538>
- UC-Berkeley Graduate Assembly. (2014). *Graduate student happiness & well-being report*. http://ga.berkeley.edu/wp-content/uploads/2015/04/wellbeingreport_2014.pdf
- Waaier, C., Teelken, C., Wouters, P., & van der Weijden, I. (2018). Competition in science: Links between publication pressure, grant pressure, and the academic job market. *Higher Education Policy*, 31, 225–243. <https://doi.org/10.1057/s41307-017-0051-y>
- Washington, J. A. (2004). *The relationship between procrastination and depression among graduate and professional students across academic programs: Implications for counseling* (UMI No. 3155848) [Doctoral dissertation, Texas Southern University]. <https://www.proquest.com/docview/305104727>
- Wiggins, B. (2016). Crimea River: Directionality in memes from the Russia–Ukraine conflict. *International Journal of Communication*, 10, 451–485. <https://ijoc.org/index.php/ijoc/article/view/4103/1548>
- Wiggins, B., & Bowers, G. (2015). Memes as genre: A structural analysis of the memescape. *New Media & Society*, 17(11), 1886–1906. <https://doi.org/10.1177/1461444814535194>
- Williams, A. (2020). Black memes matter: #livingwhileblack with Becky and Karen. *Social Media + Society*, 6(4), 1–14. <https://doi.org/10.1177/2056305120981047>
- Woo, E. (2019, March 13). 'A toxic culture of overwork': Inside the graduate student mental health crisis. *The Stanford Daily*. <https://stanforddaily.com/2019/03/13/a-toxic-culture-of-overwork-inside-the-graduate-student-mental-health-crisis/>
- Woolston, C. (2017). Graduate survey: A love–hurt relationship. *Nature*, 550, 549–552. <https://doi.org/10.1038/nj7677-549a>
- Woolston, C. (2019a, August 30). A better future for graduate-student mental health. *Nature*. <https://doi.org/10.1038/d41586-019-02584-7>
- Woolston, C. (2019b). PhDs: The tortuous truth. *Nature*, 575, 403–406. <https://doi.org/10.1038/d41586-019-03459-7>
- Youngclaus, J., Bunton, S., & Fresne, J. (2017). An updated look at attendance cost and medical debt at U.S. medical schools. *University Studies*. <https://archives.pdx.edu/ds/psu/30572>

- Zidani, S. (2021). Messy on the inside: internet memes as mapping tools of everyday life. *Information, Communication, & Society*, 24(16), 2378–2402. <https://doi.org/10.1080/1369118X.2021.1974519>
- Zidjaly, N. (2017). Memes as reasonably hostile laments: A discourse analysis of political dissent in Oman. *Discourse & Society*, 28(6), 573–594. <https://doi.org/10.1177/0957926517721083>

AUTHOR



Gordon Maples is a doctoral candidate at North Carolina State University in the Higher Education Opportunity, Equity, and Justice program. His scholarly work has included research on the experiences of college students from diverse religious, secular, and spiritual identity (RSSI) backgrounds, higher education leadership and crisis communications, and the depictions of higher education in popular culture.