

Global University Rankings and the Politics of Knowledge

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9 Motivation and Well-Being of Faculty and Graduate Students: Empirical Relations with University Rankings

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Over the past few decades, researchers have increasingly examined how faculty and graduate students are responding psychologically to the rapidly changing nature of learning, instruction, and scholarship in higher education. Following from the massification of instruction and open scholarship due to remarkable gains in information technology (Lundberg & Cooper, 2010), combined with the widespread adoption of private-sector principles of consumer satisfaction, deliverables, and public accountability (Anderson, 2006; Pollitt & Bouckaert, 2004), post-secondary institutions now compete for students, faculty, and resources on an international scale. However, this shift in focus on post-secondary visibility and comparisons has corresponded with significant changes in the nature of academic work and training, with faculty and graduate students facing heightened demands for teaching excellence and research productivity despite a lack of commensurate resources (Biron et al., 2008; Kinman, 2008; McAlpine & Akerlind, 2010; Rothmann & Barkhuizen, 2008).

Given the critical role of university rankings in bolstering institutional viability by way of undergraduate recruitment, it is not surprising that existing international research on university rankings has focused mainly on their efficacy as undergraduate recruitment tools as moderated by student demographics (e.g., socio-economic status, achievement; Clarke, 2007; Davies et al., 2014; Horst-schräer, 2012), as along with declines in rank, institution size, and proximity (Broecke, 2015; Carroll, 2014; Drewes & Michael, 2006; Mangan et al., 2010). Limited research has additionally examined the psychological correlates of university rankings, with this work having similarly focused on the perceptions of institutional reputability among potential undergraduates (Carroll, 2014; Drewes & Michael, 2006), as well as academic identity and learning satisfaction in current undergraduates (Huang et al., 2015). As such, research to date on how university rankings correspond with the psychological experiences of those who participate in these institutions has looked almost exclusively at how undergraduates and potential applicants perceive the institution with respect to

reputability and likelihood of attendance (for a review, see Espeland & Sauder, 2016). Although this focus is to be expected given its direct relevance to student recruitment efforts and a consumer satisfaction framework being increasingly adopted by universities, it does not account for the lived psychological experiences of other populations who directly enable the reputability of post-secondary institutions, namely faculty and graduate students.

Case Study: THE World University Rankings

As one of the most widely used and comprehensive rankings of post-secondary institutions internationally, the Times Higher Education (THE) World University Rankings have since 2011 attempted to quantify and rank the teaching and research success of over 1,000 institutions worldwide across thirteen performance indicators. With respect to teaching quality, the THE ranking incorporates institutional data concerning student demographics (e.g., international to domestic student ratio) and classroom composition (e.g., staff to student ratio). To assess research output, the THE ranking further includes non-self-report markers of research productivity (e.g., income, publication counts) and impact (e.g., citations, industry transfer). Taken together, the THE ranking algorithm compiles varied publicly observable, quantitative measures of teaching and research success to create a simplified omnibus metric of institutional quality with which universities can be compared internationally by potential students, university administrators, and funding agencies.

However, despite institutional ranking systems being largely informed by the teaching and research efforts of faculty at these institutions, empirical research has not yet extensively examined how university rankings correspond with the psychological experiences of *faculty members* who work at these institutions. For example, whereas the THE teaching rankings do address classroom composition (e.g., smaller classes being of greater benefit to students), they do not address associated teaching demands faced by faculty (e.g., greater burnout due to higher teaching loads; Watts & Robertson, 2011). Similarly, whereas THE research metrics do account for research productivity (e.g., publications) and income (e.g., grants), they do not reflect the pressure experienced by faculty to “publish or perish” and secure external funding despite increasing competition (Fernet et al., 2004).

This lack of consideration for the lived experiences of faculty is perhaps best reflected by an interesting paradox in how “reputability” is assessed in the THE rankings. More specifically, perceived reputability of a given institution within the academic community represents the largest THE ranking component ($\approx 33\%$) and is based exclusively on the perceived excellence in teaching and research as reported by “experienced, published scholars” (Times Higher Education, 2016). However, because faculty respondents to the annual THE

Reputation Survey (from which this THE ranking component is derived) are prohibited from reporting on the qualities of their own institution, these reputability indicators thus *by design* do not account for the internal institutional insights of the very faculty upon whose teaching and research efforts the THE rankings are based. Moreover, given long-standing research showing persistent discrepancies in how individuals report on their own experiences (e.g., nuanced personal and situational factors) as compared to those of others (e.g., actor-observer bias; Jones & Nisbett, 1971), this exclusion of faculty reports of their own institution also precludes a more nuanced, realistic assessment of critical social-environmental factors that may contribute to or impede academic productivity (e.g., resources, collegiality, support).

In addition to underexplored implications for post-secondary faculty, university rankings are similarly informed by the teaching and research activities of *graduate students*. For example, the THE rankings for teaching quality have consistently incorporated the ratio of doctoral students to bachelor's students based on the assumption that "a high proportion of postgraduate research students also suggests the provision of teaching at the highest level that is thus attractive to graduates and effective at developing them" (Times Higher Education, 2016). Although this ratio does reflect basic enrolment/completion rates, it does not account for the impact of available institutional resources (e.g., professional development, financial support) on graduate student motivation and productivity (Litalien & Guay, 2015). Similarly, whereas the "doctorates awarded to academic staff" ratio does attempt to capture the capability of institutions to train larger numbers of graduate students in a timely manner, it does not address the lived experiences of students in large graduate programs (e.g., lack of personalized supervision; Hein et al., 2011) or the psychological impact on faculty of training large numbers of graduate students (e.g., exhaustion; Lackritz, 2004).

Accordingly, although university rankings such as the THE are used internationally to help students and their parents choose quality institutions, and are supported by institutions to maintain viability and visibility in a competitive higher education marketplace, these metrics tend to employ simplified indicators of teaching efficacy (e.g., class size, demographic proportions) and research productivity (e.g., rate of publications, grants) that do not reflect the lived experiences of faculty or graduate students at these institutions. Moreover, whereas these rankings do reflect some engagement with these critical stakeholders by incorporating doctoral student ratios and perceptions of excellence by external established scholars (e.g., tenured faculty), this psychological aspect is limited due to excluding (a) perceptions of pre-tenure and non-tenure-track (e.g., adjunct) faculty, (b) perceptions of graduate students, and (c) other psychological variables involving motivation and well-being known to correlate with performance in faculty and graduate students. To address this research

gap, this chapter outlines preliminary empirical evidence from three recent international pilot studies with pre-tenure faculty, open-rank faculty (e.g., contingent through full professor status), and graduate students (both master's and PhD) to explore how the THE university rankings correspond with various established indicators of motivation and psychological health in these under-examined stakeholder populations.

Motivation and Well-Being of Faculty

Owing in large part to steadily increasing institutional demands for productivity and documented excellence in disparate teaching, research, and service obligations, recent international surveys of well-being in post-secondary faculty show stress levels to have increased significantly over the past two decades (Kinman & Jones, 2004; Rothmann & Barkhuizen, 2008; Watts & Robertson, 2011). Empirical research further indicates that faculty stress levels exceed those of other university staff, various other professional occupations (e.g., white-collar and social services workers, health professionals, military staff), and the general population (Goodwin et al., 2013; Tytherleigh et al., 2005). The current academic employment climate has also been found to contribute to high levels of occupational burnout and psychological health challenges (Watts & Robertson, 2011; Zhong et al., 2009). Given direct links between faculty well-being and research and teaching performance (Blix et al., 1994), research in this domain has focused on identifying critical antecedents and correlates of well-being and burnout in post-secondary faculty including both external, social-environmental factors (e.g., institutional demands) and internal, psychological variables (e.g., achievement motivation; for reviews, see Sabagh et al., 2018; Salimzadeh et al., 2017).

Social-Environmental Factors

Considering the extensive nature of existing empirical research showing that various elements of the academic work environment significantly impact faculty well-being, it stands to reason that university rankings as a proxy for institutional demands and resources should similarly correspond with psychological health indicators in this post-secondary community. For example, international findings consistently demonstrate the harmful effects of excessive job demands and overwork on burnout in faculty (Barkhuizen et al., 2014; van Emmerik, 2002; Zhong et al., 2009). Additionally, whereas high teaching loads and large class sizes have typically been found to negatively impact faculty well-being (Gonzalez & Bernard, 2006; Lackritz, 2004; Watts & Robertson, 2011), recent studies further highlight the psychological costs of contentious interactions with students (Frisby et al., 2015) and online instruction (Hogan & McKnight,

2007), as well as demands for research productivity and administrative service (Gomes et al., 2013; Vera et al., 2010).

Research with post-secondary faculty also underscores the critical role of social support in mitigating experiences of burnout (Otero-López et al., 2008; Singh & Bush, 1998; van Emmerik, 2004), with findings showing higher burnout levels among faculty who report unsupportive relationships with administrators or colleagues (Barkhuizen et al., 2014; Rothmann et al., 2008; van Emmerik, 2002). Beyond the psychological strain of balancing disparate academic and professional responsibilities in terms of role conflict (Fernet et al., 2004; Ghorpade et al., 2011; van Emmerik, 2004), findings show balancing one's academic work with personal or family obligations to be a particularly salient contributor to faculty burnout (Hogan et al., 2014; Kinman, 2008).

Psychological Correlates

Given the extent to which various psychological variables involving motivation and emotional well-being have been empirically observed to correspond with stress and burnout in faculty populations, it was expected that university rankings should similarly be related to these critical psychological processes. For example, motivational beliefs reflecting perceived competence (Navarro et al., 2010), perceived control over academic stressors (Gomes et al., 2013), and intrinsic motivation (Li et al., 2013; Singh & Bush, 1998) have consistently been found to correspond with lower psychological strain in faculty. Similarly, emotional experiences pertaining to academic work have been shown to correspond with psychological health in faculty, including not only general measures of job satisfaction (Lundberg & Cooper, 2010; Zhang & Zhu, 2008) but more specific measures assessing discrete emotions such as enjoyment, pride, anger, or anxiety related to teaching (Gates, 2000; Hagenauer & Volet, 2014) or to research activities (Stupnisky et al., 2019; Stupnisky et al., 2016).

With respect to more serious psychological adjustment correlates of burnout and stress in the context of academic employment, studies show specific coping strategies to correspond with faculty well-being (e.g., humour, emotional labour; Blix et al., 1994; Tümkaya, 2007; Zhang & Zhu, 2008) as well as job engagement and quitting intentions (e.g., Barkhuizen et al., 2014; Li et al., 2013). Findings also show links between stress and depression in post-secondary faculty (e.g., Shen et al., 2014; Zhong et al., 2009), with poor psychological health among faculty further linked to greater physical illness symptoms (Dreyer et al., 2010; Sang, Teo, Cooper, & Bohle, 2013). Taken together, considering the scope of social-environmental and psychological variables found to overlap empirically with stress and burnout in faculty members, it was hypothesized that university rankings should similarly correspond with these critical occupational and psychological indicators.

Potential Relations with University Rankings

Given the current lack of research exploring the linkages between university rankings and the psychological experiences of faculty who work at these institutions, with the notable exception of recent work exploring rankings-related anxiety experienced by university administrators (Espeland & Sauder, 2016), the specific expected magnitudes and directions of these relations remain unclear. For example, to the extent that higher THE rankings reflect optimal teaching environments and research productivity, faculty at higher-ranked institutions should report greater motivation for teaching and research than faculty at lower-ranked institutions. Alternatively, should higher THE rankings also reflect greater pressure for high-profile publications and grant funding (e.g., at the expense of quality instruction), faculty at higher-ranked institutions may experience poorer psychological well-being than their colleagues at lower-ranked, teaching-focused institutions. Similarly, whereas faculty at higher-ranked universities may perceive greater internal support for their teaching and research efforts (e.g., resources, collegiality), they may also experience a more individualistic, competitive, and performance-focused work environment that could mitigate or override the psychological benefits of available supports. Thus, given the speculative and potentially mixed nature of relations between university rankings and the psychological experiences of faculty, the present studies aimed to shed some light on if and how such relations may be observed on an international scale.

Motivation and Well-Being of Graduate Students

In stark contrast to the extensive extant literature on the interplay between structural and personal variables in undergraduate populations, research on the educational, social, and psychological experiences of graduate students is surprisingly limited. Over the past fifty years, attrition from graduate programs has remained consistently high (e.g., $\approx 50\%$; Lovitts, 2001) as have the rates of graduate students reporting high stress levels (Virtanen et al., 2017; Wyatt & Oswald, 2013), psychological health concerns (Hyun et al., 2006; Pallos et al., 2005), and physical illness (Juniper et al., 2012). Beyond the obvious challenges of graduate education with respect to completing program requirements (e.g., coursework, thesis) and developing professional competencies (e.g., synthesis, analysis, dissemination, instruction), graduate students also face ever-increasing demands for research excellence and productivity in a context of heightened competition (e.g., financial support, employment) that further threaten their performance and well-being (Geraoui, 2010; Tanaka & Watanabea, 2012).

Social-Environmental Factors

Given existing research on graduate student development showing that various external, social-environmental factors contribute to stress and well-being levels (for a review, see Sverdlik et al., 2018), it was expected that university rankings, as a proxy for quality training and resources for doctoral students, should similarly correspond with motivation and psychological health in graduate students more generally. For example, findings show quality of supervision to be consistently cited by graduate students as impacting their satisfaction, persistence, and performance (Gube et al., 2017; Solem et al., 2011), with supervisors who exhibit distinct mentorship characteristics (e.g., timely feedback, regular meetings, clear expectations, equitability) proving optimal for student development (Hein et al., 2011; McAlpine & McKinnon, 2013). Research with graduate students further illustrates the importance of institutional support, with clear performance expectations (Gardner, 2013; Hoskins & Goldberg, 2005; Lin, 2012) and greater opportunities for skill and career development being particularly critical for mitigating stress in graduate students (Austin, 2009; O'Meara et al., 2014). Graduate students at institutions that provide greater financial support also tend to report greater well-being and persistence (Leijen et al., 2016; Litalien & Guay, 2015), with studies further showing the struggle to balance academic work with personal obligations to negatively impact persistence and well-being (Castelló et al., 2017; Levecque et al., 2017).

Psychological Correlates

Considering the aforementioned research showing how specific aspects of graduate education contribute to greater stress, significant relations were also expected between university rankings and other psychological variables associated with stress in graduate students. With respect to motivational beliefs, studies have found graduate students' perceptions of personal competence to correlate with motivation and productivity (Lambie & Vaccaro, 2011; Litalien & Guay, 2015), and research also highlights the importance of intrinsic motivation in response to educational challenges (Devos et al., 2017; Flynn et al., 2012). Recent research has further explored graduate students' motivational beliefs concerning their skill development (De Welde & Laursen, 2008; Stubb et al., 2012) and extrinsic concerns (e.g., employability; Brailsford, 2010). More serious indicators of well-being have also been examined in graduate students, including coping strategies (e.g., self-talk, help-seeking; Geraniou, 2010; Sala-Bubaré & Castelló, 2016), as well as burnout and depression (Galdino et al., 2016; Uqdah et al., 2009).

Potential Relations with University Rankings

As existing research on the correspondence between university rankings and the lived experiences of graduate students is regrettably limited, the magnitude and direction of potential relations between rankings and psychological adjustment in graduate students remains an open question. For example, although THE rankings explicitly incorporate doctoral student graduation rates to represent quality of training, they do not account for the experiences of master's students or the perceptions of graduate students concerning their own or other institutions (e.g., reputability). Relatedly, whereas graduate students at higher-ranked institutions could be expected to receive higher-quality supervision leading to greater motivation and persistence, they may also experience poorer well-being resulting from pressure to publish repeatedly before graduation (e.g., manuscript-based dissertations), in addition to satisfying degree requirements (e.g., coursework). As noted above, although it is possible that larger graduate programs are better equipped to train students in a timely manner, it is also possible for graduate students in large programs at high-ranking institutions to experience less personalized supervision, leading to feelings of demotivation and isolation. In sum, considering the growing literature showing academic demands faced by both graduate students and faculty to correspond significantly with various facets of psychological health, the present research aimed to further explore the extent to which university rankings, as an assumed indicator of institutional quality, corresponded empirically with established measures of motivation and well-being across three pilot studies conducted with pre-tenure faculty, faculty across ranks, and graduate students internationally.

Study 1: Pre-tenure Faculty

Studies consistently show pre-tenure faculty to be particularly susceptible to impaired psychological health due to heightened demands for teaching excellence (Simmons, 2011; Solem & Foote, 2004) and research productivity (Boice, 1991; Greene et al., 2008) as part of the often ambiguous and anxiety-provoking nature of the tenure process (Mullen & Forbes, 2000; Nir & Zilberstein-Levy, 2006). Nevertheless, the psychological experiences of pre-tenure faculty have to date been largely excluded from consideration in the THE rankings, that are instead informed by the perceptions of senior scholars with greater experience and job security (tenure). Thus, considering that pre-tenure scholars have been overlooked in the rankings calculations and corresponding literature, despite being especially likely to be impacted by the pressures for teaching and research excellence implied by university rankings, further research on how those rankings correspond with the

psychological experiences of this particularly vulnerable faculty population is clearly warranted.

To address this research gap, an exploratory study was conducted to assess potential relations between THE rankings and a range of motivational and well-being indicators specifically in pre-tenure faculty. This pilot study sample consisted of eighty-six pre-tenure faculty (66% female) employed at thirty-four ranked institutions across Canada and the US, with 27% recruited by mass email via the faculty association at a research-intensive Canadian university and the remaining participants recruited via social media (Twitter, Facebook). Consistent with recent research with pre-tenure faculty (Stupnisky et al., 2015) and the THE rankings comprising specifically teaching- and research-specific indicators, teaching vs. research versions of multiple self-report measures were examined so as to examine potentially differential relations between rankings and teaching vs. research outcomes.

Motivation and Well-Being Measures

Following from the long-standing expectancy-value framework for conceptualizing achievement motivation constructs (Eccles, 2005), motivational beliefs in pre-tenure faculty were assessed with respect to their expectations for success as afforded by their perceptions of personal competence, using faculty-specific measures adapted from established scales. Administered scales included measures of *self-efficacy* informed by social cognitive theory (Schunk & Pajares, 2009) that were specific to teaching (sample item: “I feel competent in clearly communicating ideas during in class lectures”; Busch et al., 1998) or research activities (sample item: “I feel competent in gathering reliable and valid research data”; Hardré et al., 2011). Also assessed were *perceived control* over teaching/research activities (e.g., “The more effort I put forth, the better I do”; Stupnisky et al., 2015) and *perceived competence* in teaching/research based on self-determination theory (Ryan & Deci, 2009; e.g., “In my [teaching/research], I feel capable at what I do”; Van den Broeck et al., 2010). Participants’ personal values underlying their teaching vs. research efforts were also examined using an adapted measure of subjective *task value* (intrinsic, attainment, utility, and cost; Eccles, 2005; e.g., “It is important to me that I do well on this task”). We further administered more specific value-related measures specific to teaching vs. research informed by self-determination theory, assessing *intrinsic motivation* (e.g., “Because it is pleasant to carry out this task”), *introjected motivation* (e.g., “Because I would feel guilty not doing it”), and *external motivation* (e.g., “Because I am paid to do it”; Fernet et al., 2004).

Beyond cognitively oriented measures of achievement motivation, participants’ emotional experiences specific to engaging in teaching vs. research were also assessed. More specifically, three scales based on the control-value

theory of achievement emotions (Pekrun et al., 2011) assessed the emotions of *anxiety* (e.g., “I get tense when [teaching/doing research]”), *boredom* (e.g., “I get so bored while [teaching/conducting research] that my mind begins to wander”), and *enjoyment* (e.g., “I look forward to [teaching/working on research]”). Faculty emotions and commitment concerning their academic employment were further assessed using adapted versions of constructs commonly examined in occupational psychology research (see Stupnisky et al., 2017; Stupnisky et al., 2015). These measures included *perceived success* in teaching vs. research (e.g., in relation to self-standards, departmental tenure expectations, other faculty), *job satisfaction* (e.g., salary, teaching load, social relationships, job security), *work-life balance* (e.g., “I have been able to balance my work and home/personal life”), and a single-item measure of *intention to quit* one’s current academic position (for a position at another institution). Finally, psychological well-being in pre-tenure faculty with respect to social aspects of the academic work environment were assessed, including perceived *autonomy* (e.g., “In my [teaching/research], I feel a sense of choice and freedom”) and *relatedness* (e.g., “When [teaching/conducting research], I feel close with people who are important to me”), based on self-determination theory. Faculty perceptions of *collegiality* (e.g., “My department is very supportive”), *clarity of tenure expectations* (e.g., “I received sufficient feedback on my progress towards tenure and promotion”), and *professional balance* were also assessed (e.g., “I have been able to balance my teaching, research, and service duties”; see Stupnisky et al., 2015).

Analysis and Results

To evaluate the anticipated relations between university rankings and psychological variables in pre-tenure faculty, participants’ self-reported institution of employment was recoded to a numeric variable reflecting the 2014–15 THE World University Ranking of that institution. This numeric variable was subsequently assessed as a predictor of the aforementioned self-report measures in a hierarchical linear regression analysis. To provide a suitably conservative analysis of ranking effects, indicators of engagement with the online survey protocol were controlled for as background covariates in step 1 of the regression (i.e., order in which participants completed the survey, elapsed survey completion time; see Hall et al., 2017). Participants’ age and gender were also controlled for in step 1, given existing research showing younger faculty and female faculty to report poorer well-being levels (Ghorpade et al., 2011; Li et al., 2013; Rothmann & Barkhuizen, 2008). University rankings were then introduced in step 2 of the regression analysis to evaluate the unique additional variance explained in each of the psychological outcomes beyond that explained by the background variables.

The regression results showed no statistically significant relations with university rankings for any of the *teaching-related* motivation and well-being measures. Although preliminary correlations suggested that pre-tenure faculty at lower-ranked institutions placed lower value on teaching ($r(81) = -0.28$, $p = 0.011$) and were more bored with their teaching activities ($r(78) = 0.19$, $p = 0.100$), these relations were not significant in regressions controlling for background variables ($\beta = -0.23$, $p = 0.071$; $\beta = 0.13$, $p = 0.306$, respectively). In contrast, multiple significant regression effects showed pre-tenure faculty at higher-ranked institutions to report greater perceived control ($\beta = -0.27$, $p = 0.025$) and competence ($\beta = -0.29$, $p = 0.021$) concerning their *research activities*, with university rankings explaining an additional 4.9% and 5.6% of variance in these motivation variables beyond background covariates, respectively (i.e., increase in adjusted R^2). Given that the THE university rankings are applied exclusively to research-intensive institutions, these relations underscore the research-related criteria of this ranking system in showing higher rankings to principally predict greater faculty confidence in their ability to conduct quality research. Although an additional correlational finding showed pre-tenure faculty at lower-ranked institutions to also report lower anxiety concerning research activities ($r(77) = -0.25$, $p = 0.031$), this finding was not significant in the more conservative regression analysis ($\beta = 0.20$, $p = 0.123$).

In summary, these preliminary findings show that university rankings indeed correspond empirically with specific psychological variables in pre-tenure faculty, with the most robust relations observed reiterating the utility of the THE rankings as an indicator of faculty potential for quality research. More specifically, whereas suggestive preliminary correlations showed university rankings to additionally correspond with more values-oriented motivational beliefs (i.e., that teaching is enjoyable, important, useful, and worthwhile), as well as multiple indicators of emotional well-being (i.e., boredom, anxiety), these relations were not statistically significant in more intensive regression analyses controlling for age, gender, and survey engagement. However, as the largely nonsignificant rankings effects across the motivation and well-being outcomes in this study may have also resulted from insufficient power due to the small sample size and restrictive recruitment parameters (i.e., pre-tenure rank, Canada/US only), a more inclusive, larger-scale analysis was warranted to better examine how university rankings interact with motivation and well-being internationally in both faculty and graduate students. To address this research gap, Study 2 and Study 3 recruited faculty across ranks (e.g., tenure-track, contingent) and graduate students from various countries, respectively, to complete an even more comprehensive survey assessing both motivational variables (e.g., causal attributions, self-determined motivation) and various indicators of psychological well-being ranging from achievement emotions (e.g., hope, guilt) to more serious mental and physical health challenges (e.g., depression, illness).

Study 2: Open-Rank Faculty

Although the psychological experiences of post-secondary faculty have been previously addressed in relation to THE rankings, the scope of these variables has been limited specifically to the general perceptions of more *senior faculty* concerning the teaching and research reputability of *other* institutions. Accordingly, further research is needed with faculty across ranks to examine how important psychological variables beyond perceived reputability may also correspond with the international ranking of one's own institution. To address this research objective, a second exploratory pilot study was conducted with faculty across ranks (both non-tenure and tenure-track) at institutions around the world to examine empirical relations between the THE rankings and an expanded set of motivation and psychological health measures.

The second study sample consisted of 884 faculty (66% female) employed at 114 ranked institutions across 26 countries, with most participants employed at universities in the US (48%), UK (18%), Canada (14%), Australia (8%), and Europe (8%). In contrast to Study 1, faculty participants were employed across ranks (e.g., US/Canada: 30% contingent, 37% assistant, 24% associate, 10% full; UK/Australia: 48% lecturer, 21% senior lecturer, 13% reader, 10% professor, 4% tutor) and had been employed as academics for an average of seven years ($SD = 6.65$). Participants were predominantly recruited via social media (e.g., Facebook: 43%, Twitter: 49%) as part of a larger data-collection effort examining self-regulation and academic success in higher education (SAS Project; Hall, 2015, 2016, 2017). Although a subset of measures assessed were equivalent to those in Study 1, most scales in Study 2 examined additional motivational and well-being constructs using adapted versions of established self-report measures.

Motivation and Well-Being Measures

To more closely examine faculty motivation with respect to their perceptions of personal control, four measures based on Weiner's (2010) attribution theory were administered. Faculty first indicated the most likely reason behind their academic setbacks (e.g., rejected manuscripts, unsuccessful grant applications, low course evaluations) and then rated the reason according to *internality* (e.g., "inside/outside of you"), *stability* over time (e.g., "permanent/temporary"), *personal controllability* (e.g., "(not) manageable by you"), and *external controllability* (e.g., "others have (no) control"; see McAuley et al., 1992). Perceptions of value were also assessed using five measures based on self-determination theory that measured *intrinsic*, *introjected*, and *external motivation* for academic career pursuits, as well as *integrated motivation* (e.g., "My academic career is a

fundamental part of who I am and my identity”) and *identified motivation* (e.g., “Maintaining or improving my expertise in my field of research”; adapted from Litalien et al., 2015).

In addition to measures of achievement motivation, faculty emotions following academic career setbacks were explored using a modified measure assessing single-item indicators of both positive (*hope, pride*) and negative (*guilt, helplessness*) emotional responses (Hall et al., 2004). As in Study 1, measures of psychological well-being specific to personal work beliefs involving *job satisfaction, work-life balance, and intention to quit* were assessed, albeit using alternative measures (Gutek et al., 1991; Hackett et al., 2001; Moe et al., 2010). To further examine how faculty attempt to maintain their psychological well-being in response to stress through both adaptive and maladaptive coping strategies, a subset of participants ($N = 185$) also completed four, two-item self-report measures assessing *problem-solving* (e.g., “I made a plan of action and followed it”), *cognitive restructuring* (e.g., “I convinced myself that things weren’t quite as bad as they seemed”), *wishful thinking* (e.g., “I wished that the situation would go away or somehow be over with”), and *social withdrawal* (e.g., “I avoided being with people”) in response to a specific stressful academic situation experienced over the previous few months (Tobin, 1995). Finally, established measures addressing more serious psychological and physical health challenges were completed by the entire sample, including *impostor syndrome* (e.g., “I’m afraid people important to me may find out that I’m not as capable as they think I am”; Clance, 1985), *illness symptoms* (e.g., sleep problems, headaches, muscle tension, poor appetite; Cohen & Hoberman, 1983), *emotional exhaustion* (e.g., “I feel burned out from my work”; Maslach et al., 1996), and *depression* (e.g., “I felt that everything I did was an effort”; Andresen, 1994).

Analysis and Results

Similar to Study 1, hierarchical linear regressions (step 1: background variables; step 2: university rankings) were conducted to evaluate the hypothesized relations between the 2014–15 THE World University Ranking of faculty participants’ self-reported institution and the psychological variables controlling for age, gender, and survey engagement (order of participation, elapsed completion time). Regression results showed university rankings to not correspond significantly with any of the motivational or work belief measures assessed. However, modest yet statistically significant ranking effects were consistently observed across measures reflecting how faculty responded to academic setbacks and stressors in terms of both their emotions and coping strategies.

As for their *emotional experiences*, findings showed faculty at lower-ranked institutions to experience slightly higher levels of guilt ($\beta = 0.10, p = 0.009$; 0.8% more variance explained) and hope ($\beta = 0.08, p = 0.041$; 0.5% more variance

explained) in response to academic career setbacks (e.g., poor teaching evaluations, manuscript or grant rejections). Although these mixed emotions may appear contradictory, Weiner's (2010) attribution theory suggests that both emotions result from an underlying perception of personal control over a past event (guilt) and future occurrence of an event (hope). However, this interpretation is contradicted by a lack of significant effects on the causal attribution measure indicating perceived personal controllability, as well as findings from Study 1 showing higher (not lower) rankings to correspond with greater perceived control. This interpretation is also inconsistent with a marginally significant result showing lower university rankings to correspond with greater feelings of helplessness in faculty after academic setbacks ($\beta = 0.08, p = 0.057$; zero-order correlation: $r(669) = 0.08, p = 0.044$), an emotion consistently associated with a lack of perceived control (Weiner, 2010). In any case, these results suggest that academic setbacks may be more emotionally charged for faculty at lower-ranked universities.

Consistent with the results for emotions following career setbacks, the present results further showed university rankings to correspond with *coping strategies* reported by faculty in response to academic stressors. In addition to a marginally significant effect suggesting that faculty at lower-ranked institutions were less likely to use the typically adaptive coping strategy of cognitive restructuring ($\beta = -0.12, p = 0.103$), multiple significant effects showed faculty at lower-ranked institutions to be more likely to endorse maladaptive coping strategies involving wishful thinking (hoping the problem would go away; $\beta = 0.16, p = 0.041$; 1.8% more variance explained) and social withdrawal (intentional isolation; $\beta = 0.21, p = 0.006$; 0.6% more variance explained). Finally, although none of the ranking effects for more serious indicators of physical and psychological health were statistically significant, multiple marginally significant findings showed faculty at lower-ranked institutions more frequently report symptoms of both physical illness ($\beta = 0.08, p = 0.064$) and depression ($\beta = 0.07, p = 0.102$). In sum, despite a notable lack of empirical relations with motivational and work-related beliefs, findings for faculty across academic ranks and countries consistently indicated that those employed at lower-ranked universities experienced poorer well-being levels.

Study 3: Graduate Students

As outlined above, the psychological experiences of graduate students have been largely excluded to date, both in the calculation of university rankings and in the accompanying research literature on related psychological variables. More specifically, whereas non-self-report markers of graduate student participation in research and teaching activities are incorporated into the THE algorithm (e.g., doctoral to bachelor's student ratio, doctoral graduation to staff

ratio, graduate student publications and citations), the perceptions of graduate students themselves concerning the quality of teaching, supervision, and research at their own or other institutions has not been assessed. Moreover, the extent to which university rankings correspond with psychological experiences of graduate students in both master's and PhD programs has yet to be empirically examined. To explore these research questions, a third pilot study was conducted to explore potential relations between THE university rankings and a range of motivational and mental health variables in graduate students.

The third study sample consisted of 2,173 graduate students (71% female) enrolled at 134 ranked universities across 32 countries including the US (51%), Canada (18%), UK (13%), Europe (11%), and Australia (5%). Participants were enrolled across graduate degree programs (e.g., master's: 18%; PhD: 58%, combined master's/PhD: 21%), with most required to complete a thesis or dissertation (96%), not being registered as an international student (81%), and not teaching post-secondary courses as the primary instructor (75%). As in Study 2, participants were predominantly recruited via social media (e.g., Facebook: 60%, Twitter: 28%) as part of a larger project on self-regulation and success in higher education (SAS Project; Hall, 2015, 2016, 2017). With the exception of job satisfaction (omitted) and quitting intention (an additional scale item was included), each of the self-report motivation and well-being measures in Study 2 was replicated in Study 3, with scale preambles and items modified as needed to refer to graduate education experiences (e.g., as encountered in one's "graduate studies" or "degree program").

Analysis and Results

Consistent with Studies 1 and 2, hierarchical regression analyses (step 1: background variables; step 2: university rankings) were conducted to examine expected empirical relations between the 2014–15 THE World University Ranking of the institution at which the participants reporting being enrolled as a graduate student and the self-report measures of motivation and psychological well-being. In addition to controlling for the potentially confounding effects of survey engagement (order of participation, elapsed completion time), participants' age and gender were once again included as covariates, following from existing research with graduate students showing motivation and well-being to vary significantly as a function of these demographic variables (Brown & Watson, 2010; Cao, 2012; Ellis, 2001; Kusurkar et al., 2010; Rosser & Lane, 2002).

Contrary to preceding findings with faculty, university rankings were not found to correspond with any of the *emotion* or *coping* measures related to academic setbacks for graduate students. In contrast, multiple weak yet significant results showed that graduate students at lower-ranked universities reported consistently higher levels across the varied types of *self-determined motivation*.

Poorer university rankings predicted not only higher levels of motivation for graduate study due to personal principles (integrated motivation: goals, values, identity; $\beta = 0.05$, $p = 0.041$; 0.2% more variance explained) and utilitarian concerns (identified motivation: development of skills, knowledge, opportunities; $\beta = 0.07$, $p = 0.002$; 0.5% more variance explained), but also greater motivation due to more extrinsic expected benefits (external motivation: prestige, employment, money; $\beta = 0.08$, $p = 0.002$; 0.5% more variance explained). Although similar effects for intrinsic motivation ($\beta = 0.04$, $p = 0.092$) and introjected motivation ($\beta = 0.04$, $p = 0.075$) were not statistically significant, these findings nevertheless show university rankings to have significant empirical relationships with a range of motivational reasons for pursuing graduate studies.

A second unique set of results was observed with graduate students: Poorer university rankings corresponded with a greater psychological focus on the role of external factors as contributors to academic performance and stress. More specifically, although the regression results for *causal attributions* to personally controllable factors ($\beta = -0.04$, $p = 0.104$) and externally controlled factors ($\beta = 0.04$, $p = 0.063$) were only marginally significant, a significant preliminary zero-order correlation between ranking and external attributions was observed (i.e., to others having control over reasons for failure experiences; $r(1,953) = 0.05$, $p = 0.031$). This latter result suggests that graduate students at lower-ranked universities were more concerned with their academic progress and performance being disrupted by factors external to and not controllable by themselves than were their counterparts at more prestigious institutions.

Finally, two additional weak yet significant effects were observed showing university rankings to also correspond with more serious indicators of *physical and psychological health* in graduate students. More specifically, not only were graduate students at lower-ranked universities more likely to report experiencing difficulty balancing their academic and personal responsibilities ($\beta = 0.06$, $p = 0.016$; 0.3% more variance explained), but they were also more likely to report experiencing multiple potentially critical illness symptoms ($\beta = 0.05$, $p = 0.049$; 0.2% more variance explained). Considered alongside the aforementioned findings for external types of motivation and causal attributions, the results for work-life balance further suggest that graduate students at lower-ranked universities are significantly more concerned with the impact of external factors on their academic success than are their peers at higher-ranked institutions. Moreover, findings showing university rankings to correspond with work-life balance and illness symptoms also suggest that the perceived quality of academic environment can have significant implications for non-academic aspects of graduate students' personal lives and well-being (e.g., health, relationships).

General Discussion

To summarize across the three sets of findings presented in this chapter, the present pilot study findings suggest that university rankings do indeed correspond empirically with a range of psychological variables involving motivation and well-being among both faculty and graduate students internationally. In Study 1, pilot results for pre-tenure faculty in Canada and the US mainly validated the research-specific emphasis of the THE rankings in showing higher-ranked institutions to employ pre-tenure faculty with greater confidence in their abilities to conduct quality research. Following from suggestive results showing pre-tenure faculty at lower-ranked universities to also report more maladaptive value levels and more negative emotions, Studies 2 and 3 offered a more extensive analysis of how university rankings correspond with well-being indicators in faculty across ranks, as well as graduate students, worldwide. Whereas Study 2 showed lower rankings to typically coincide with lower levels of adaptive emotions and coping responses to academic stressors among faculty, Study 3 showed lower rankings to correlate with higher levels of multiple types of motivation underlying academic persistence in graduate students, as well as a heightened awareness of how external factors (e.g., others, personal obligations) can interfere with academic success. Finally, pilot results from Studies 2 and 3 suggested that lower university rankings may additionally correspond with more serious psychological and physical health problems in both faculty and graduate students (i.e., illness, depression).

Accordingly, the present results contribute substantially to existing research on the psychological correlates of university rankings not only in expanding the scope of variables assessed (e.g., reputability perceptions) to include motivation and well-being, but also by exploring these variables in underexamined higher education communities, namely faculty and graduate students. Given that university rankings are composed largely of the teaching, research, and engagement efforts of faculty and graduate students, with these populations having a significant vested interest in the reputation and quality of their institution, these results highlight the importance of continued research on how rankings correspond with motivation, well-being, and health in these populations. However, despite these findings showing university rankings not to simply reflect non-emotional learning and achievement outcomes, but instead to correlate significantly with various indicators of motivation, emotional well-being, and quality of life in faculty and graduate students, they must also be considered in the context of multiple limitations of pilot research presented.

Study Limitations and Future Directions

First, considering the scope of analyses conducted in Study 1, due to assessing teaching-specific vs. research-specific versions of several self-report measures, it is possible that the two significant regression values may have resulted from capitalizing on Type I error. However, this possibility of random significance is mitigated by the regression analyses providing more conservative estimates than zero-order correlations due to controlling for potential confounds, with these exploratory findings also proving consistent with multiple marginally significant effects in Study 3 for causal attributions. Second, although multiple significant coefficients were observed in Studies 2 and 3, the proportion of additional variance explained by university rankings on psychological variables beyond that of background variables (e.g., age, gender) in these studies was consistently small, particularly in the graduate student study, where statistical significance was afforded mainly by the substantial sample size.

One possible reason for these weak effects may be the limited internal reliability of specific scales employed (e.g., self-determined motivation subscales developed for Study 2: $0.55 < \alpha < 0.79$). Accordingly, continued research to develop more reliable motivation and well-being measures for these underexplored populations is encouraged. However, it is also possible that considerable variance in the structure and supports of doctoral training and academic employment internationally may have contributed to weaker findings for Studies 2 and 3. For example, whereas graduate programs in Germany are highly structured and similar to professorial employment with respect to mandated compensation and office space as well as teaching, supervision, and research demands (Thies & Kordts-Freudinger, 2019), graduate programs in North America can vary widely in both financial support (e.g., salary, awards, none) and academic obligations (e.g., teaching vs. thesis only). Similarly, further research is needed to explore how substantial international variability in professorial employment structures (e.g., academic ranks, administrative roles, job security) and region-specific faculty demands (e.g., UK Research Excellence Framework) may mitigate or moderate relations between university rankings and the lived experiences of academic staff.

Alternatively, it is also possible that due to the omnibus nature of university rankings comprising divergent facets of institutional quality (e.g., teaching excellence, research productivity, international reputation, industry preparedness), further research employing disaggregated or more specific rankings may help clarify how rankings correspond with psychological outcomes in faculty and graduate students (e.g., UK: Teaching vs. Research Excellence Framework rankings). However, it should also be considered that university rankings may simply not correspond as strongly with motivation and well-being measures as

with other variables that are more closely tied to academic performance. For example, whereas research has examined how rankings are related to learning-specific outcomes in undergraduates (e.g., satisfaction with learning; Huang et al., 2015), findings on how university rankings correspond with self-regulated learning (or teaching) in faculty and graduate students is lacking (e.g., planning, time management, self-monitoring; Zimmerman, 2011).

As for other potentially beneficial directions for future study, given that the THE university rankings comprise exclusively research-intensive universities, how the psychological experiences of faculty and graduate students correspond with other rankings systems would also be of interest. For example, it is possible that competing international rankings systems (e.g., ARWU, Leiden, QS, U-Multirank), other national ranking systems (e.g., Canada: Maclean's; US: *U.S. News & World Report*), rankings within disciplines (e.g., STEM vs. social sciences), or rankings of non-academic indicators (e.g., social mobility, Wolfston, 2016; environmental sustainability, Ragazzia & Ghidinia, 2017) would show different patterns of relations with motivation and well-being in faculty and graduate students. Consistent with the emerging importance of the "meta-science" discipline in which perceptions of academics concerning post-secondary structures are explicitly assessed (Ernst et al., 2018; Kousta et al., 2016), greater research on how faculty, graduate students, and other vested communities (e.g., administrators, staff, post-doctoral scholars) perceive the reputability and efficacy of rankings systems is also encouraged.

The present findings are also consistent with existing research showing significant psychological benefits of institutional support for both graduate students (e.g., career development, Austin, 2009; O'Meara et al., 2014; financial support: Leijen et al., 2016; Litalien & Guay, 2015) and faculty (Rothmann et al., 2008; van Emmerik, 2002). Hence, future research on the extent to which university rankings further reflect available institutional resources for students and faculty is needed to better examine institutional support as a mediating variable. For example, it is possible that highly ranked institutions providing more extensive support services to graduate students (e.g., career advising, financial aid, health services) could account for the pilot results showing positive relations between rankings and motivation and health. Although pilot results did not show rankings to be related to perceptions of workplace climate for pre-tenure faculty (i.e., perceived autonomy, relatedness, collegiality), it is nevertheless possible that higher-ranked universities provide greater levels of specific resources for faculty (e.g., teaching workshops, internal grants, health insurance) that could help explain the observed relations between rankings and mental health for faculty in Study 2.

Moreover, as the social-environmental climate of a post-secondary institution can be experienced differently as a function of personal characteristics (e.g., varying perceptions of inclusion or support as a function of gender, sexual, or racial minority status), more research on how rankings correspond

with the lived experiences of under-represented and/or marginalized academic groups is warranted. For example, existing research shows female academics to be disadvantaged in hiring, tenure, promotion, and funding decisions (Baker, 2018) and to report less supportive work climates (e.g., collegiality) and poorer mental health (Hogan et al., 2014). Racialized scholars and Indigenous scholars also consistently report lower institutional support (Henry, Dua, James, et al., 2017; Henry, Dua, Kobayashi, et al., 2017), as well as workplace discrimination and harassment (Cropsey et al., 2008; Hurren, 2018). Sexual minority academics similarly report troubling rates of workplace harassment (e.g., one in five: American Physical Society, 2016; Rankin et al., 2010) and discrimination (David, 2017). As under-represented academics can be expected to experience the real-world implications of institutional reputability differently from their peers, further examination of how rankings correspond with the perspectives of marginalized faculty and students (as well as accompanying hiring, promotion, and equity practices) at these institutions is needed to provide a better understanding of the psychological and physical health implications of university rankings for marginalized academic groups.

Finally, future research should examine the relations between university rankings and psychological variables both longitudinally and as mediated by intervening variables to better address *how* rankings impact psychological experiences. Consistent with existing studies focused on undergraduate recruitment (Broecke, 2015; Drewes & Michael, 2006), longitudinal studies with faculty and graduate students about how they respond psychologically to changes in one's institutional ranking could be informative in terms of how personal psychological experiences (e.g., achievement emotions: pride, shame) or social-psychological variables (e.g., collective self-esteem; Crocker et al., 1994) potentially mediate the effects of these changes over time. In summary, the present findings provide initial evidence regarding the relationship between international university rankings and self-report indicators of motivation, health, and well-being in faculty and graduate students, with these novel results suggesting multiple intriguing avenues for future research on how rankings impact the lived experiences of these overlooked stakeholder populations.

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