

Introduction

Post-doctoral researchers are a highly accomplished group of early career researchers (ECRs) who have proven themselves at the highest academic level by earning the PhD degree. In taking up this new role, they are expected to further develop their scholarly profiles and research independence (Laudel & Glaser, 2008). However, they are also under enormous pressure due to the need to be competitive, a fragmented career path, and even the risk of unemployment arising from a rapidly increasing number of doctoral degree holders (Nerad & Cerny, 2002; Åkerlind, 2005). High demands may turn into stressors if post-docs do not have access to the set of socio-psychological, organisational or instrumental resources that enable them to cope with research challenges. A crucial socio-psychological resource is writing, which acts as a driving force for ECRs to be competitive. However, little is known about post-doc perceptions of writing in general (Emerson, 2012), and even less about the interrelations between writing perceptions and experienced well-being. In this paper, we explore how post-doc perceptions of scientific writing are associated with experienced engagement, perceptions of researcher community, burnout, and productivity in terms of publishing and previously considering not completing the PhD.

Perceptions of writing

Writing perceptions refer to mental representations of how subjects define or characterise writing, and also the practices reported around the writing activity ([*reference omitted for review*]; Lonka *et al.*, 2014). Research has shown that doctoral students' writing perceptions can be grouped on the basis of their contribution to effective text production into *maladaptative* and *adaptative perceptions of writing*. *Maladaptative perceptions* include *blocks* (Rose, 1980), *procrastination* (Lonka *et al.*, 2014), *perfectionism* (Boice, 1993) and the perception of writing as an *innate ability* (Sawyer, 2009). *Adaptative perceptions* refer to *productivity* ([*reference omitted for review*]) and the consideration of writing as a way to *create knowledge* (Bereiter & Scardamalia, 1987). Studies also indicate that more *adaptative perceptions* of writing are influenced by age, experience and disciplinary backgrounds.

Engagement and Burnout

Engagement refers to active involvement in an activity at hand (e.g., Schaufeli *et al.*, 2002a; Case 2008; Fredricks *et al.*, 2004; Reeve *et al.*, 2004). It is characterised by fulfilling experiences entailing *vigour*, *dedication* and *absorption* (Salanova *et al.*, 2010; Schaufeli *et al.*, 2002a). *Vigour* is characterised by high levels of energy and mental resilience, the willingness to invest effort in one's work, and persistence in the face of difficulties (Schaufeli *et al.*, 2002b). *Dedication* refers to a sense of significance, enthusiasm, inspiration, pride and challenge (Schaufeli *et al.*, 2002b). Being fully concentrated on and immersed in one's work characterises *absorption* (Schaufeli *et al.*, 2002b). Engaged post-docs are highly satisfied and motivated by their research and are also likely to show resilience when encountering challenges and difficulties in research. However, demands faced during the post-doc period may turn into stressors. At its worst, prolonged and extensive work-related stress may result in burnout and even turnover. Burnout has two distinctive assumptions: *exhaustion* and *cynicism* (Maslach *et al.*, 2001; Bakker, *et al.*, 2008; Maslach & Leiter, 1999; 2005; Schaufeli & Buunk, 2003). *Exhaustion* is characterised by a lack of emotional energy, and feeling strained and tired at work. *Cynicism* refers to feeling alienated, distancing oneself from one's work and feeling that it has lost its meaning. These symptoms often follow reduced

involvement (Maslach *et al.*, 2001). Several studies have shown a strong relationship between exhaustion and cynicism and work abandonment across organisational and occupational settings (Leiter, 1993; Maslach, 2003; Maslach & Leiter, 2008).

Hypotheses

H1. Maladaptive perceptions of writing are associated with burnout experiences and previously considering not completing the degree.

H2. Adaptive perceptions of writing are associated with engagement in research and work satisfaction.

H3. Adaptive perceptions of writing are related with actual productivity in terms of number of publications.

H4. Perceptions on researcher community are related to adaptive perceptions of writing and number of publications.

Method

Participants were 97 post-docs (mean age=36) in social sciences, including education (n=20), psychology (n=44), economics (n=19), and law and political sciences (n=14) from the UK (n=18) and Spain (n=79). Participants' mean age was 36. The mean time since graduation time was 2 years, whereas the mean time for completing the doctoral degree was 5 years.

Data were collected through a cross-culturally developed survey on *Research-Related Experiences of ECRs*, Post-doc version. It contains seven scales, along with 17 sociodemographic questions and 18 questions regarding specific features of their experience (such as publications or turnover intentions). In this study, we drew on data from the scales on engagement, writing, community collaboration, burnout and publishing experience.

Results

Maladaptive perceptions of writing were related with *burnout* experiences ($r = .36, p < .01$). Specifically, post-docs who reported *procrastination* and *perfectionism* in their writing, and considered writing as an *innate ability* experienced higher levels of *cynicism*. Moreover, significant differences were found between turnover intentions and *cynicism* ($p < .05$) and *exhaustion* ($p < .05$). We did not find differences between *maladaptive perceptions of writing* and considering dropping out during the PhD. However, those post-docs that reported a higher sense of productivity were less willing to abandon their research careers ($p < .001$). Therefore, our first hypothesis was partially confirmed.

Adaptive perceptions of writing were related to higher levels of engagement ($r = .584, p < .01$) and work satisfaction ($r = .41, p < .01$). They were also related with *actual productivity* ($r = .89, p < .01$), and also with more positive perceptions of the research *community* ($r = .57, p < .01$). Overall, these results fully support our hypotheses regarding the interrelation of adaptive writing perceptions with engagement and work satisfaction (H2), productivity (H3) and positive perceptions of community (H3).

Significance

Since engagement was related with adaptive perceptions of writing and actual productivity and these individuals had on average only graduated two years previously, research productivity must have developed during the degree. Such a finding speaks to the need for doctoral students and supervisors to incorporate a publication strategy into the program and perhaps consider shifting from a monograph thesis to one based on publications.

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[three references have been omitted for review]

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