

Quantifying teacher resilience

Quantifying teacher resilience: Context matters

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Abstract

Previous research has identified individual and contextual level factors that may promote resilience in teachers; however, little is known about their relative importance in predicting measures of positive adaptation. Questionnaire data were collected from 226 UK teachers. Relative importance analyses identified a number of significant predictors of job satisfaction, burnout, and wellbeing. The results suggest that contextual influences on teachers' ability to thrive within the profession are just as important as individual factors. Any intervention designed to develop teacher resilience should therefore focus on improving the professional environment as well as looking at ways to enhance teachers' personal resources.

Challenges within the teaching profession

There is currently a crisis, both nationally and internationally, in relation to teacher recruitment and retention (e.g., Avalos & Valnzuela, 2016; Gu & Day, 2007; Peters & Pearce, 2012). In a recent UK survey of over 4000 teachers, 79% of schools reported having difficulties in recruiting staff, while 43% of teachers already in post stated that they plan to leave the profession within the next five years (Lightfoot, 2016). Frequently cited reasons offered by teachers for wanting to leave the education sector are unmanageable workloads, feeling under increasing pressure to meet targets, stress associated with excessive bureaucracy, and issues related to disruptive pupil behaviour (Mansfield, Beltman, Broadley, & Weatherby-Fell, 2016). Many teachers report that the demands of the job detrimentally affect their levels of commitment, wellbeing and health, and prevent them from having an acceptable work-life balance (Day & Gu, 2007).

Aims

In the face of these concerns over teachers' capacity to cope with the increasing demands of the profession, researchers have attempted to identify ways to support teachers in building their resilience (e.g., Day, Edwards, Griffiths, & Gu, 2011). The current study contributes to the research on resilience by examining the relationship between various individual and contextual factors on three measures of positive adaptation in teachers. The aims are a) to determine which individual and contextual level factors are related to job satisfaction, burnout, and wellbeing in teachers; b) to highlight which of these factors is the most important, and c) to evaluate whether factors at the individual level or contextual level exert the greatest influence on the outcome measures.

To date, limited studies have explored resilience in teachers from a quantitative perspective (e.g., Kidger et al., 2016). It is important to assess not only which factors are

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important, but also their relative strength. The present study is therefore framed within Bronfenbrenner's (1979, 2005) bio-ecological systems theory, as developed by Ungar, Ghazinour, and Richter (2013), which offers a convincing understanding of human behaviour. This theory acknowledges the many influences on behaviour, operating across various ecological levels. Using this theory, we can investigate the potential contribution of both individual and contextual factors to the phenomenon of "teacher resilience". This theoretical framework has already been used successfully in other domains for exploring the influence of a range of factors across a number of ecological levels on the process of adaptation (e.g., Gerard & Buehler, 2004; Author, 2016).

Positive adaptation

Resilience is defined as "a dynamic process encompassing positive adaptation within the context of significant adversity" (Luther, Cicchetti, & Becker, 2000, p. 543). Positive adaptation is an umbrella term, which is used to encapsulate beneficial outcomes that individuals experience despite facing risks within the environment (Howard & Johnson, 2004; Luthar, et al., 2000; Masten, Best, & Garmezy, 1990; Naglieri & LeBuffe, 2005). When assessing levels of resilience, we look for evidence of positive adaptation despite challenging circumstances. The three outcome measures used within the current study were chosen because high levels of wellbeing and job satisfaction, and low levels of burnout are indicators of positive adaptation in teachers (Bobek, 2002; Ghanizadeh & Jahedizadeh, 2015; Howard & Johnson, 2004; Mansfield et al., 2016). These outcomes reflect the degree to which teachers are either thriving, surviving, or leaving the profession (Beltman, Mansfield, & Price, 2011).

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The extent to which a teacher is positively adapted to their professional role has an impact on both their desire and ability to teach. Researchers have demonstrated that wellbeing is vital for retaining and sustaining teachers within the profession, with low levels of teacher wellbeing relating to attrition (Acton & Glasgow, 2015) and impaired performance (Pillay, Goddard, & Wilss, 2005). Similarly, higher levels of burnout have been associated with decreased quality of teaching (Flook, Goldberg, Pinger, Bonus, & Davidson, 2013; Naghieh, Montgomery, Bonell, Thompson, & Aber, 2015; Pillay, Goddard, & Wilss, 2005), while also being characterised by strong feelings of disillusionment and detachment from the profession (Maslach, 2003; Pillay, et al., 2005). Job satisfaction, on the other hand, has been shown to be positively related to teacher retention and work performance (Weiqi, 2007; Zemblyas & Papanastasiou, 2004), although it is likely that the latter relationship is bidirectional (Judge, Thoresen, Bono, & Paton, 2001). This body of work demonstrates that positive adaptation, reflected by higher levels of wellbeing and job satisfaction and lower levels of burnout are all related to a teacher's capacity to sustain motivation and provide an effective learning environment for their pupils. Positive adaptation (or lack thereof) also has an indirect effect on pupils, with satisfied and well teachers creating happier and more productive classrooms (Day, 2008). It is therefore essential to understand the factors that are related to these key outcomes of positive adaptation in order to improve the lives of teachers and the children in their care.

Resilience

Despite a growing body of work surrounding the construct of resilience, a consensus is yet to be reached about how it should be conceptualised (Naglieri & LeBuffe, 2005). Early work investigating resilience tended to focus on it as a capacity within the individual, beginning with studies of children who appeared to thrive despite highly adverse conditions (Garnezy, 1985). This research focussed on trying to assess what was particular about these “resilient”

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children which set them aside from other children in similar circumstances who failed to thrive. Within these early developmental studies, resilience was assumed to be a personal capacity – something internal to the individual – which could be reduced to a list of personal attributes (Masten, et al., 1990).

In more recent research, however, there has been a shift away from seeing resilience as solely a personal quality, but rather a process through which adversity is overcome in the presence of protective elements. From this perspective, resilience is seen as a dynamic interaction of risk and protective factors, which may originate either within the individual or within the environment (Benard, 2004). This notion is reflected within Ungar's social ecological view of resilience where resilience is defined as:

Both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being, and their capacity individually and collectively to negotiate for these resources to be provided in culturally meaningful ways. (2011, p.10)

Ungar, et al., (2013), following Bronfenbrenner (1979), acknowledge the salience of contextual influences on behaviour using a concentric circle model. The circles represent different levels of influence that contribute to resilience, beginning with individual factors in the centre, then spanning out across various contextual spheres of influence.

Ungar's model (Ungar, et al., 2013) has recently been applied to the notion of teacher resilience (Beltman, 2015; Mansfield et al., 2016): teachers possess a capacity for resilience in the sense that they have the ability to draw upon resources available to them to help support them through instances of adversity (Beltman, 2015). These resources might be available within the individual teacher, e.g., in the form of self-efficacy, or within the teacher's environment, e.g., through support from colleagues. Beltman (2015) proposes that

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teacher resilience may be conceptualised as the process through which these individual and contextual factors interact and lead towards positive adaptation, e.g., in the form of higher levels of wellbeing and job satisfaction, and lower levels of burnout.

Individual and contextual factors

Prior research has proposed a number of individual level factors that may be important in the process of developing resilience in teachers. These include: emotional competence (Ee & Chang, 2010), empathy (Jennings, Snowberg, Coccia, & Greenberg, 2011; Tait, 2008), a sense of purpose (Day, 2014), optimism (Day, 2014; Tait, 2008), intrinsic motivation (Kitching, Morgan & O'Leary, 2009; Sinclair, 2008), self-belief (Gu & Day, 2007; Le Cornu, 2009). Considerable attention has also been directed towards contextual influences on teacher adaptation, such as school culture (Day, 2014; Peters & Pearce, 2012), involvement in decision-making processes (Johnson et al., 2014), relationships with management (Cameron & Lovett, 2015), and support from colleagues (Brunetti, 2006; O'Sullivan, 2006).

Previous research has been successful in highlighting a wide range of possible predictors of positive adaptation in teachers; however as noted above, what is still not established, is the relative importance of each of these factors in terms of their quantitative effect on measures of positive adaptation. The aim of the current study is to address this gap in the literature by quantifying some of the key factors identified within qualitative studies and investigating which ones are most strongly related to three key measures of positive adaptation: job satisfaction, burnout and wellbeing.

The study will adopt a variable focused approach to the investigation of teacher resilience, allowing us to examine whether statistical links are evident between a range of individual/contextual factors and measures of positive adaptation (Masten, 2001). The three

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outcome measures – job satisfaction, burnout and wellbeing – have been selected for their importance in promoting a stable, happy and effective workforce. As discussed above, each of these three constructs is associated with attrition, commitment and effectiveness. If we are to support teachers in “thriving not just surviving” (Beltman et al., 2011, p. 185) we need to ensure that teachers are not only protected from burnout, but that they are also satisfied and well.

Justification for the current study

The quantification of constructs relevant to teacher resilience is needed to allow us to build a more comprehensive understanding of adaptation in teachers. By taking a variable based approach we are able to investigate the statistical relations between measures of positive adaptation and a range of individual and contextual factors which might be related to them (Masten, 2001). Thus, we are able to move beyond identifying *what* the factors are which are implicated in teacher resilience, to be able to say *how much* these factors influence teachers’ ability to cope with the demands of the profession.

In particular, a quantitative approach allows us to evaluate which of the many factors within the literature is most strongly associated with a range of outcomes representing aspects of positive adaptation. This is important in terms of addressing the extent to which positive adaptation is related to attributes within the individual (e.g., self-awareness, motivation) versus characteristics of the teacher’s environment (workload, pupil behaviour, etc.). Thus, quantification of the resilience process provides an opportunity to evaluate the extent to which teachers’ adaptation to their working lives reflects a capacity based view (Masten, et al., 1990) or a social ecological process based view (Ungar et al., 2013) of resilience.

Method

Design

The present study adopted a questionnaire design to allow for the identification of factors that predict different measures of positive adaptation. The three outcome variables – job satisfaction, burnout, and wellbeing – were measured alongside 8 individual and 7 contextual factors that have been associated with teacher resilience within the qualitative literature.

Measures

There were three outcome variables (Table 1): teacher-reported levels of job satisfaction (Satisfaction Scale: Andrews & Withey, 1976; burnout (Teacher Burnout Scale: Richmond, Wrench, & Gorham, 2001); and wellbeing (WHO-5: World Health Organization, 1998). A total of 8 individual level (Table 2) and 7 contextual level (Table 3) explanatory variables were also collected in the questionnaire. To maximise validity, pre-existing standardised scales were used wherever possible for all explanatory variables. In the cases where a suitable scale of an appropriate length was not available (e.g., school culture), the authors constructed their own items based on findings about that particular construct within the existing teacher resilience literature. Within Tables 1-3 the origin of each scale is described along with the number of items, type of response, and information about reliability. In addition to the measures listed within Tables 1-3, the questionnaire contained items eliciting basic demographic information, e.g., gender, number of years in current school, full time/part time, etc. The questionnaire consisted of 208 items in total and took around 45 minutes to complete.

Selection of variables

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The process of selecting which variables should be included within the survey began with reference to two recent reviews of the teacher resilience literature (Beltman, et al., 2011; Mansfield et al., 2016). We assembled a list of all of the individual/contextual factors identified within the reviews and then conducted a selection process to reduce the initial list of variables to a more manageable number for measurement within the questionnaire. The first stage of this process involved clustering of keywords from the literature to allow assimilation of very closely related variables into a broader umbrella construct (e.g., self-insight and reflection were included within the construct of self-awareness). The second stage involved selecting those which would be measured from this more parsimonious list, according to the following criteria: firstly the prominence of the variable within the existing teacher resilience literature (judged by frequency of citation as reported by Mansfield et al., 2016) and secondly, the feasibility of measuring each construct within a time-limited multi-variable questionnaire. During the selection process we strived to balance theoretical priorities (the desire to measure as many facets of teacher resilience as possible) with pragmatic constraints (needing the questionnaire to take no longer than 45 minutes in order to keep additional workload for teachers to a minimum). The variables selected for measurement are listed in Tables 1-3. One measure – self-esteem – was included despite the fact that it did not appear as a prominent feature within recent reviews of the teacher resilience literature (Beltman, et al., 2011; Mansfield et al., 2016). Self-esteem was included because of its prominence within the wider resilience literature, where high levels of self-esteem are associated with an increased capacity to cope with adversity (e.g., Arslan, 2016; Hayter & Dorstyn, 2014; Wang et al., 2016).

Participants

Teachers from 31 schools within the UK across Greater Manchester, Cheshire, Lancashire, and West Yorkshire participated within this study. The participants responded to

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the online survey, following an email sent out to all schools working in partnership with the authors' institution as part of their teacher education programmes. The schools varied in terms of the percentage of pupils with special educational needs, pupils from minority ethnic backgrounds, and pupils known to be eligible for pupil premium funding (additional funding for publicly funded schools in England to raise the attainment of the most disadvantaged pupils). These demographic data were collected from the school's most recent Ofsted/Independent Schools Inspectorate report (Ofsted is the regulatory body responsible for inspecting state schools in England). Fourteen of the schools were in the secondary sector (aged 11-18) and 13 were primary schools. There were two further schools, which spanned both primary and secondary phases, as well as one nursery school (children aged between 3 months and 4 years) and one sixth form college (aged 16-18 years). From these schools 226 teachers completed the questionnaire, 66 were male and 158 female. The vast majority of participating teachers were full time (211). Participants ages ranged from 21 to 60 years with a mean age of 37.41 years ($SD=9.75$). The number of years' experience as a qualified teacher ranged from less than a year to 36 years, with a mean of 11.56 years' experience ($SD=9.18$). While we know that the email was sent out to 342 and 625 primary and secondary members of staff respectively via our partnership database, recipients were invited to share the link with other staff within their school, and so we were unable to calculate an exact response rate.

Procedure

The questionnaire link was sent out via email to head teachers within the school partnership database at the authors' institution. The study invited head teachers to share the questionnaire with their teaching staff. In return for participation, the authors offered a free workshop for teachers and head teachers to hear about the research and explore ways to support teachers within school. Schools who submitted five or more responses received a feedback report detailing general patterns of responses within their schools. Teachers

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completed the questionnaire from May – July 2017. Ethics approval was granted through the university ethics committee. Consent for participation was gained from teachers who clicked on the survey and agreed to complete the questionnaire.

<< insert Table 1 here>>

<< insert Table 2 here>>

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Results

Before conducting the main analyses, Cronbach's alpha levels for each of the predictor variables were calculated. All of the outcome variables had strong reliability (> 0.8 , see Table 4) as expected, given that pre-existing standardised scales were used. Similarly, all of the individual and contextual factor scales had high values of Cronbach's alpha, apart from self-care which had moderate reliability ($\alpha=.64$).

<< insert Table 4 here>>

For each participant, mean scores were calculated for each variable across the survey. Out of the 226 participants who took part in the survey, 174 participants completed all items. For participants who did not complete all of the items within a given subscale (e.g., the 5 item scale measuring wellbeing), no mean score was given for that variable and analyses were conducted using pairwise deletion. Out of the 49 participants with missing data, the majority (29) had only one or two missing data points.

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Descriptive analyses revealed high levels of variability in all three outcome variables – job satisfaction: mean = 4.59 (1.24); burnout: mean = 1.91 (0.69); wellbeing = 3.51 (1.05). Correlational analyses (Table 5) showed that, with the exception of independent problem solving, all of the predictors were significantly correlated with the three outcome variables ($p < .05$). Independent problem solving was therefore omitted from the regression analyses that follow.

<< insert Table 5 here >>

The aim of the present study was to establish which factors were the strongest predictors of three measures of positive adaptation in teachers: job satisfaction, burnout, and wellbeing. In order to achieve this aim, three relative weight analyses were conducted using the RWA web tool constructed by Tonidandel and LeBreton (2015). Using this method, the three outcome variables (job satisfaction, burnout, and wellbeing) were regressed onto the individual and contextual factors listed in Table 2 and 3 within three separate models. Relative importance analysis was chosen based on its ability to take into account the collinearity between the predictor variables (reflected within Table 5). This method allows accurate calculation of the amount of variance in the outcome variable explained by each predictor, taking into account both a predictor's individual contribution as well as its contribution in the presence of other predictor variables (Johnson, 2000). Relative importance analysis achieves this by transforming the original set of predictors into a set of predictors which are orthogonal to one another (Tonidandel & LeBreton, 2011). These transformed predictors are entered into the regression model and are then rescaled back to the original variables (ibid). By using relative weight analyses in this way, we were able to evaluate the relative importance of a range of individual and contextual factors in predicting the three measures of positive adaptation.

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A summary of the results are provided in Table 6 with predictors listed in descending order of importance according to the magnitude of the rescaled relative weights. This value represents the percentage of predicted variance in the outcome variable explained by each predictor. The values of R^2 for the job satisfaction, burnout, and wellbeing models were 0.73, 0.61, and 0.54 respectively. The significance of each predictor within each of the three models (see Table 6) was assessed using a bootstrapping procedure developed by Tonidandel, LeBreton, and Johnson (2009) conducted via the RWA web tool. It is important to note however, that as for all significance testing, the cut-off point ($p=.05$) is somewhat arbitrary, and the significance of some of the smaller relative weights flipped from one run of the analysis to the other. This happened for predictors (e.g., social support as a predictor of job satisfaction) where one of the confidence intervals was close to zero and is a product of the bootstrapping procedure (which gives different results each time) that is used to empirically derive the confidence intervals of the relative weights. Within Table 6, we have included the confidence intervals and the significance of each factor, as derived from the original run of each analysis. The discussion that follows, however, will focus on the magnitude of the relative weights as a measure of effect size (Tonidandel & LeBreton, 2011) which remain stable from one analysis to the other, rather than on their significance.

<<insert Table 6 here>>

Table 7 demonstrates the relative importance profile of each predictor across the three models, reporting the rescaled relative weights (the percentage of explainable variance in the outcome variable attributed to each predictor) and the relative weight ranking for each model. The mean of the rescaled relative weights calculated across the three models is also reported to provide a broad indication of the relative importance of each predictor across all three outcome variables. Support from management, workload, and school culture emerged as important contextual predictors of all three outcome variables, with relative weights ranking

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within the top 4 predictors for each model. Emotional intelligence also seemed to be an important predictor of all three outcomes (ranking between 4 and 6 and explaining 8.44% of the explainable variance in the outcome variables on average). Perceived conflict between beliefs and practice seemed to be an important predictor of job satisfaction and burnout (ranked 5 for both and explaining 7.80% and 8.72% of the explainable variance respectively); it appeared to be less important for the prediction of wellbeing, ranking 9th and explaining only 3.97% of the explainable variance. Similarly, support from colleagues seemed to be important for both job satisfaction and burnout (ranked 4th and 6th and explaining 7.98% and 6.23% respectively), but less so for wellbeing (ranked 8th and explaining 4.19% of explainable variance). Self-care and self-esteem, on the other hand, seemed to be important predictors of wellbeing (ranked 2nd and 5th and explaining 12.92 and 9.81% of the explainable variance) while explaining relatively small amounts of variance in the other two outcome variables: self-care ranked 11th for job satisfaction (2.15%) and 12th for burnout (2.64%); self-esteem ranked 10th for job satisfaction (2.53%) and 8th for burnout (5.01%). The remaining 6 factors made relatively small contributions to the outcome variables in terms of ranking of relative importance (see Table 7) and so will not be discussed in detail.

The overall percentage of explainable variance in job satisfaction attributed to the contextual predictors (72.26%) is much higher than the overall percentage of explainable variance attributed to the individual predictors (27.74%). Similarly, the total percentage of explainable variance in burnout attributed to the contextual factors (61.73%) is considerably bigger than the percentage of explainable variance attributed to individual predictors (38.26%). The division of explainable variance in wellbeing attributed to contextual versus individual predictors, on the other hand, was more even, corresponding to 55.37% and 44.63% respectively.

<< insert Table 7 here >>

Discussion

The first striking finding of the study was the variance across the three measures of adaptation. Despite the apparent teacher retention and recruitment crisis (e.g., Avalos & Valenzuela, 2016; Gu & Day, 2007; Peters & Pearce, 2012) and reports of teachers “leaving in their droves” (Fearn, 2017: online), within our sample, teachers were not the uniformly disenchanted bunch we might expect. Although the teachers who completed our survey were all working within schools in England, experiencing the same pay and conditions, and under the same climate of public accountability, they did not all appear to be equally miserable. The way that teachers experienced their roles seemed to vary greatly, with the majority of the variance in our outcome variables being explained by the factors included within the survey. Our results showed that differences in teachers’ levels of positive adaptation were related to both characteristics of the individual and their environment.

Individual level factors

Emotional intelligence was an important predictor of all three measures of adaptation in teachers in line with the established link between emotional intelligence and general resilience (e.g., Carmeli, Yitzhak-Halevy, & Weisberg, 2009; Schneider, Lyons, & Khazon, 2013). When exploring the possible mechanisms behind this association, it is important to consider the multi-faceted nature of emotional intelligence (Goleman, 1998; Mayer, Salovey, Caruso, & Sitarenios, 2001). Although there is on-going debate around how emotional intelligence should be operationalised (e.g., Boyatzis, Batista-Foguet, Fernandez-I-Marin, &

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Truninger, 2015), Goleman's five-factor model (1998) remains popular. Following this model, the current study measured emotional intelligence using five subsets of items: self-awareness, self-regulation, motivation, social skills, and empathy. Although studies exploring the influence of emotional intelligence on adaptation in teachers are scarce (Beltman et al., 2011), there are a number of studies which have noted the impact of specific aspects of emotional intelligence on teachers' ability to cope (Castro, Kelly, & Shih, 2010; Tait, 2008; Tsouloupas, Carson, Matthews, Grawitch, & Barber, 2010; Watt & Richardson, 2008). For example, Tsouloupas and colleagues (2010) demonstrated a link between emotion regulation and emotional exhaustion in teachers and suggested cognitive appraisal strategies as a potential self-help mechanism to protect teachers from burnout. More recently, Schussler (2014) foregrounded the importance of self-awareness in teachers, suggesting that teachers need opportunities to revisit their own beliefs and values in relation to teaching and the extent to which these are being enacted within the classroom. Schussler (2014) also notes that "teaching is a constant act of perceiving" (p. 809) and suggests that teachers need to be aware of the factors which influence their unique perceptual lens, e.g., gender, culture, and experience. Although the current study has taken an important step in identifying the relative importance of emotional intelligence, further research is needed to explore the extent to which specific elements of emotional intelligence (e.g., self-awareness and empathy) might play a relatively major/minor role in the resilience process.

Teachers' perceived conflict between their own beliefs and the practices they are expected to undertake in school was an important predictor of both job satisfaction and burnout. The importance of the possible tensions between teachers' ideals and the practices promoted within their schools is highlighted by McCormack and Gore (2008), who report early career teachers feeling "ostracised or excluded" when their practices do not conform to the norms within the school (McCormack & Gore, 2008, p. 5). These norms may themselves

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be heavily constrained by external influences originating beyond the individual school (Hammersley-Fletcher & Strain, 2011), for example, increased visibility of schools and a prevailing neoliberal discourse around education (Patterson, 2000; Hatcher, 2005) – all of which limit teachers' agency and threaten to position them as “merely [...] agents of government change” (Hammersley-Fletcher & Strain, 2011, p. 871). Hammersley-Fletcher and colleagues (Hammersley-Fletcher, Clarke & McManus, 2017) have suggested that practitioner research might be a productive way for teachers to find pockets of agency within this highly constrained space, invoking a kind of “agonistic democracy” (p. 4). When engaging in classroom-based research, teachers found spaces to interrogate their own beliefs and practices as well as those of others, allowing them to rethink and experiment with ways of implementing and reshaping policies within their settings (ibid). Hammersley-Fletcher et al. (2017) also found gains in terms of motivation and satisfaction, with teachers reporting a renewed sense of enthusiasm and enjoyment within their roles. In a similar vein, McIntyre and Hobson (2016) explored the use of external mentors to provide a discursive “third space” for teachers to explore their beliefs around teaching. When provided with a safe space to discuss their work with someone detached from the school's performance management procedures, teachers were able to “negotiate the practices, expectations and performance measures that define their work contexts” (McIntyre & Hobson, 2016, p. 15) – a process which supported them in developing their professional identity and their confidence to take risks within their role. Given the relative importance of perceived conflict between beliefs and practice identified within the current study, we would suggest that further work is needed to explore ways for teachers to negotiate their way through these tensions, with practitioner research and the provision of safe discursive spaces perhaps providing promising initial avenues.

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Self-care was found to be the most important individual level predictor of wellbeing. It is no great surprise that teachers who take the time to look after themselves experience higher levels of wellbeing. What is noteworthy, however, is the relative importance of self-care for wellbeing in comparison with other factors. Self-care explained more variance in wellbeing than any other factor with the exception of workload. This finding reflects previous studies in other areas which have demonstrated positive relationships between: diet and wellbeing (Owen & Corfe, 2014); exercise and reduced depressive symptoms (Craft & Perna, 2004); and sleep deprivation and anxiety (Sagaspe et al., 2006). The fact that self-care was associated not only with a sense of wellbeing, but also an increase in teachers' capacity to enjoy their jobs, resonates with studies within the more general organisational psychology literature, which associate a successful work-life balance with higher levels of job satisfaction (Haar, Russo, Suñec, & Ollier-Malaterre, 2014). Within the teacher resilience literature, the impact of self-care is currently understated with only 4 out of 51 papers reviewed by Beltman and colleagues (2011) referring to the importance of self-care (Castro, et al., 2010; Manuel, 2003; Sumsion, 2003; Tait, 2008). In our own work with student teachers (Author, in prep), they often describe a sense of needing permission to make time for themselves. Perhaps research evidence such as that presented here might help to support teachers/student teachers in seeing the concrete benefits of self-care and granting themselves permission to make it a priority. It is important to note, that while our results reveal a strong association between self-care and wellbeing, it does not follow that the burden of responsibility for "building resilience" should lie solely with the individual. On the contrary, we argue that the pattern of results as a whole suggests contextual factors to dominate over individual characteristics and behaviours in terms of their impact on how teachers experience their role.

Self-esteem was also found to be an important predictor of wellbeing. This concurs with research within the wider resilience literature, which demonstrates a protective effect of

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self-esteem in the face of poverty (Wang et al., 2016), disability (Hayter & Dorstyn, 2014) and psychological maltreatment (Arslan, 2016). A recent neuroscientific study suggested that this protective effect of self-esteem may be mediated by neurological differences (Wang et al., 2016). Within this work, adults with high self-esteem were found to be protected from hippocampal atrophy, which is believed to result from living in poverty (Wang et al., 2016). Interestingly, self-esteem does not appear as a prevalent factor within recent reviews of the teacher resilience literature (Beltman et al., 2011; Mansfield et al., 2016). The only study identified as having explored self-esteem within the context of teacher resilience is Kitching et al.'s work (2009), which investigated the possibility that self-esteem might act as a mediator for the effects of "Affect Triggering Incidents" (ATIs) on levels of teacher commitment (p. 43). While the authors found a significant relationship between everyday positive and negative incidents in the classroom and self-esteem, they did not investigate the relationship between self-esteem and commitment. Given the relative importance of self-esteem observed in the current study and the wealth of research highlighting its centrality to resilience in other domains, there is a need for further research into the role of self-esteem in the adaptation of teachers to their professional role.

Contextual factors

The three most important contextual factors were workload, support from management and school culture. The strong association between workload and teachers' ability to thrive reflects mounting concerns internationally about ever increasing demands on teacher time and the deleterious effects that this is having on their health and wellbeing (Lightfoot, 2016). While this finding is not particularly surprising in one sense, it is interesting that teachers' perceived levels of workload varied considerably across the sample.

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Our findings confirm concerns about excessive teacher workload (with the mean rating reflecting “agree” to statements such as “my workload is unmanageable”); however, the variability around the mean suggests that teachers are not all suffering equally in this regard. Given that excessive workload is often seen as inevitable and endemic within teaching, this finding warrants further research into how workloads are established and managed within individual schools, especially in the light of new initiatives within the UK (Department for Education, 2015) and internationally (Batas, 2016), aimed at reducing workload pressures for teachers.

In a similar vein, there was also substantial variability in teachers’ perceptions of support from management. This variability combined with the relative strength of this factor in predicting positive adaptation conveys an important message to school leaders: their support matters. Despite the seemingly intractable top down pressures faced by leaders in schools (Tucker, 2010), school leaders are able to exert a profound influence on the way that teachers experience their professional lives. It is worth noting here what we mean when we talk about “support from management”. The School Management Scale (Smith, McCall & Stoll, 1998) used to operationalise this construct within the current study measures teachers’ perceptions of the management team in relation to four characteristics: support for teachers; shared vision and goals; participative decision-making; collegiality and collaboration; and a focus on school-based staff development. Our findings, therefore, suggest that investment by managers in these areas might be associated with higher levels of job satisfaction and wellbeing, alongside a lower risk of burnout in school staff. While the scale used here was constructed twenty years ago, more recent work supports the importance of these aspects of leadership in building resilient schools (Bowen et al., 2007; Day, 2008; 2014; Day et al., 2011a; Day et al., 2011b; Peters & Pearce, 2012; Tschannen-Moran & Hoy, 2007).

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The relative importance of school culture identified here resonates with the prevalence of culture as a theme within the qualitative teacher resilience literature (25 papers identified by Mansfield et al., 2016). It is noted, however, that the construct of “school culture” is difficult to pin down. While some authors have identified the importance of a collective sense of positivity which can be spread amongst staff (Jarzabkowski, 2002; Howard & Johnson, 2004), others have foregrounded the importance of collaboration (Cameron & Lovett, 2015; Fantilli & McDougall, 2009; Johnson et al., 2014) and sociability (Jarzabkowski, 2002). Part of the issue in generating a clear definition of what we mean by school culture comes from the difficulty in separating the term “culture” from other constructs such as “atmosphere”, “ethos”, and “climate” (Solvason, 2005). Within this study we have made a rather crude initial attempt to capture how it feels to be within a school by designing a sub-scale for our survey which incorporates elements shown to be relevant within the qualitative literature: a sense of community (Yonezawa, Jones & Singer, 2011), belonging (Skaalvik & Skaalvik, 2011), openness (Day & Gu, 2014) and optimism (Day, 2014). The apparent importance of culture demonstrated here, provides an impetus for further work aimed at refining the conceptualisation of what we mean by culture in relation to schools and its potential to enhance the experiences of both teachers and pupils.

Support from colleagues was found to be important to a varying degree across three outcome measures (ranking 4th, 6th, and 8th in terms of relative importance for job satisfaction, burnout, and wellbeing respectively). The importance of support from others supports the application of Jordan’s ‘relational resilience’ (2006) to the adaptation of teachers (Gu, 2014; Le Cornu, 2013). Jordan’s (2006) model of relational resilience proposes that resilience comes from a sense of connectedness rather than individual strength. When applying Jordan’s model to resilience in teachers, Le Cornu (2013) identifies a number of mechanisms through which ‘growth-enhancing relationships’ (Jordan, 2006) with colleagues

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(as well as pupils, family, and friends) help to sustain teachers through the various challenges of the profession. Similarly, Gu (2014) notes that resilience is not something which originates solely within the individual, rather it is “influenced by the strength of trust in the multi-layered relationships in which teachers’ work and lives are embedded” (p.52). Our findings provide further support for the centrality of relationships in the process of positive adaptation.

Importance of context

Perhaps the most striking finding of this study is the dominance of factors associated with context rather than individual characteristics when predicting adaptation in teachers. This finding has important theoretical implications, providing strong support for the social ecological view of resilience (Ungar, 2011; Ungar et al., 2013). Our results echo the pattern seen across various domains that a person’s chances of thriving in the face of adversity are related just as much to a person’s environment (if not more so) than to his or her individual tendencies (Abramson, Stehling-Ariza, Park, Walsh, & Culp, 2010; Cicchetti, 2010; Kassis et al., 2013). The observed salience of environmental influences on teachers’ capacity to thrive encourages us to apply Ungar’s (2011) principle of decentrality when seeking to conceptualise teacher resilience. Ungar argues that we must avoid putting the individual at the centre of our quest to understand resilience; rather we should look first to the context, then to the way that the context interacts with the environment, and finally to the characteristics of the individual (ibid).

The importance of context also resonates with critical perspectives relating to teacher resilience (Johnson & Down, 2013; Price, Mansfield, & McConney, 2012). Johnson and Down (2013) warn us of the tendency towards “hyper-individualisation” (p. 81) when conceptualising resilience and the consequent shifting of responsibility onto teachers. Similarly, Price et al. (2012) express concerns about the potential effects that the term

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“resilience” might have on teachers’ identity and the work that they are asked to do within the current neoliberal climate. Price and colleagues argue that terms like “resilience” “have become a means to enable overworked employees to cope with the pressures placed on them by globalisation and fast capitalism” (ibid, p. 84). The authors go on to note that “there are no attempts to change or resist the pressures (adversities) of the workplace in these discourses – workers simply learn to ‘bounce back’ from them” (p. 84). Furthermore, Price et al. (2012, p. 88) encourage us to “turn to the other side of the resilience equation” and focus on why conditions for teachers are so adverse in the first place. The current study has allowed us to investigate “both sides of the equation” and suggests that contextual influences on teachers’ ability to thrive within the profession may be just as important (if not more so) than individual factors. A key implication of this study is that responsibility for adaptation should not be placed solely at the feet of teachers. While there might be a place for interventions/training designed to boost teachers’ ability to cope within the workplace, equal attention (at the very least) needs to be paid to the nature of the conditions which teachers are expected to work in. Our results support Johnson and colleagues’ call for:

More empowering responses to teacher resilience. These responses would rely less on individually reductive approaches and focus instead on the structural, institutional and relationally situated nature of teachers’ work (Johnson et al., 2015 pp. 24-25).

Limitations

When considering how we might apply the findings of the present study to support teachers, we need to be mindful of the exploratory nature of this pilot study. While this work represents an important first step towards quantifying some of the constructs associated with teacher resilience, there are a number of important limitations to this study; therefore, further work is needed before firmer conclusions can be drawn. Firstly, the fact that we have

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considered the associations between each predictor and the outcome variables as if they exist in isolation represents an oversimplification of how things are likely to work in practice.

While the current study has examined the separate role of each variable in explaining variance in measures of adaptation, it is likely that there will be interaction effects between these factors. For example, teachers' levels of emotional intelligence might influence the quality of their relationships with colleagues, which in turn might affect their self-esteem. Similarly, a substantial increase in workload is likely to impact on a teacher's ability to engage in self-care activities such as eating healthily or engaging in regular exercise. It is therefore important that when we explore possibilities for manipulating individual and contextual factors to promote positive adaptation, we consider the relationships between these predictors. The current study assumed a solely "compensatory" model of resilience (Fergus & Zimmerman, 2005): one which models only the main (direct) effects of each predictor on the outcome variable. A "protective" model, on the other hand, would include interaction effects between the predictors (Windle, 2011). Due to the relatively modest sample size used in this exploratory study, we did not have sufficient statistical power to model the presence of any potential interactions between the predictors. A large-scale study is therefore needed to allow the potentially complex interplay between factors to be fully understood.

A further limitation of the current study concerns the issue of bi-directionality. When using a correlational method, it is not possible to predict the direction of the effect and therefore say with certainty which variable has influenced the other. It is also noted, that the cross-sectional nature of the study does not allow us to infer causation. Therefore, longitudinal work is needed to allow us to model directionality between variables and to draw firmer conclusions about how factors at the individual and contextual level influence the way that teachers experience their role. A longitudinal approach would also allow us to investigate

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the temporal dimension of resilience (Ungar, 2011); this is important given that the challenges faced by teachers have been shown to vary at different career stages (Day, 2008).

The study is also limited by the number of variables that we were able to include within the study. Due to pragmatic constraints on survey design (e.g., the maximum time we could reasonably expect a teacher to spend completing it), we were only able to measure a selection of the variables identified within the qualitative teacher resilience literature. There are of course many more variables which are likely to have a measurable impact on teachers' ability to adapt to their role. We cannot, therefore claim that the key predictors identified here are the only important aspects of positive adaptation. What we can say, however, is that within our sample some of the factors were more important than others, providing a sense of the balance between some of the more prominent factors within the literature in terms of their measurable effect on teachers' ability to cope with and enjoy their professional role. One key area of influence which we were not able to explore in the current study (due to limited sample size) was the effect that time served and other demographic variables (e.g., age, gender) have on the resilience process. This would be an interesting line of enquiry for a larger scale study where multi-level modelling would allow analyses to be nested within demographic levels of interest.

Finally, within the current study all data relied on self-reported measures produced by individual respondents. This may have led to results being overestimated due to common method variance. Furthermore, the contextual factors within this study such as workload and school culture were again self-reported rather than being more objective global measures. As a result, caution should be taken when distinguishing the relative contribution of individual versus contextual factors to positive adaptation in teachers. In future studies, the use of more objective measures, which do not depend solely on self-reported techniques, would help to alleviate these concerns. Because of the limitations outlined above, all conclusions drawn

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from this study remain tentative at this stage, but provide an important starting point for further quantitative work in the area of teacher resilience.

Conclusion

In sum, by quantifying a range of constructs identified as being important within the teacher resilience literature, we have identified a number of important predictors of job satisfaction, burnout, and wellbeing. Overall, a larger percentage of variance in these outcomes was explained by contextual versus individual factors, suggesting that efforts to ‘make teachers more resilient’, with an emphasis on developing personal resources (e.g., Mansfield et al., 2016), only have the potential to solve part of the problem. Any intervention designed to help teachers thrive within their role needs to address ‘both sides of the equation’ (Price et al., 2012) by ensuring supportive management, reasonable workloads and positive school cultures where staff collaborate and socialise with one another. The development of interventions aimed at enhancing teachers’ individual capacities to cope within the profession remains a question for further research; however, the individual factors identified as important within the current study might provide a useful starting point for this work. The most important message within this study however is that context matters. We hope that this is viewed as an empowering message for school leaders: while the current neoliberal climate might make positive adaptation seem like an impossible dream, many of the teachers within our sample appeared to be happy in their roles. Moreover, differences in levels of job satisfaction, burnout, and wellbeing were strongly associated with characteristics that can be manipulated at the school level such as support from management and school culture. While our conclusions are necessarily tentative, given the exploratory nature of the study, they

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suggest that the way teachers experience their professional role is more strongly associated with their environment than by their individual characteristics.

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