Early career teachers' resilience and positive adaptive change capabilities

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Abstract

This research is an investigation of the link between adaptive functioning and resilience in early career teachers. Resilience is considered an important capability of teachers; and research has shown that teachers who are resourceful, demonstrate agency and develop

positive management strategies overcome adversity well. In this research, we aim to examine more closely the strategic processes associated with resilience and whether these vary in a cohort of early career teachers. A sample of early career teachers ($n = 160$; $M = 31.09$, $SD = 6.92$) participated in the study. The findings showed that, consistent with previous research on adaptive change, three groups emerged from the cohort: stabilisers, adapters, and innovators. Stabilisers were the least resilient, adapters were more resilient, and innovators were most resilient. Length of service was not significantly associated with resilience, while a weak interaction was found between years of service and adaptive functioning. Resilience was strongly associated with adaptive functioning. Findings are discussed in relation to resilience and early career teachers' self-care.

Keywords: adaptive functioning, resilience, teacher retention..

This research investigates the resilience of early career teachers (ECTs) with regard to the length of service and adaptability. Resilience is considered an important capability of teachers and is reported to fluctuate over time (Gu & Day, 2014). Resilience shares some characteristics with adaptive behaviour (Bowles & Hattie, 2013), which may be a means of enhancing resilience through preservice training by focusing on the eight factors associated with adaptive change. Adaptive functioning can be described by 8 processes that can be individually identified and may be useful in future training to facilitate adaptability and correspondingly resilience. Scores on the eight factors have previously shown that there are three preferences for an individual's adaptive functioning (Bowles & Hattie, 2013). In this research both adaptability and resilience were measured in reference to early career teaching. Previously early career teaching has been associated with the first five years of service (Ewing & Smith, 2003; Johnson, et al., 2010) however in this research we sought to establish whether there were changes in resilience and adaptive functioning of teachers over time and therefore gathered data teachers with up to 10 years of service. The importance of developing

strategies such as adaptability, that can be taught to and practised by preservice and early career teachers, has gained importance as a means of reducing the number of early career teachers leaving the profession (Masten, Best, & Garnezy, 1990).

Resilience

Resilience in teaching staff has been shown to be a factor that positively assists when organisations undergo change (Avey, Wernsing, & Luthans, 2008). It has been identified as a factor that builds psychological capital in organisations and recommended for staff selection in some industries (Luthans, Vogelgesang, & Lester, 2006). Resilience is particularly relevant for teachers, as it assists in adjustment to negative or stressful events by utilising personal and/or environmental resources following adversity (Bobek, 2002; Gibbs & Miller, 2014). Resilience also predisposes teachers to deal with exhaustion and fatigue from stress and burnout associated with teaching (Chang, 2009; Tait, 2008). Burnout is indicated by emotional exhaustion; cynicism; reduced personal efficacy; a poorly managed workload; an absence of locus of control, sense of community, fairness and values; and mismatched rewards (Maslach & Leiter, 2008). Teachers reporting experiencing elements of burnout are likely to consider leaving the profession, making it an important and costly problem for school administrators (Bonanno et al., 2001; Coutu, 2002; Hong, 2012; Tsouloupas, Carson, Matthews, Grawitch, & Barber, 2010; Tugade, Fredrickson, & Feldman, 2004). Therefore, having staff who are resilient has benefits to the individual staff member and the organisation.

Early career teachers' resilience has become prominent in the educational and psychological literature recently (Jephcote, 2009; Johnson et al., 2014; Gu, 2014) and has different definitions depending on the emphasis and focus of the research (Ebersöhn, 2014) whether that be as an individual difference variable such as traits and competencies (Day & Gu, 2014) or emphasizing the context and situation (Gu & Day, 2007; Mansfield, et al., 2012). A

definition from organizational psychological reflects elements of a common definition of resilience as “the developable capacity to rebound or bounce back from adversity, conflict, and failure or even positive events, progress, and increased responsibility” (Luthans, 2002, p. 702). Resilience can also be ‘positive adaptation despite adversity’ (Bottrell, 2009, p. 323). Generally we prefer Masten, Best, and Garmezy (1990, p. 425) definition of resilience, although this has been applied to research involving children that resilience is ‘the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances’ which corresponds to Gu & Day’s (2007, p. 1302) definition of resilience of teachers, ‘as the capacity to continue to “bounce back”, to recover strengths or spirit quickly and efficiently in the face of adversity.’ These last two definitions render the resilience within the individual and their capabilities. Importantly this emphasis on the resilience of the individual does not deny the sociocultural dimensions of teaching and that teaching is enacted within the broader social, economic and political contexts of school, community and the policies that impact upon them (Johnson & Downs, 2009; Le Cornu, 2013). From this perspective resilience is a buffer to the growing stresses associated with teaching (Le Cornu, 2009) that appears to be a combination of personality traits, developmental processes, and learnt skills (Ebersöhn, 2014, p. 537). Resilience is not an innate characteristic (Gu & Day, 2007; Mansfield, Beltman, Price, & McConney, 2012) and it is considered *developable* and may be enhanced when considered consciously (Pearce & Morrison, 2011) and therefore could be a focus in preservice training, as recommended by Le Cornu (2009). Understanding the complexity of the environmental factors contributing to risk and protective factors and strategies for managing such stressors may enhance resilience (Benard, 2004) and generates self-regulation, flexibility and openness to change (Bonanno, Papa, & O’Neill, 2001; Coutu, 2002; Tugade, Fredrickson, & Feldman, 2004).

ECTs' resilience is gaining greater interest of administrators and researchers (Johnson et al., 2014; Nolan, Taket, & Stagnitti, 2014), and improvements in the quality of research explicitly investigating resilience have been recommended (Beltman, Mansfield, & Price, 2011); in particular, adequate sample sizes, validated instruments and generalizable research. Other factors and processes, such as professional development, mentoring, relationships with staff and students, and teachers' perception of the specific aspects of work that impact upon teacher resilience were also recommended for investigation. The potential for relationships and social support to enhance and complement resilience has recently been articulated (Gu, 2014) and deserves investigation. Similarly, research into the link between resilience and other factors such as teacher retention has resulted in complex explanations of resilience (Taylor, 2013).

While there is information about demographic factors that influence whether ECTs remain teaching (Borman & Dowling, 2008) there is a need to further investigate psychological factors that influence the ECT's decisions (Watt & Richardson, 2011). Researching factors that positively influence retention, such as motivation and commitment, is very worthwhile (Day, 2008). Teacher resilience is particularly pertinent to ECTs and may be a factor that improves their experience of teaching (Tait, 2008) and consequently their commitment to the career. Similarly, adaptive functioning has been related to factors that would ameliorate some of the stress and burnout factors, such as elevated self-efficacy and reduced procrastination and excuse making (Bowles & Hattie, 2013; Mansfield et al., 2012). Positive influences, such as social support when under pressure (Tait, 2008) and strong self-efficacy beliefs (Ironson, 2012), have been identified as enhancers of retention and work satisfaction of ECTs. These adaptive factors may be associated with resilience and if so may be able to be taught to facilitate resilience in ECT if the link is clearly shown

Adaptive Change

Adaptive functioning assists individuals to positively adjust to stresses and strategically process towards goals of advantage to the individual (Le Fevre, Kolt, & Matheny, 2006; Nelson & Cooper, 2005). One model of adaptive functioning is comprised of two sets of factors (Bowles, 2006). First, the process factors of the Adaptive Change Model (ACM) consist of five stages that individuals optimally move through when completing or considering a change or responding to a stress. Before change occurs (Action), individuals are open to change (Openness to Opportunity), visualise what might happen after the change occurs (Visualisation) and prepare and plan for change (Planning) and then take Action. After individuals have completed the change, integrating the new state into the self-system (Closure) is followed by sense of liberation and possibly celebration of the change. Bowles (2006) further describes three support factors — (management of) Negative Emotions, Social Support and Inner-Drive — that help facilitate movement through the stages; for example, between Planning and performing a change (Action). An individual's overall level of adaptive change can be measured using the Adaptive Change Questionnaire (Bowles, 2006). The ACM describes a theoretically positive response to stress, in line with the modified model of Selye's (1975) from Simmons' model (2000), an adaptive response from stimuli to eustress (Figure 1). Coping is the usual response to (di)stress and is followed by the adoption of a single or limited number of coping strategies, which is a less adaptive response (Le Fevre et al., 2006; Zeidner & Endler, 1996). Alternatively, when an adaptive response follows a eustress reaction and is characterised as a challenge, volition, choice, strategic sequential set of processes and supports for those factors is present a more agentic process is enacted (Bowles, 2006, 2010). Research supports the idea that a eustress response is more adaptive (Le Fevre et al., 2006; Nelson & Cooper, 2005) and is accompanied by greater self-efficaciousness and internal locus of control. Eustress is associated with reduced distress and

increased flexibility and efficaciousness (Dweck, 2008). The factors of the ACM provide one set of factors to facilitate change, whether volitional or in response to a stress, incorporating behavioural, cognitive, and affective elements to change (Bowles, 2006; Martin, Nejad, Colmar, & Liem, 2012). Like resilience, eustress reactions can be learnt when dealing with complex activities, such as practising as a teacher (O’Sullivan, 2010).

Insert Figure 1 about here

Early research into Adaptation Theory (Kirton, 1976) argued that there were two typologies of adaptive functioning, each at one end of a continuum (Kirton, 1976; 2000; 2006; Skinner, 1989; 1996; 2003; Smith, Hill, & Barber, 1989). *Adaptors* use familiar techniques and previously learned articulated strategies to find solutions, are systematic in their thinking and more goal focused (Kirton, 1976, 2000, 2006). *Innovators* are less likely to use traditional methods and procedures and prefer novel methods when finding solutions (Skinner & Drake, 2003). Although Kirton (1976, 2000, 2006) maintained that Innovators were free thinking and more impulsive, and Adaptors were more likely to achieve planned goals, subsequent research has shown that Innovators are more self-efficacious, less likely to procrastinate and make fewer excuses compared with Adaptors (Bowles & Hattie, 2013). A third group of *Stabilisers* were also identified, who are more cautious, manifesting behaviours that appear more conservative (Bowles & Hattie, 2013). The three-typology structure of the ACM shares similarities with Houle’s (1961) three-group differentiation after a cluster procedure showed a linear relationship on motivational factors associated with change (Boeren, Holford, Nicaise, & Baert, 2012; Garst & Ried, 1999). According to Bowles and Hattie (2013), Innovators were highest scoring on the eight factors of change: Openness to Opportunity, Visualisation, Planning, Action, Closure, Social Support, Inner Drive, Negative

Emotions and Total Adaptive Change, compared with significantly lower scoring Adaptors and consistently, significantly lowest scoring Stabilisers. Previous research has shown that 30.4% of the respondents were Stabilisers, 46.6% were Adaptors, and 23.1% of the sample were Innovators, with each group showing significantly different characteristics (Bowles & Hattie, 2013). Similarly, previous research into clinical status showed that clinical respondents were less adaptive than those seeking career counselling and a control group who were the most adaptive of the three groups (Bowles, 2010). This research will investigate the link between the three typologies of adaptability and resilience in ECTs. The three typologies identified by Bowles & Hattie (2013) share considerable similarity to the typologies identified in previous teacher research, when using the same cluster procedure, Watt & Richardson (2008) identified three groups based on the motivational factors of teachers associated with levels of planned effort and persistence within the teaching profession, and their professional development and leadership aspirations. The three groups were identified as, highly engaged persisters, highly engaged switchers, and lower engaged desisters and the two most powerful differentiating factors were leadership aspiration and, importantly persistence.

Tait (2008) maintained that resilience, personal efficacy and emotional intelligence were important in the early career adjustment of teachers, and emphasised the importance of human strengths in dealing with this adjustment. Similarly, Skovholt and Trotter-Mathison (2014) highlighted the importance of self-care in assisting adjustment to work in helping professions. In this research, we are not investigating the self-care and personal resources of ECTs as noted by Tait and Skovholt and Trotter-Mathison, but are more interested in what strategies ECTs use to facilitate adjustment in the first years of their career. This research investigates the definition of the clusters of ECTs and the percentage of respondents in each

typology of adaptability. Second, the research links the typologies to resilience of the ECTs and the length of teaching service.

It is also possible that the teachers will become more resilient and adaptive as a response to the challenges of years of service, as resilience is known to fluctuate (Gu & Day, 2014). Research into changes in ECTs in the first 5 years after graduating showed a great variety of entry processes into settling into a career (Scherer, 2001), implying persistence. Similarly, a study of settled teachers from the 2nd to the 5th year of teaching showed a variety of experiences and suggested that distinct groups of teachers were emerging on the basis of their approach to work and intention to remain in the profession or leave (Cochran-Smith et al., 2012). In this research, we are focusing on the first 10 years of service to establish whether teachers become more resilient as a function of employment in school and in-service training. Finally, as there have been no reports of gender in relation to ECTs' intentions and resilience and gender differences, gender will be included in this research.

Research questions:

1. Does the three-group structure of the typologies and the frequencies of participants in the three typologies, from the current research, reflect the structure of factors and frequencies of responses in the typologies, from previous research?

2. Are there differences in resilience scores between the groups based on typologies of adaptive functioning?

3. Do teachers have different resilience scores based on their years of service?

4. Are there gender differences associated with resilience, adaptive functioning and years of service?

Method

Participants

The sample consisted of 160 participants (females, $n = 135$; males, $n = 25$) of 198 who began but did not complete the online questionnaires. The age of respondents ranged from 22 years to 52 years ($M = 31.09$, $SD = 6.92$). All participants were teachers working in Australian schools for a maximum of 10 years ($M = 4.54$, $SD = 2.75$). The participants worked in government schools (72%), Catholic schools (18%) and independent schools (10%). A majority worked in secondary school settings (67%), then primary school settings (32.5%), and one teacher taught in an early childhood setting. The proportions of the teachers from different sectors was comparable with the profile of teachers provided by the Australian Bureau of Statistics (ABS, 2011), with the majority of teachers being female (70%) and the majority of teachers (64%) working in a government school.

Measures

Participants provided background information, including gender, number of years of teaching experience, type of school currently teaching at (government, Catholic or independent), and cohort of students (Early Education, Primary or Secondary).

Resilience. An online version of the Resilience Scale for Adults (RSA; Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005) was used to measure resilience. It has 33 items measuring five aspects of resilience (Personal Competence, Social Competence, Family Cohesion, Social Resources, and Structured Style). Each item is comprised of a stem and a corresponding Likert-type scale from 1 to 5, to be rated. An example item measuring

Personal Strength is: “My personal problems are — *unsolvable* (1) ... *I know how to solve* (5)” with higher scores indicating greater resilience. The RSA has good discriminant and convergent validity in relation to personality and intelligence (Friborg et al., 2005). In a recent review of 15 resilience measures, Windle, Bennett, and Noyes (2011) rated the RSA as having among the best psychometric properties of any reviewed.

Adaptive change. Participants completed the Adaptive Change Questionnaire (ACQ; Bowles, 2006), which has eight factors of Openness to Opportunity, Visualisation, Planning, Action, Closure, Social Support, Negative Emotions and Inner Drive, and is comprised of 35 items. Participants rated each item on a 6-point Likert-type scale with *1 = very strongly disagree* and *6 = very strongly agree*. Nine items were reverse scored. Higher scores indicate elevated levels of adaptability and lower scores indicate a desire for stability. The internal consistency of the questionnaire, when used in previous research, was shown to be sufficiently high to use for total scores and factor scores (Bowles & Hattie, 2013). The scale has a consistent factor structure and has been used on clinical and nonclinical samples (Bowles, 2006).

Procedure

A snowball technique was used to recruit participants. The explanatory statement invited participants to follow a link to the questionnaire. The questionnaires were randomly presented to the participants. Participants were asked to indicate the length of their career in years.

To establish whether there were effects on the basis of years of experience, participants were divided into three groups, in line with the definition of ECT previously used in research. Scherer (2001) defined early career teaching as the first 5 years after graduating,

and when wanting to research a more settled group of ECTs, the 2nd to 5th year of teaching has been used (Cochran-Smith et al., 2012). Therefore, in this research respondents were subdivided into three groups to generate a Years of Service factor. Accounting for 28.5%, 47 respondents were in the 1–2 years of service range. In the 3–5 year group were 55 or 33% of respondents. Those indicating 6–10 years of service were 63 participants or 38% of the total sample.

Typologies were generated by cluster the eight ACM factors following procedures recommended for identification (see Field, 2005; MacCallum, Zhang, Preacher, & Rucker, 2002). Dendograms were generated by K-means and hierarchical cluster procedure of each individual factor score and their closest relation to others in the sample until separate groups based on the data were defined (Everitt, Landau, & Leese, 2001). The cluster procedure was completed using all eight Adaptive Change factors, with the Negative Emotions factor reversed. Interpretation of the agglomeration schedule and dendograms indicated that the best solution, with the clearest separation from other steps, was comprised of three groups (Everitt et al., 2001).

Results

A weighted crosstabs was used to establish whether there was a significant difference between the respondents in each of the three typologies in this research compared with the previous analysis. The percentage of respondents in each cluster of this research was not significantly different from respondents in each of the three clusters from the earlier research of Bowles & Hattie (2013), $\chi^2(2, 412) = 5.26, p = .072; \eta^2 = .09$ (Table 1).

Insert Table 1 about here

Table 2 and Figure 2 show the means of the individual factors of Adaptive Change by Stabilisers, Adaptors and Innovators. Bonferroni's post hoc comparison showed that there were significant differences between each pairwise comparison of the ACM factors, which was consistent with the structure of the clusters in previous research.

Insert Table 2 about here

Insert Figure 2 about here

Table 3 shows the correlations, means, standard deviations and alpha reliabilities of the factors of interest. All estimations of reliability of the factors are relatively moderate to high, providing the confidence to use total scores on these scales (Boyle, 1991).

Insert Table 3 about here

The analyses of interest were comprised of typologies of adaptability (three level IVs), years of service (three level IVs) and gender (two level IVs) by resilience (DV). The first ANOVA involving typologies of adaptability and gender by resilience indicated that there was no significant main effect of gender, $F(1,159) = 0.27, p = .605, \eta^2 = .01$, and no interaction involving gender, $F(2,159) = 0.06, p = .9423, \eta^2 = .01$. The second analysis involving years of service and gender by resilience showed no main effect for gender, $F(1,159) = 0.03, p = .955, \eta^2 = .01$, and no interaction, $F(2,159) = 0.03, p = .969, \eta^2 = .01$, and so gender was removed from further analyses.

The third ANOVA involving typologies of adaptability and years of service by resilience with Bonferroni's post hoc comparisons showed the means of resilience scores were significantly related to the interaction between adaptability and years of service, $F(4,156) = 2.49, p = .046, \eta^2 = .06$. The interaction was very weak and subsumed into the more powerful main effect for typologies, $F(2,156) = 34.83, p = .001, \eta^2 = .31$. The interaction is shown in Figure 3 and is explained by the small downswing in resilience from years 3–5 and 6–10 for the Adaptors compared with the slight upswing in resilience between the same years of service for Stabilisers and Innovators. There was no main effect of resilience for years of service, $F(2,156) = 4.64, p = .630, \eta^2 = .01$. The main effect of resilience for the typologies of adaptive change showed that Stabilisers were least resilient, Adaptors were more resilient, and the most resilient group were the Innovative group. The differences between the three typologies can be seen for the linear effect of resilience in Table 4 and Figure 3.

Insert Table 4 about here

Insert Figure 3 about here

Discussion

The results of the findings showed that the frequency of participants in the three typologies from the current research was not significantly different to the respondents in typologies in previous research. A linear relationship that was significantly different for each typology of adaptive change was also found with Innovators, then Adaptors, and least

resilient were Stabilisers. There was no significant difference found for years of service and no gender effect found for resilience.

Structure of the Cluster

The frequency profile of respondents in the three typologies of adaptability was relatively consistent with the frequencies of respondents in the typologies in previous research (Bowles & Hattie, 2013). The similarity in the profiles also provided confidence in the findings. Similar to the previous research, a significant difference between each of the typologies for each of the eight factors of adaptive change was also found.

Resilience and Adaptive Functioning

In line with previous research (Gu & Day, 2007; Mansfield et al., 2012), the findings of this research showed that resilience was closely associated with adaptive functioning. The lowest correlation involving these factors was .31 and the strongest association involved Action ($r = .56$), Social Support ($r = .51$), Negative Emotions ($r = .54$) and Total Score of the ACM factors ($r = .60$). Adaptive functioning was defined by elevated scores in eight factors; these could be the subject of material taught to preservice teachers and may facilitate emotional stability in times of adversity, flexibility to change and openness to new experiences and acceptance reality (Bonanno et al., 2001; Coutu, 2002; Tugade, Fredrickson, & Feldman, 2004). The aim would be to generate greater understanding of the concepts and skills associated with being adaptive so that as members of organisations, ECTs also need to manage personal resources to reduce the prospect of fatigue (Chang, 2009; Tait, 2008) and burnout (Maslach & Leiter, 2008), and practising how to be more adaptive would assist teachers to do so.

The linear association linking Stabilisers, Adaptors and Innovators to resilience provides further understanding of the adaptive change such that those who were innovative were more resilient as well as more self-efficacious, make fewer excuses and procrastinated less (Bowles & Hattie, 2013). Such consistently positive results are a contrast to some of the concerns noted by Kirton (2000, 2006), such as elevated impulsiveness associated with innovativeness. Generally, the findings also partially support the early work of Kirton and other research on adaptability (Kirton, 1976, 2000, 2006; Skinner, 1989, 1996; Skinner & Drake, 2003; Smith, Hill, & Barber, 1989). To date, it has been argued that being a Stabiliser is a useful role, as suggested in previous research (Bowles & Hattie, 2013); however, the low scores on resilience in the current research suggest that there may be disadvantages in some of the dimensions of being a member of the Stabiliser group. In institutions where change is a constant, such as schools, having a disposition that has a preference for stability may result in a poor fit between the individual and culture of the organization. This poor fit may be the origins of the disaffection noted by Watt & Richardson (2008) that facilitates teachers leaving teaching. Principals and senior staff in schools may need to provide more of the social and institutional support necessary to hold staff during testing and stressful periods and facilitate greater adaptability while reducing stress (Peters & Pearce, 2012).

The link between resilience and adaptability established in this research lends some support for the eustress reaction to stimuli (Selye, 1975; Simmons, 2000). Teachers who adaptively respond to stress are likely to be more resilient and deal with stress better (Le Fevre et al., 2006; Zeidner & Endler, 1996), in line with Figure 1. As previous research has linked adaptive functioning and efficacious behaviour in adults (Bowles & Hattie, 2013) future research linking adaptability and resilience with teacher self-efficacy (Dweck, 2008) would also be helpful. Other researchers have also linked resilience to self-care, the capacity to adjust, personal self-efficacy, emotional intelligence, and the capacity to manage resources

(Skovholt & Trotter-Mathison , 2014; Tait, 2008). Future research could explore the efficaciousness of training school staff about the application of the eight factors of adaptability.

Length of Service and Gender

Another implication of this research was that length of teaching experience did not positively influence resilience. The depletion of teachers over the term/semester and yearly cycle is observable and teachers do sustain these stressors, but being in a stressful environment may not inoculate the individual. Nor does placing people under stress automatically teach them to learn to deal with it without actively engaging in learning, reflecting and practising new skills. Thus, it is reasonable that teacher resilience does not alter over the first years of teaching. Further research into the efficacy of teachers trained in adaptive functioning to build resilience may be helpful. In line with previous research no gender differences were found.

Implications

Resilience is considered an important capability for teachers and students in teacher education courses (Bowles, Hattie, Dinham, Scull, & Clinton, 2014; Pearce & Morrison, 2011; Tait, 2008); however, resilience cannot be directly taught as lesson planning might be, but as this research showed, there is a strong link between resilience and adaptability. In line with Le Cornu (2009), preservice education programs involving the practical teaching of skills, cognitions and competencies associated with the application of the eight factors of adaptive change — the process factors of openness to opportunity, visualising, planning, action taking and task completion, linked to the support factors of managing social support, inner drive and negative emotions — would most likely predispose students to understand

resilience. Follow-up in-service programs on the same subject would assist staff to be more practically resilience focused through the application of adaptive processes.

Using resilience to deal with stressful work environments has become an expectation, and popular teacher literature may leave the impression that resilience should be pursued continuously by the individual to buffer workplace stress; however, it is not a finite resource for teachers (Friedman, 2000) and especially not for ECTs (Dicke, Elling, Schmeck, & Leutner, 2015). Applying more opportunity making/taking, visualising, planning, action taking and task completion will result in greater opportunity to be resilient and generate greater capacity in the individual in the absence of fatigue, and the presence of resources; but resilience is a finite capability brought by staff (Garmezy, 1991), and “When stress or the number of risk factors is greater than the number of protective factors, individuals who exhibited resilience in the past may be overwhelmed and develop symptoms in one of the domains of physical, psychosocial, behavioral school, or work” (Tusaie & Dyer, 2004; p. 4:). Negative events generate stress, depletes health, resources, social support and income (Hobfoll, Freedy, Green, & Solomon, 1996). Depletion of resilience, while under pressure, may lead to fatigue and ultimately depression (Holahan, Moos, Holahan, & Cronkite, 1999). This argument is consistent with the conservation of resources model (Hobfoll, Freedy, Green, & Solomon, 1996) and other research into acute stressors, especially involving post-traumatic stress after acute events (Ironson et al., 1997) is warranted. As noted by Holahan et al. (1999), “The very resources that buffer stresses are themselves susceptible to erosion from stressors” (p. 628). The consequences of having a chronic over-demand on resources in workplaces plays out in the self-system of the individual: the costs draw on the personal resources of the teacher. Over time, chronic pressure on the self may result in subtle changes wherein the individual becomes more detached (Coulehan, 1995), less empathic, more robotic, and more hardened, cynical, blunted or resistant to the constant demands. Resilience

in staff needs to be nourished and drawn on when necessary, but if constant, the workplace should change, as it is potentially dangerous to the teacher and the students in their care.

Importantly, the interaction involving resilience and adaptability over the 10 years of service of the ECTs deserves some consideration. ECTs did not become more resilient or adaptive as a result of working in the profession, however, if, as suggested, resilience can be improved by training, as it is *developable* (Pearce & Morrison, 2011), then assisting people to be more adaptive through training relating to how to become more adaptive would be advantageous for ECTs as adaptive functioning is malleable and therefore can be learnt (Bowles & Hattie, 2013). The interaction of resilience and adaptability over the three categories of years of service showed that there was relative consistency in resilience between the years of service. This indicates that any professional development completed in the first 10 years of service did not enhance resilience. Establishing how to have an impact and ensure that professional development is effective in its delivery (Avalos, 2011) is important if adaptability and consequently resilience is to be enhanced for ECTs. Further, context and social factors (Johnson & Downs, 2009; Le Cornu, 2013; Peters, & Pearce, 2012) are known to influence resilience and the ECT experience may be enhanced by broadening professional development to include these topics and providing different forms of support such as mentoring, co-teaching, school-university partnerships to enhance the ECT experience (Avalos, 2011).

Finally, there are limitations to this research. First, the sample size is relatively small and this limits the ability to generalise from the data; however, the effect sizes were strong and provide sufficient justification for further research investigating the link between resilience and early career teaching. Second, there were fewer males than females and therefore the absence of gender effects may be due to the small number of males in the sample. Third, the data was gathered from self-report questionnaires, and future research

could focus on gathering data over time to investigate more fully, using alternative methods, how both adaptive functioning and resilience change in the first decade of teaching.

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Figure 1. Model of reactions to stress as a function of adaptive and coping reactions.

Figure 2. Typologies of change.

Figure 3. Resilience and years of service and typologies of change.

Table 1

The Chi-Squared Analysis Associating Typologies with Tertile Split of Total Change Factors

Adaptive	Change typologies	Study 1		
		Early research*	Current research	Total
Stabilisers	Count	75.0	44	119
	Expected count	71.3	47.7	119.0
	% of study	30.4%	26.7%	28.9%
Adaptors	Count	115.	66.0	181
	Expected count	108.5	72.5	181.0
	% of study	46.6%	40.0%	43.9%
Innovators	Count	57.0	55.0	112
	Expected count	67.1	44.9	112.0
	% of study	23.1%	33.3%	27.2%
Total	Count	247.0	165.0	412
	Expected count	247.0	165.0	412.0
	% of study	60.0%	40.0%	100.0%

Note: Data sourced from Bowles and Hattie (2013).

Table 2

The Eight Factors of Change Clustered Into Typologies

		Typologies of change						Post hoc significance		
		Stabilisers		Adaptors		Innovators				
		<i>(n = 44)</i>		<i>(n = 66)</i>		<i>(n = 55)</i>				
		Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>			
1	Openness	4.01	.46	4.60	.49	5.19	.51	70.55	.001	.47
2	Visualisation	3.76	.51	4.16	.47	4.97	.53	75.88	.001	.48
3	Planning	3.82	.55	4.21	.46	5.10	.51	86.95	.001	.52
4	Action	3.14	.75	3.79	.61	4.66	.66	64.80	.001	.44
5	Closure	4.33 ^a	.54	4.67 ^a	.67	5.44	.52	48.00	.001	.37
6	Negative emotion ¹	3.58	.49	4.21 ^a	.64	4.61 ^a	.68	34.16	.001	.30
7	Social support	3.94	.44	4.61	.70	5.10	.75	37.19	.001	.32
8	Inner drive	3.83	.39	4.31	.44	5.03	.47	95.30	.001	.54
9	Total score Av	3.80	.22	4.32	.16	5.01	.32	306.01	.001	.79

Note: ¹Bonferroni's comparison are indicated by the exact significance level (2, 162). ²All post hoc pairwise comparisons were significantly different at the .001 level except ^a which was significant to .01. Process factors are numbered 1–5 and Support factors are numbered 6–8. ¹ Note: Items from the Negative Emotions factor were reversed.

Table 3

Means, Standard Deviations and Effects for Clusters on the ACM and Motivation Factors

	Correlation of factors										Descriptive statistics		
	2 ²	3	4	5	6	7	8	9	10	11	Mean	SD	Alpha ¹
(1) Openness to opportunity	.74**	.53**	.37**	.37**	.41**	.70**	.51**	.78**	.35**	.12	4.64	.67	.82
(2) Visualisation		.59**	.48**	.42**	.41**	.62**	.44**	.80**	.35**	.13	4.32	.69	.81
(3) Planning			.61**	.51**	.35**	.66**	.34**	.79**	.39**	.17*	4.40	.71	.80
(4) Action				.39**	.29**	.55**	.37**	.72**	.56**	.05	3.91	.89	.67
(5) Closure					.39**	.56**	.23**	.67**	.31**	-.01	4.84	.75	.71
(6) Social support						.38**	.34**	.63**	.51**	.04	4.59	.79	.90
(7) Inner drive							.39**	.83**	.43**	.07	4.43	.64	.76
(8) Negative emotions								.62**	.54**	.15	4.18	.73	.81
(9) Total change									.60**	.12	4.42	.53	.81
(10) Resilience										.09	3.91	.51	.91
(11) Years of service											4.62	2.77	—

Note: ¹Cronbach's alpha reliabilities. ² **correlations are significant to or greater than .001; *correlations are significant to or greater than .05;

Table 4

The Typologies of Change, Years of Service and Resilience Factors

	Typologies of change								
	Stabilizers (<i>n</i> = 44) ¹		Adaptors (<i>n</i> = 66)		Innovators (<i>n</i> = 55)				
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>	<i>F</i>	<i>p</i>	η _p ²
Resilience	3.49 ^a	0.49	3.94 ^a	0.43	4.22 ^a	0.33	35.75	.001	.31

	Years of Service								
	1–2 Years (<i>n</i> = 47) ¹		3–5 Years (<i>n</i> = 55)		6–10 Years (<i>n</i> = 63)				
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>	<i>F</i>	<i>p</i>	η _p ²
Resilience	3.81	0.59	3.98	0.41	3.92	0.51	0.46	.630	.006

Note: ¹Bonferroni's comparison are indicated by the exact significance level (2, 164). ^aMeans with the same superscript are significantly different.

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