Graduate Resilience: A review of the literature and future research agenda

Scoping Study Research Report
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Table of Contents

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Acknowledgements

Executive Summary

This scoping study aimed to provide a critical understanding of the concept of "graduate resilience" to develop an agenda for future research. The research comprises of a systematic review of the academic, practitioner, policy and 'grey' literatures. This report presents a robust and evidence-based account of current representations of resilience and develops a theoretical framework to inform how we can critically think about graduate resilience in the context of an increasingly competitive graduate labour market. A summary of the key themes and findings are presented below.

Definitions of resilience - Beginning in the 1970s and 1980s, psychological research in resilience has been understood to a positive approach to examining how individuals react in times of adversity. Resilience is understood as a response to the combination addressing risk factors and maintaining an intended positive outcome. Key features understood to comprise resilience are adaptability, goal re-setting, recovery and self-efficacy.

Measuring resilience - There are a range of models of testing or measuring resilience; these measurement tools are often self-completed psychometric tests using Likert scales. More recently, qualitative approaches have attempted to infer resilience based on individuals' background and the requirement for individuals to overcome particular hardships to occupy certain environments, such as a university.

Career Resilience – First emerging in the 1980s, there has been a resurgence of interest in career resilience. The concept is presented as an ability/characteristic, process and outcome within the literature. The majority of existing research uses the scale developed by Noe *et al.*, (1990) which has been subject to criticism due to concerns over validity. It is argued that future research should focus on developing measures that adopt a more process focused perspective of career resilience to further understanding of the mechanisms that shape and develop it.

Systems approach - There has been a move in the literature to go beyond an individualistic understanding of resilience and focus on personality traits toward a multi-faceted systems approach. This ecological conceptualisation of resilience includes the role of both structure and agency, examining a range of factors, including forms of capital, background, institutional environment, decentrality of the individual and the temporal nature of environments.

Current theoretical understanding of resilience – This systematic review of the literature highlights that there is a general lack of social theory underpinning research on resilience. This is the case within the more dominant individualistic approach, focusing on personal traits, and within some of the research applying a systems approach. Two exceptions to this are Savickas' theory of life design and Lent *et al's* social cognitive career theory. However, these theories are middle-range theories, applying theory for the sole purpose of understanding a specific issue.

Thinking about graduate resilience – this scoping study found clear benefits from learning from previous research on career resilience in general and work focusing on higher

education. However, the specific experience and context in which graduates will need to apply resilience need to be unpacked; this includes: economic hardship, social discomfort and the friction between goal re-setting and underemployed status. In the absence of current theoretical models to consider graduate resilience, the heuristic application of theories used in complementary research on graduate employment will allow for a greater critical analysis of graduate resilience.

Future directions for research –   On the basis of this review, we argue that research examining graduate resilience would benefit from applying a systems approach to understanding resilience, supported by a combination of mixed methods approach to data collection and a strong presence of social theory throughout.

Introduction

Through the development and establishment of the knowledge economy, there is a general acceptance of the assumption that access to education – in particular, higher education – will provide increased life chances and greater employment opportunities (Mullen, 2010; Case, 2014; Tomlinson and Holmes, 2016; Bathmaker, *et al.,* 2016). However, there is a growing body of research that questions the meritocratic realities students face when they enter the graduate labour market (Burke, 2016; Burke, *et al.,* 2017; Tholen and Brown, 2018). There are increasing reports of graduates being disillusioned with the realities of work, their career expectations being unmet and increasing numbers describing themselves as underemployed. When graduates find themselves in such circumstances they may come to frame their experience in ways which might have long term negative effects, reducing the likelihood of them achieving a 'graduate career' and prevent them from engaging with the career behaviours which would help them to capitalise on the experiences in some way (Burke, 2016; Blenkinsopp, Scurry and Hay, 2015). As a consequence, there are calls for more nuanced approaches to understanding graduate career transitions which recognize both positive and negative experiences of graduate careers and consider barriers (for example, social class and geographic location) to achieving career outcomes (Christie, 2016).

Within general discourse, there is an emergence of the term 'resilience' in relation to graduates generally and graduate careers more specifically, with resilience a focus on graduate employer surveys (ISE, 2018) and a feature that HEIs should develop within students (AdvanceHE, 2019). Within the press and practitioner literature, graduate resilience is presented as being a key 'attribute' for a successful career – something that can and should be developed (Sant, 2013); however, surveys of employers suggest that they perceive graduates as 'lacking' in resilience when they enter employment (Ford and Rojas, 2017). The concept has received limited critical attention. Although researchers have begun to examine the notion of resilience in careers generally (Lyons et al., 2015; Di Maggio et al., 2016) and graduate resilience more specifically (Morgan, 2016; Hodges, 2017), we maintain that, as an analytical concept, its application is quite broad, therefore dulling the precision that such a concept can offer empirical research.

This research, therefore, sought to systematically review the existing literature with the aim of facilitating coherence in the direction of future research and the application of knowledge to practice and policy making. Similar to Payne's (2012) arguments, examining the significant issues which can arise from multiple interpretations of theoretically-informed concepts which also present themselves in lay discourse, we contend that a clear operationalization of "graduate resilience" is required to inform future research and ensure that there is continuity in research. This would suggest that, in order to develop career resilience in graduates, the starting point for both academics and practitioners is a clear understanding of the facets which comprise "graduate resilience" and the specific context in which it finds itself to operate.

Aims and Objectives

The central aim of this research was to provide a critical understanding of the concept of "graduate resilience" to provide a starting point for future research. This aim was supported through the following objectives:

- Providing a systematic and extensive review of policy, academic and grey literature.
- Creating a clear demarcation of policy/lay narratives of "graduate resilience" and critical accounts placing it within the context of structure and agency.
- Forming an operationalisation of "graduate resilience" for the development of future research.
- The development of a practical theoretical framework for empirical research.
- Identifying an agenda for future research.

Research Questions

This research aimed to explore what is meant by graduate resilience and how it is understood within the various arenas associated with graduate employment.

The research focused on the following questions:

- How has "graduate resilience" been presented in policy, grey and academic literature? An additional research question had been included; however, through the evolution of the research project and findings from literature, the focus narrowed to looking the other two.
- What does existing work tell us about the development of graduate resilience?
- Can a critical/theoretical framework be developed to provide the starting point for future research?

Research Methods

A systematic literature was applied to answer the research questions. Systematic literature reviews provide a rigorous means for making sense of what existing bodies of work are saying about a particular issue and identifying avenues for further research (Tranfield et al., 2003). In line with the systematic review method, the research team developed a review strategy, including key word searches (See Table 1 below).

Table 1: Key word search terms
Resilience **Resilience + Career** **Resilience + Graduate** **Resilience + Graduate + Career** **Resilience + Employment** **Resilience + Employment + Graduate** **Resilience + Employability** **Resilience + Employability + Graduate** **Resilience + Skills** **Resilience + Skills + Graduate** **Grit** **Grit+ Career** **Grit + Graduate** **Grit + Graduate + Career**

Identifying databases:
- Web of Science
- SCOPUS
- EBSCO

Given the attention that resilience receives in practitioner and policy-making communities, the systematic review also conducted searches on Google and Google Scholar, which enabled the research team to engage with a wide range of published material from a range of sources. This had the advantage of attempting to identify grey literature for review (literature produced by a range of groups including government, academics, business and industry in print and electronic formats but which is not controlled by commercial publishers).

Due to the range of sources and disciplines discussing resilience, the research team decided to apply a post-hoc exclusion/inclusion criteria. This had been an iterative process which involved the research team reading the abstracts of all results returned from the searches. As Denyer and Tranfield (2009) note, researcher discretion plays a role here; however, to increase reliability and potential for replication, we conducted the review of the abstracts independently and then sought to compare which papers had been deemed to be included by the team members. The team members kept a log of their decisions for inclusions/exclusion, and, in instances where the outcome differed, the team reviewed the

rationales and discussed. In considering exclusion/inclusion, the following question was asked:

- Is the output concerned with resilience in relation to careers?

Whilst previous reviews have focused on the population researched within the papers as a means for exclusion/inclusion, we were unable to do so in this study due to the limited amount of attention that graduate resilience specifically has received. The publications included in this review are detailed in Appendix A.

Defining Resilience

The 1970s and 1980s saw the development of the term 'resilience' in psychological research. Leading authors in the field at the time (cf Block and Block, 1980; Caplan, 1990; Druss and Douglas, 1988; Honzik, 1984; Rutter, 1987) understood resilience to be a mechanism for individuals to manage traumatic experiences based on levels of self-efficacy, problem-solving skills and strong relationships with external individuals. Resilience is often understood as a resource required to mediate adverse situations or risk factors while maintaining positive outcome and long-term wellbeing. Within the literature reviewed, there are a number of attempts to provide a definition or characterisation of resilience. These fall into two main categories: resilience working alongside other traits/qualities (e.g. efficacy and hope) and resilience as a standalone phenomenon.

Within the literature, adaptability is presented as a central component of resilience. For example, Filbay, *et al.* (2017), when discussing trajectories of retired professional athletes, focus on the importance of the ability to adapt to new situations and professional/personal contexts to be an attribute of resilience. Conversely, Harman and Sealy (2017), when examining women's attitudes toward career ambition within the professional services industry, discuss the need for a balance between resilience and adaptability – seeing as two separate but interrelated characteristics. A related but suitably different component, comprising resilience from the literature is goal re-setting; Rees, *et al.* (2015), in the context of avoiding burnout in high stress medical professions, discuss the importance of adjusting goals. While this could be seen as the articulation of adaptability, this is an overt change in planned outcomes rather than maintaining a desired outcome and possibly a trajectory albeit while adapting to a new context or responding to an adverse situation.

A common component within resilience literature has been recovery in times of adversity. In the context of risk factors, in addition to adapting to new environments is the ability to bounce back from failures and set-backs. Chow *et al.* (2018), when discussing well-being in nursing students, highlight the need to recover quickly from adverse situations in order to maintain a chosen trajectory. Singhal and Rastogi (2018) go further when unpacking psychological capital and career commitment in an Indian manufacturing context by suggesting that an ability to recover or bounce back may lead to an even more successful outcome, as the path an individual will take now will be more tailored to their attributes. An additional component is self-confidence or self-efficacy; Wilkins (2017) and Bass, *et al.* (2016) discuss the importance of self-assurance in one's abilities to retain confidence during times of adversity and when negotiating difficult tasks or environments.

A common theme throughout the literature when providing a definition of resilience, whether a compound or individual model, was a highly agentic or individualistic focus, with resilience being understood as "hardiness" (de Beer and van Heerden, 2017) or grit (Bradley and Waller, 2018). This trend can be illustrated through Taormina's (2015) model of resilience comprising four features:

- Determination – willpower and firmness of purpose
- Endurance – strength and fortitude
- Adaptability – flexible and resourceful

- Recuperability – to recover both physically and cognitively

In response to these often-agentic definitions of resilience and the focus on personal traits, there is a building theme in the literature reviewed maintaining that resilience is something which can be taught and developed (Jackson et al., 2007; McAllister and McKinnon, 2009). Building resilience is identified as a strategy to mediate the challenges of contemporary workplaces (Hart et al., 2014; Jackson et al., 2007), particularly in helping new nurses manage transition and workplace stresses. McAllister and McKinnon (2009) recommend incorporating resilience training into undergraduate education programmes and within workplace learning and practice contexts. Lloyd and Campion (2017), examining resilience within veterinary nursing, and Kaplan, *et al.* (2017), focusing on wellbeing for first responders, maintain that, beyond potential resilience traits, the dispositions/attributes or resources can be taught. Richards *et al.* (2018) argue for the importance of CPD for developing and reinforcing teacher resilience. This training, they continue, provides opportunities for teachers to converse with each other and learn in a group setting. Mercieca and Kelly (2018) also found that collegial support through social network sites acted as resource for early career teachers to become more resilient in overcoming challenges. Similarly, Arora and Rangnekar (2015) advocate for organisations to train managers and senior colleagues to be proactive in anticipating career challenges, allowing for increased resilience.

A growing body of work is moving beyond a sole focus on the individual to consider how an individual's capacity to develop resource and capacity for resilience is shaped by wider contextual factors, such as organisational culture (Cake et al., 2017). For example, Neumann *et al.* (2018) note in their study of health professionals in the United States that there are various 'resiliency strategies' which include mindfulness-based stress reduction, self-confidence building, communication skills, finding meaning, and physical exercise. Interestingly, their research found that solutions to work-related distress must include an organisational approach to be successful. This includes improving the work environment, increase professional engagement and team building (p858). They identify the need for a 'multifaceted approach' to address work-related burnout – which is a shared endeavour between the individual, the institution and support of professional organisations. Holdsworth *et al.*, (2017), in exploring student resilience at university, also highlight the importance of institutions in developing resilience. Framing resilience in a higher education context as 'academic resilience' – "the capacity of a learner to adapt and develop in response to adverse situations throughout the course of their university experience" (p. 1851) – they propose that the university can play a significant and central role in the development of resilience.

In developing our own definition or understanding of resilience, we suggest that resilience is a compound of these form main elements: adaptability, goal re-setting, recovery and self-efficacy. Rather than producing a hierarchy of elements, we suggest understanding resilience as a system based on interconnected influences (See Figure 1 below).
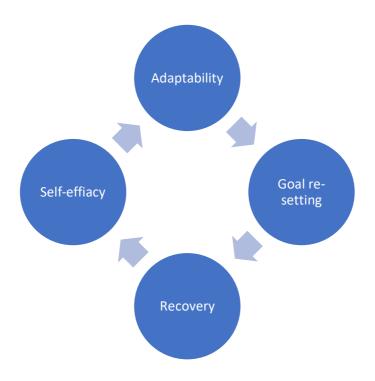
Figure 1: Resilience as a system of interconnected influences in context

Summary

Beginning in the 1970s and 1980s, psychological research in resilience has been understood to be a positive approach to understanding an individual's response to adversity, rather than reproducing a deficit narrative. Resilience is understood as a response to the combination of addressing risk factors and maintaining an intended positive outcome. Resilience is understood to include an ability to adapt within an adverse context; adaptability is either a key feature of resilience within the literature or a 'twin' in the pursuit of positive outcomes. In addition to adaptability, resilience includes goal re-setting, which is a combination of adaptability and altering intended outcomes. Another common feature of resilience is recovery, allowing individuals to bounce-back from difficult and testing situations. The final common feature of resilience is self-efficacy, the internal reassurance in the face of difficult environments. A key theme within defining resilience has been the focus on the individual. The authors of this report suggest a compound model of resilience including all of the above features.

Measuring Resilience

Alongside the many definitions for resilience within the literature sits an equally diffuse set of ways of operationalising and measuring resilience - further adding to the complexity of the concept. The review of the literature highlights that, while a common approach is to apply a form of psychometric testing, a wide range of tests have been applied. The approach to measuring resilience using psychometric tests is dependent on whether the concept of resilience is understood to operate within a combination of factors, in which case, resilience is a set of sub-scale measurements within a larger tool or resilience is examined as a single phenomenon where it is the sole focus of the measurement. When examining the role of "psychological capital" (PsyCap) on employee subjective wellbeing, Singhal and Rastogi (2018) applied Luthans *et al's* (2007) 24-item PsyCap question. Alongside items of "hope", "efficacy" and "optimism", resilience was measured on a 6-item scale:

1. When I have a setback at work, I have trouble recovering from it, moving on.
2. I usually manage difficulties one way or another at work.
3. I can be "on my own", so to speak, at work if I have to.
4. I usually take stressful things in my stride.
5. I can get through difficult times at work because I've experienced difficulty before.
6. I feel I can handle many things at a time at this job.

When researching the impact of notions of life stage on career transitions, Ferraro *et al.* (2018) applied Day and Allen's (2004) Career Motivation Scale alongside sub-scales focusing on "career insight" and "career identity". Measurements for resilience focused on:

1. I am able to adapt to changing circumstances.
2. I am willing to take risks.
3. I welcome job and organisation changes.
4. I can adequately handle work problems that come my way.
5. I believe other people when they tell me that I have done a good job.
6. I have designed better ways of doing my work.
7. I have outlined ways of accomplishing jobs without waiting for my boss.

Moving away from general or abstract notions of operationalising resilience, when examining the relationship between women's attitude toward the glass ceiling and engagement with promotion pathways, Balasubramanian and Lathabhavan (2017) applied Smith *et al's* (2012) Careers Pathway Survey (CPS); this is another measurement tool where resilience is a sub-scale alongside "denial", "resignation" and "acceptance". In contrast to previous sub-scales, the measurement of all the sub-scales specifically focus on issues of gender inequality. Resilience measurements include:

1. The more women seek senior positions, the easier it will be for those who follow.
2. Higher education qualifications will help women overcome discrimination.
3. Women have the strength to overcome discrimination.
4. When women are given opportunities to lead, they do effective jobs.
5. Daughters of successful mothers are inspired to overcome sexist hurdles.

6. Women are capable of making critical leadership decisions.
7. A supportive spouse/partner or close friend makes it easier for a woman to achieve success in her career.
8. Successful organisations seek and want to retain talented female staff.
9. The support of a mentor greatly increases the success of a woman in any organisation.
10. Women's nurturing skills help them to be successful leaders.
11. Networking is a smart way for women to increase the chances of career success.

In terms of dedicated resilience measurement, rather than a sub-scale, the Brief Resilience Scale (BRS) from Smith *et al* (2008) has been applied in a range of settings, including the employment trajectories of recent refugees and migrants to the USA (Barn, *et al.,* 2018), development of resilience in paramedics (Kaplan, *et al.,* 2017). The scale asks respondents:

1. I tend to bounce back quickly after hard times.
2. I have a hard time making it through stressful events.
3. It does not take me long to recover from a stressful event.
4. It is hard for me to snap back when something bad happens.
5. I usually come through difficult times with little troubles.
6. I tend to take a long time to get over set-backs in my life.

Research examining the well-being of university nursing students (Chow, *et al.,* 2018), retention of newly qualified nurses (Mill, *et al.,* 2017) and the role of resilience in academic attainment (Allan, *et al.,* 2013) applied to Conor-Davidson Resilience Scale (CD-RISC) (Conor and Davidson, 2003), a 25 item scale based on a five-point Likert scale focusing on the following qualities:

1. Able to adapt to change
2. Close and secure relationships
3. Sometimes fate or God can help
4. Can deal with whatever comes
5. Past success gives confidence for new challenge
6. See the humorous side of things
7. Coping with stress strengthens
8. Tend to bounce back after illness or hardship
9. Things happen for a reason
10. Best effort no matter what
11. You can achieve your goals
12. When things look hopeless, I don't give up
13. Know where to turn for help
14. Under pressure, focus and think clearly
15. Prefer to take the lead in problem solving
16. Not easily discouraged by failure
17. Think of self as strong person
18. Make unpopular of difficult decisions
19. Can handle unpleasant feelings
20. Have to act on a hunch

21. Strong sense of purpose
22. In control of your life
23. I like challenges
24. You work to attain your goals
25. Pride in your achievement.

Shellman and Hill (2017), examining the effects of outdoor education on resilience development, applied Wagnild and Young's (1993) Resilience Scale, a much earlier approach to measuring development. This five-item scale looked at:

1. Equanimity – a balanced perspective on your life where an individual had a realistic understanding of their capabilities etc. and so would take what comes as understandable.
2. Perseverance – when an individual keeps going and pursuing something even in the face of adversity.
3. Self-reliance – self-belief and ability to recognise personal strengths and limitations.
4. Meaningfulness – understanding that your contributions to life are important.
5. Existential aloneness – understanding that our paths are unique.

While there are competing measurements to capture levels of resilience in a range of different employment settings and contrasting priorities, there is a recurring pattern of how these measurements are administered – namely, self-completion and reactive psychometric tests and recurring variables. Mirroring the breadth of definitions of resilience discussed above and the common themes, these psychometric tests are prioritising:

- Confidence/self-efficacy
- Quick recovery
- Independence
- Adaptability
- Contextual mastery.

Moving beyond the quantitative psychometric operationalisation of resilience, developments in qualitative inquiry have opted to not so much measure but recognise resilience by inferring previous hardship and assuming the presence of resilience due to overcoming such hardships. Research from Stevenson (2016) examining the role of resilience on access and experience of higher education selected her sample of "resilient" students based on background:

- Socio-economic background
- BME status
- Coming from care
- Refugee status.

Summary

There are a range of models of testing or measuring resilience; these measurement tools are self-completed psychometric tests using Likert scales. The psychometric tests range

from a five-item scale to a 25-item scale. These tests either look for resilience within a range of other factors or specifically measure resilience. In addition to quantitative measurements, qualitative approaches have attempted to infer resilience based on individuals' background and the requirement for individuals to overcome particular hardships to occupy certain environments such as a university.

Career Resilience

Employers are increasingly citing resilience as "an essential quality for young people to have – to be able to cope with set-backs and criticism to be motivated to overcome obstacles, and to stay calm under pressure" (UCAS, 2018). As such, 'stronger' or higher levels' of student/graduate career resilience is positioned as helping graduates adapt to challenging labour market, unemployment, underemployment. This positioning is not without its critics, and concerns have been raised about the implications of a 'career resilience discourse' (Russell-Watts and Stringer, 2018). Stevenson (2016) raises concern over what she sees as a 'deficit approach' -- which values certain dispositions or traits above others without recognising wider structural inequalities and the need to develop appropriate resources. Within this perspective, a perceived 'lack of resilience' may be seen as a character flaw (Britt, *et al.*, 2016).

Career resilience first emerged in the literature in 1983 when London presented a multidimensional construct of career motivation. He defined career motivation as "the set of individual characteristics and associated career decisions and behaviours that reflect the person's career identity, insight into factors affecting his or her career, and resilience in the face of unfavourable career conditions" (London, 1983:620). He proposed that individual characteristics and situational variables interacted to affect career decisions and behaviours. Drawing on previous work, he conceptualised individual characteristics into three domains: career identity, career insight and career resilience. Career resilience, positioned as the opposite to career vulnerability, was defined as "a person's resistance to career disruption in a less than optimal environment" and comprised of three sub-domains - self-efficacy, risk taking and dependency (London, 1983:621). Subsequent work explored the relationship between job characteristics and the sub-domains of career motivations. Noe *et al.*, (1990) found that work-role salience was significantly related to career motivation, as were managerial support, career stage, distance from career goal, and the match between individual and organisational career goals. For career resilience, specifically, they found that work-role salience was more important than job characteristics. They argued that, whilst managerial support and job characteristics could be influenced by organisational interventions and support (e.g. training and development, job redesign), other factors such as career stage, work-role salience, distance from career goal, and match between individual and organisational career plans proved challenging for organisation to shape or manage (Noe, *et al.,* 1990:352).

Following this early work on career resilience, and perhaps reflecting the significant economic and social changes that were occurring, during the late 1980s and early 1990s there was an increased interest in the notion of a 'career-resilient work-force' who were willing to engage in continuous learning and development, be adaptable to change and assume responsibility for their own career management (Waterman et al., 1994). It was argued that encouraging and enabling individuals in this way would provide organisations with a flexible and adaptable workforce – putting organisations in a strong position to be responsive to the changing needs of the market. Developing career resilience was also seen to be positive for individuals as it provided them with the 'resource' to navigate increasingly turbulent environments, leading to what London (1990: 62) referred to as "frame-breaking

changes" – major career transitions. Lyons *et al.*, (2015) also argue that career satisfaction is linked to career resilience.

Despite the early levels of interest, career resilience has received limited attention in the literature, perhaps stemming from the debates around the validity and distinctiveness of the construct. There has been a slight resurgence of interest in career resilience in recent years, possibly reflecting another period of substantial economic and social change. Recent academic literature presents resilient individuals as those that are not only able to "bounce back" from adverse employment experiences but who also utilise these experiences to develop and advance in both their professional and personal lives (Kossek and Perrigino, 2016). As with earlier work, career resilience is often presented as part of a wider concept or construct of employability and career attributes. For example, Botha and Coetzee (2017) explore career resilience as one of three career attributes that contribute to wider employability attributes. Siebert *et al.*, (2016:245) argue that career resilience is "the capacity to continue to make progress toward your current career goals with the resources you have already developed: to keep calm and carry on" and should be developed alongside adaptability – the "reformulation of goals and/or strategies to adapt to new career realities". Bimrose and Hearne (2012) express concern that the emphasis on career resilience reflects a problematic shift to personal responsibility for career development, arguing that there is a need to ensure appropriate support is offered and available.

Within the literature career resilience is presented as an ability, process and outcome – that is something that people possess or are, something that is developed and something that can arise as a consequence of experiences. In a recent review of career resilience, Mishra and McDonald (2017) define career resilience as "a developmental process of persisting, adapting and/or flourishing in one's career despite challenges, changing events and disruptions over time" (Mishra and McDonald, 2017; 218). They argue for a process oriented conceptualisation to further understanding of the dynamics of career resilience over time and how it can be shaped by both professional and personal factors. They propose that this perspective enables a deeper understanding of the mechanisms that shape the development of individual career resilience. This is consistent with the emerging notion of graduate resilience, defined in a recent HECSU-funded study by Lancaster University as "the ability to overcome barriers, adapt to problems in the workplace as they arise, and find appropriate solutions" (Morgan, 2016:4).

Measures of Career Resilience

The most widely used measure of career resilience is that developed by Noe *et al.*, (1990:347). Building on the theoretical work of London (1983, 184; London and Mone, 1987) they developed the first scale for measuring career resilience as part of a wider scale of career motivation. The participants were asked to read each item and report the extent to which it characterized their career interests and activities using a 5 point Likert scale. The measure for career resilience is presented in Table 2 below.

Table 2: Career Resilience Scale - (Noe et al., 1990) (Numbers as per the original 26 item scale for Career Motivation)
To what extent ….
14. . . . do you accept compliments rather than discount them?
15. . . . do you believe other people when they tell you that you have done a good job?
16. . . . do you reward yourself when you complete a project?
17. . . . do you take the time to do the best possible job on a task?
18. . . . do you set difficult but not impossible work goals?
19. . . . have you designed better ways of doing your work?
20. . . . have you accepted a job assignment for which you have little or no expertise?
21. . . . have you made suggestions to others even though they may disagree?
22. . . . do you look for opportunities to interact with influential people in your organization?
23. . . . do you help co-workers with projects?
24. . . . have you made and maintained friendships with people in different departments?
25. . . . have you outlined ways of accomplishing jobs without waiting for your boss?
26. . . . have you evaluated your job performance against personal standards rather than comparing it with what others do?

This scale has been used in subsequent work with little modification. For example, Yu (2016) used the scale developed by Noe *et al.*, (1990) to examine the mediating role of career resilience between core self-evaluation and work interference with family, with just a slight modification to the Likert scale (1-6), perhaps to avoid central tendency bias.

Subsequent shorter scales have been developed such as that used by Lyons *et al.*, (2015) and Arora and Rangnekar (2016), which draw on the four-item CR subscale from Carson and Bedeian's (1994) career commitment measure. This measured the following items on a five point Likert Scale (1 "Strongly disagree" […]5 "Strongly agree):

  o "The costs associated with my line of work/career field sometimes seem too great,"

  o "Given the problems I encounter in this line of work/career field, I sometimes wonder if I get enough out of it,"

  o "Given the problems I encounter in this line of work/career field, I sometimes wonder if the personal burden is worth it,"

  o "The discomforts associated with my line of work/career field sometimes seem too great."

However, as Mishra and McDonald (2017) note, existing measures of career resilience are do not focus on process, and as such fail to provide insight into the mechanisms through which career resilience is developed.

Summary

The notion of career resilience first emerged in the 1980s, following a brief period of popularity, it received limited attention. In recent years there has been a resurgence of interest in career resilience – perhaps reflecting wider economic and social changes. Career resilience is presented as an ability/characteristic, process and outcome within the literature. The majority of existing research uses the scale developed by Noe *et al.*, (1990) which has been subject to criticism due to concerns over validity. It is argued that future research should focus on developing measures that adopt a more process focused perspective of career resilience to further understanding of the mechanisms that shape and develop it.

Toward a Systems Approach to Resilience

Moving beyond an individualised focus on resilience, illustrated through quantitative psychometric tests and previously discussed definitions, research has also argued for a broader ecological approach to understanding resilience (Turner *et al*., 2017). Ungar (2011) makes the point on the need to consider simultaneously the influence of both the individual and environmental factors – leading to a more ecological model. To support this development, Ungar provides four principles for a social ecological conceptualisation of resilience. The first principle is decentrality where, while research still examines the individual/group, the external environment is also considered – the move away from the subject-centred focus also allows, Ungar argues, for a broader understanding of levels of responsibility. The second principle is complexity and an acceptance of the complex nature of social space when constructing research questions and considering avenues of influence. Ungar provides an example of complexity when suggesting that resilience can be temporal in nature; while it is present at one point of life, this is no guarantee that it will be continuous, particularly due to changes in context, both personal and environmental. In addition, Ungar maintains that an acceptance of complexity allows for an understanding of the equalfinality of outcomes – helping research to move beyond a deficit model. The third principle is atypicality and a move away from a binary understanding of outcomes. The final principle is cultural relativity and considering the cultural specific context in which resilience is played out, often requiring an understanding of accepted norms and legitimate forms of navigation and negotiation. For Ungar, this navigation and negotiation is a combination of individual agency and structurally-facilitated access to resources required to insulate an individual or group during times of adversity.

Similar position on the ecological model are present from Raghaven and Griffin (2017), Celik (2019) and Trusty (2004), with Trusty making the connection between access to resources to enhance resilience and social class position. Pooley and Cohen (2010) highlight the temporal considerations of the ecological approach, discussing the need to consider life stage and the current context, where resilience may be tested in different ways and unable to rely on past "successes". This ecological model has been applied by Stevenson (2016 when examining higher education through the experiences of non-traditional students. Here, she focuses on the presence or absence of external factors supporting or diluting a student's level and application of resilience. These external factors include various forms of capital (social, educational, economic) and support from family and higher education institution.

Turner *et al.* (2017) adopt a similar argument. Adopting an ecological or 'systems' perspective to explore resilience and wellbeing in university students, they argue that the different systems (university, home and work) that a student is part of can influence the development of resilience by the individual. For example, they identify the lack of a compulsory attendance policy as negatively impacting on students developing support networks in their first year, a key resilience-building behaviour, in their first year due to erratic and/or low levels of attendance. They also found that the students drew on

resources from the different systems (university, home, work) to develop their and mitigate stress arising in another system.

Summary

There has been a move in the literature to go beyond an individualistic understanding of resilience and a focus on personality traits toward a multi-faceted systems approach. This ecological conceptualisation of resilience includes the role of both structure and agency, examining a range of factors including forms of capital, background, institutional environment, decentrality of the individual and the temporal nature of environments. Through the shift away from individual traits, the literature argues that resilience is something which can be taught and developed through a range of training opportunities. The ecological/systems perspective highlights the need to consider how different systems may interact and shape an individual's resilience 'building' or development.

"Middle-Range" Theories on Resilience

Windle *et al.* (2011), in their review of research on resilience, report that the vast majority of research had not based their work within a theoretically-grounded position. This is the case within the more dominant individualistic approach focusing on personal traits and within some of the research applying a systems approach. Within the literature review, by this research team, there appeared too few examples of theoretical grounding. The two exceptions being:

- Savickas' (2012) theory of life design – here, he argues that, in essence, the labour market of 21st century is increasingly destabilised, and gone are the jobs which we could rely on for life. Instead, we face uncertainty and, as such, have to design our lives and construct our career trajectories. For Savickas, through reflexive deliberation, we foster identity capital which can be used as times of hardship and uncertainty to navigate through social space. The point that Maree (2017) makes, in his application of Savickas' theory, is that, through having a clearer life design, we will be more resilient, as there are fewer unknowns. However, what Savickas' work forgets to fully consider is the ongoing structural issues concerning labour markets and potential limitations or barriers to reflexive deliberations – in particular, the context for successful deliberations to be secured.

- Lent *et al's* (1994; 2000) social cognitive career theory examines how choices around both education and employment are made and how success within these arenas is secured. Social cognitive career theory focuses on the input of personal characteristics, background, environment and previous learning experiences on levels of self-efficacy and outcome expectations on the development of individual goals. Baran *et al.* (2018), when examining recent refugees and migrants' navigation of the North American labour market, apply social cognitive career theory to suggest that progression through the labour market will be characterised by complex set of challenges and turning points set against a range of individual expectations. Social cognitive career theory provides an account of how individuals navigate their expectations through reflecting on past experiences and developing knowledge to provide a more accurate understanding of the market allowing them to be more resilient. While this theory provides a greater ecological account of the source of confidence, expectations and goals, there is a superficial engagement with the balance between structure and agency, and the weight of previous learning experiences is competition with current learning experiences, as what comes before often orientates the individual or group in the future.

A key issue with both of these theories, and according to Windle *et al.* (2011), the general approach to researching resilience, is that, when theory is used, it is a middle-range theory – in such that it is not based on abstract debates concerning structure and agency but rather attempting to address a very specific phenomenon with inherited concepts diluted from the source.

Summary

The literature illustrates, and at times highlights, the general absence of a theoretically grounded position toward resilience. This is the case within the more dominant individualistic approach focusing on personal traits and within some of the research applying a systems approach. The two exceptions to this trend are the application of Savicaks' theory of life design and Lent *et al's* social cognitive career theory. In addition to the weaknesses within these theoretical models, there is the additional issue that these theories are applied in a middle-range capacity.

So What Now for Graduate Resilience?

Stevenson (2016) argues that, while resilience has received a great deal of attention at secondary-level education, the specific context that requires resilience in higher education needs to be identified. We maintain that a similar exercise needs to be done for graduate employment. What are the challenges that university graduates – and, in particular, underemployed university graduates – face when trying to enter the labour market? While this question has been the focus of a considerable amount of literature, Tholen and Brown (2018) argue that this time period is the most challenging for graduates – perhaps the most challenging time since the opening up of higher education nearly 30 years ago – compounded by recession, automation, globalisation and increasing levels of higher education students and, subsequently, graduates. Based on previous literature, we have identified three specific issues concerning resilience within the graduate labour market:

1. Economic hardship – while there is the concept of the graduate premium (O'Leary, and Sloane, 2006; Bradley and Waller, 2018), this applies to those who have managed to secure graduate employment. For those who are either taking unpaid internships to help increase employment (Friedman and Laurison, 2019) or those who are underemployed (Hunt and Scott, 2018), this is not the case. A significant focus of resilience within the labour market is how to avoid burnout in a stressful job such as medicine. This research focuses on the resilience to maintain a job when other pressures, such as securing alternative sources of economic capital whilst trying to successful enter and navigate the graduate labour market, are not an issue.

2. Social discomfort – there is a mismatch between the human capital narratives when entering higher education and the resultant experiences of graduates when entering the labour market. In particular, the buying power of a degree and the edge provided by a graduate is not immediately felt on graduation and felt by different groups depending on background (Crew, 2018). In addition, in contrast to an increasingly destructured labour market when competition is key and rewards are often based on the intangible and soft skills (Tomlinson and Holmes, 2016; Tholen and Brown, 2018), graduates have come from a relatively stable and supportive environment. We fully appreciate and accept that there are varying degrees at which institutions support students – the attainment gap is a clear example of this – however, these institutions also have a statutory obligation through access agreements to support students. While they may not meet these requirements, there is still more structure and support than when entering the next phase of the knowledge economy: the market.

3. Goal re-setting – this is a particular issue for underemployed graduates. While an element of resilience literature is the ability to reorient goals and re-set planned outcomes, this is often within the context of promotion within an institution – for example, how women navigate a largely patriarchal value system. In the context of underemployed graduates, goal reorientation may be that individuals settle for a non-graduate job. Previous literature (Furlong and Cartmel, 2005; Burke, 2016) has illustrated the tendency for non-traditional graduates to opt to settle for a non-graduate job when presented with a series of unsuccessful entry attempts into the graduate labour market.

Stemming from the limitations of middle-range theories, we argue that we must turn to the application of social theory in related areas of graduate (under)employment – namely, navigation of the labour market. This will allow us to consider how these theories may be used when thinking about resilience and provide a clear theoretical starting point which is based on the competition between structure and agency and the subsequent effect on social practice. Here, we discuss three leading theoretical approaches to understanding graduate employment:

- Holmes (2013, 2015), in his approach to graduate identity formation, initially provides a critique of competing notions of graduate employment. He cites the "possessional" approach, which broadly reinforces a human capital narrative that the possession of credentials and employability skills can be developed and then exchanged for particular position within the graduate labour market. Another competing approach for Holmes is the "positional", where, due to an increased level of participation in higher education, more advantaged groups work to create a distinction between themselves and non-traditional students through means such as attending elite universities and, as such, mediate human capital with capital stemming from their higher education institution. Holmes argues for a "processual" approach to graduate identity formation; this is where a graduate's identity is developed and worked on by the individual and orientated, in part, by the recognition provided to their identity by graduate recruiters. Rather than a graduate being the finished article upon graduation, this identity work is a constant effort through interactions, conflict, support and experiences with employers, co-workers, larger institutions and family. The theoretical underpinning on Holmes' model of the processual graduate identity is Jenkins' (1996) work on identity. Briefly Jenkins' understanding or model of identity is that identity is a relational process incorporating the individual and the social or the internal and the external. Identity is understood to be "emergent" and open to change because it is not a fixed construct. For Holmes, a graduate has their own identity, but this is both shaped by a range of actors affirmed/rejected by recruiters and employers. Importantly for graduate identity and graduate resilience, in instances of a lack of fit, graduates can occupy what Holmes refers to as "intermediate positions" to allow time for a more recognised identity to develop.
- Tomlinson (2007; 2008) provides us with his notion of "graduateness"; here he argues that, in the context of mass participation and the devaluing of a university degree, students and soon-to-be graduates will reflexively design their portfolio of experiences and resources alongside educational credentials to successfully navigate the labour market. These additional resources can include internships, co-curricular awards and extra-curricular activities. In addition to the portfolio of resources graduates are expected to develop, another key facet of "graduateness" and a central concern for graduate employers is soft skills, some of which can be developed through activities beyond the curriculum. The theoretical underpinning behind Tomlinson's concept of "graduateness" is late modernity and, more specifically, Ulrich Beck's (1997, 2002 with Beck-Gernsheim) "reflexivity modernity". Within this model of reflexive modernity, society is characterised as moving beyond heavy modernity through the advent of post-industrial. Stemming from increased globalisation and the dilution of long-standing inequalities through the provision of a

welfare state identity is much less fixed. In the context of the dilution of structures, increased array of opportunities and risks – individuals are required to reflexively chart their own path. For Tomlinson, the current state of the graduate labour market is an example of social space characterised by opportunities and risks where students and graduates have to plan and navigate their own trajectories – or what he terms "graduateness".

- The final dominant theory when thinking about graduate identity and navigation of the labour market comes from Bourdieu (1977, 1979). Similar to the previous two theoretical positions from Jenkins and Beck, Bourdieu, too, attempts to think about both structure and agency or the internal and the external on practice, including within higher education and the labour market. The difference is that, while Jenkins provides a balanced model and Beck sees agency as being more influential, Bourdieu focuses on the continuing role of structure and how individuals navigate within certain spaces which have rules (often written by the dominant members of those space to ensure their dominance continues). Rather than practice being influenced by reflexive deliberation, we are directed by what he terms the habitus (norms, values and dispositions originally fostered by family and educational capital) and forms of capital (economic, social and cultural) within certain social spaces or fields. The combination of inherited dispositions, knowledge and subsequent navigation mediated by a range of resources (although often convalescing at similar levels of what is deemed legitimate) has been used by researchers (Crew, 2018; Burke, 2016; Ingram and Allen, 2018) and to argue that entry and experience of the graduate labour market are very different for graduates some various areas of social space. In terms of resilience, the challenge of maintaining an active pursuit of entry into the graduate labour market for and developing a sense of belonging are more pronounced for non-traditional graduates and/or those who are underemployed.

Table 3 below presents an overview of how we propose these theories could potentially be used to advance graduate resilience research and the issues which researchers will need to address:

Table 3: Theoretically framing graduate resilience in future research

Underlying theoretical approach	How does this further understanding of graduate resilience?	Limitations of theoretical lens	Example
Late modernity	Role of reflexivity in the creation of resilience	Fails to acknowledge the bounded nature of reflexivity and champions the concept of the individual	Fails to account for the structural processes in underemployment. E.g. an individual who finds themselves in a position of sustained underemployment will carry the burden – see themselves and be seen by others to be responsible for their position. In terms of understanding resilience, they can be seen to be lacking as they do not have a reflexive understanding of the graduate labour market in order to 'keep going' and successfully navigate the graduate labour market.
Bourdieusian	Structural barriers to resources required for resilience	Overemphasis on structure which dilutes the role of the individual	The opportunity for a graduate to demonstrate resilience or to be assumed to be resilient would be based on social background rather than individual dispositions. As such the development of resilience will be limited by the habitus of an individual.
Identity	Social construction of resilience	Identity formation fails to consider the structural context in which identity formation takes place	To develop a resilient graduate identity, a graduate first has to survive an increasingly-competitive market to obtain a position or experiences that enable them to claim this identity and have it affirmed by others. Therefore, this raises questions about how those who do not obtain the positions and experience can claim the identity of a resilient graduate.

Summary

While there are clear benefits from learning from previous research on career resilience in general and work focusing on higher education, we still need to think specifically about graduate resilience. A starting point is to consider the specific issues that graduates face in the contemporary labour market: economic hardship, social discomfort and the friction between goal re-setting and underemployed status. Furthermore, there are clear benefits from applying leading theoretical frameworks used in complementary research on graduate employment – in particular, late modernity, Bourdieusan theory and identity.

Conclusion

The research focuses on the following questions:

- **How has "graduate resilience" been presented in policy, grey and academic literature?**

Through a systematic review of the literature, this scoping study has highlighted that whilst the notion of resilience is becoming increasingly prevalent in relation to graduate careers there is little understanding of what this is and how it is measured in practice by employers. Furthermore, there has been limited conceptual development of 'graduate resilience' in academic research – with the emphasis being on the development of resilience in students/graduates with limited critical interrogation of the concept.

- **What does existing work tell us about the development of graduate resilience?**

We report that existing research focusing on resilience within the labour market, or career resilience, examines specific professions and is pre-occupied with preventing burnout within these professions. As such, there is a limited scope from current research examining the specific case of graduate resilience. In the absence of a large body of research, we suggest building on the body of higher education research, which applies a systems approach to resilience, but with a consideration of the specific issues graduates face including: economic hardship, social discomfort and goal re-setting.

- **Can a critical/theoretical framework be developed to provide the starting point for future research?**

In the absence of a current strong theoretical framework considering graduate resilience, the authors suggest that one is very much needed and a logical point of departure for future research is to consider theoretical frameworks focusing on related issues of graduate underemployment and issues negotiating the graduate labour market. In particular, the authors suggest the potential application of a late modern approach, a Bourdieusian approach or the application of identity as proposed by Jenkins. Each of these frameworks have been briefly introduced to consider how these frameworks further the understanding of graduate resilience, the limitations of these frameworks and a practical example of how they would be manifested in reality. The range of potential frameworks suggested provide an approach to a number of ontological and epistemological positions. As such, rather than providing a single framework, future researchers are invited to consider our arguments alongside their position to social reality and legitimate knowledge.

Directions for Future Research

Through this systematic literature review and engagement with complementary higher education research and theoretical framework we maintain that graduate resilience is an under-theorised concepts but there are tools which can be applied to provide a more critical point of departure. In terms of directions for future research we recommend:

- o The application of a systems approach to resilience incorporating both the individual and social influences on developing, maintaining and employing resilience.
- o Building on a systems approach toward resilience, a mixed methods research design incorporating both quantitative and qualitative methods will provide greater insight into these processes.
- o A critical understanding of resilience will be aided by a thorough theoretical excavation. As such, the starting point for future research requires the application of a theoretical framework in our consideration of how resilience manifests itself in the graduate labour market, empirical research design and analysis and in how we disseminate findings on graduate resilience.

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Yu, K. (2016) "Better and Worse: A Dual-Process Model of the Relationship Between Core Self-Evaluation and Work-Family Conflict", *Frontiers in Psychology, 7*, 1579.

Appendix A – publications reviewed

Author	Title	Year	Location	Discipline	Main Code
Allan, J.F., McKenna, J. and Dominey, S	Degrees of resilience: profiling psychological resilience and prospective academic achievement in university inductees.	2014	UK	Sports Science	Career Resilience
Arora, R. & Rangnekar, S.	Towards understanding the two way interaction effects of extraversion and openness to experience on career commitment	2016	India	Management Studies	Career resilience
Arora, R. & Rangnekar, S.	Moderating mentoring relationships and career resilience: Role of conscientiousness personality disposition.	2016	India	Management studies	Developing career resilience
Balasubramanian, S.A. and Lathabhavan, R.	Women's glass ceiling beliefs predict work engagement and burnout.	2017	India	Management	Measuring resilience
Baran, B.E. et al.,	Survival, expectations, and employment: An inquiry of refugees and immigrants to the United States.	2018	USA	Management Studies	Theoretical framework
Bass, J., et al.	Promoting retention, enabling success: Discovering the potential of student support circles.	2016	Australia	Nursing	Career resilience
Bathmaker, A-M., et al.	Higher Education, Social Class and Social Mobility: the Degree Generation	2016	UK	Sociology	Definitions of resilience
de Beer, M. & Van Heerden, A.	The psychological coping, learning potential and career preferences profiles of operational force military candidates.	2017	S. Africa	Psychology	Definitions of resilience

Bimrose, J & Hearne, L.	Resilience and career adaptability: Qualitative studies of adult career counseling	2012	UK	Career studies	Career resilience
Botha, J. & Coetzee, M.	The significance of employee biographies in explaining employability attributes.	2017	South Africa	Management studies	Career resilience as employability attributes
Britt, T.W., et al.,	How much do we really know about employee resilience?	2016	USA	Organizational psychology	Defining and developing employee resilience
Cake, M.A., et al.	Finding the balance: Uncovering resilience in the veterinary literature.	2017	Australia (literature review)	Veterinary Education	Definition of resilience
Çelik, Ç.	Parental Networks, Ethnicity, and Social and Cultural Capital: The Societal Dynamics of Educational Resilience in Turkey	2017	Turkey	Sociology	Ecological model of resilience
Chow, K.M., et al.	Resilience and well-being of university nursing students in Hong Kong: a cross-sectional study.	2018	Hong Kong	Nursing	Development of career resilience
DeWitty, V.P., Huerta, C.G. and Downing, C.A.	New careers in nursing: Optimizing diversity and student success for the future of nursing.	2016	USA	Nursing	Resilience and academic resilience
Di Maggio, I., et al.	Development and validation of an instrument to assess future orientation and resilience in adolescence.	2016	Italy	Psychology/ Youth Studies	Career resilience
Ferreira, N. & Mujajati, E.	Career meta-capacities and retention factors of recruitment advertising agencies: An exploratory study.	2017	South Africa	Psychology	Measuring career resilience
Filbay, S.R., Bishop, F., Peirce, N., Jones, M.E. & Arden, N.K.	Common attributes in retired professional cricketers that may enhance or hinder quality of life after retirement: a qualitative study.	2017	UK	Sport Science	Definition of resilience

Fischer, B., Bisterfeld, M. & Staab, O.,	Individual's Patterns of Commitment, Resilience and Subjective Well-being of Prospective Physical Education Teachers.	2018	Germany	Teaching profession	
Forsythe, A.	I doubt very seriously whether anyone will hire me; factors predicting employability perceptions in higher education.	2017	UK	Psychology and Higher Education	Theoretical development
Furnham, A.	Dark side correlates of job reliability and stress tolerance in two large samples.	2017	UK	Psychology and Management studies	Measuring resilience
Glazer, J.	Leaving lessons: learning from the exit decisions of experienced teachers.	2018	USA	Teaching profession	Definition of resilience
Haik, J., et al.	Burnout and compassion fatigue: prevalence and associations among Israeli burn clinicians.	2017	Israel	Clinical profession	Resilience and burnout
Halliday, L. et al.	Grit and burnout in UK doctors: a cross-sectional study across specialties and stages of training.	2017	UK	Medical profession	Resilience and grit
Harman, C. & Sealy, R.	Opt-in or opt-out: exploring how women construe their ambition at early career stages.	2017	UK	Social Science	Definition of resilience
Hernandez, S.H., Morgan, B.J. & Parshall, M.B.	Resilience, stress, stigma, and barriers to mental healthcare in US Air Force nursing personnel.	2016	USA	Psychology	Measuring resilience
Holdsworth et al.,	…Not drowning, waving. Resilience and University: a student perspective	2018	Australian	Higher Education	Development of resilience
Hong, J., et al.	Variations in pre-service teachers' career exploration and commitment to teaching.	2018	USA	Psychology	Measuring resilience

Jackson, D., Firtko, A. and Edenborough, M.	Personal Resilience as a Strategy for Surviving and Thriving in the Face of Workplace Adversity: A Literature Review	2007	UK	Nursing	Developing resilience
Kaplan, J.B., et al.	Role of resilience in mindfulness training for first responders.	2017	Pacific Islands	Psychology	Measuring resilience
Kim, S.R. & Lee, S.M.	Resilient college students in school-to-work transition.	2017	S. Korea		Development of career resilience
Kinman, G. & Grant, L.	Building Resilience in Early-Career Social Workers: Evaluating a Multi-Modal Intervention.	2016	UK	Social Work	Development of resilience
Kossek, E. E., & Perrigino, M. B.	Resilience: A review using a grounded integrated occupational approach.	2016	USA	Management Studies	Development of resilience
Lloyd, C. & Campion, D.P	Occupational stress and the importance of self-care and resilience: focus on veterinary nursing.	2017	Ireland	Vetinary Science	Definitions of resilience
London, M.	Toward a theory of career motivation	1983	USA	Organisational and career studies	Career resilience
London, M.	Enhancing Career Motivation in Late Career	1990	USA	Organisational and career studies	Career resilience
London, M. & Mone E.M.	Career management and survival in the workplace: Helping employees make tough career decisions, stay motivated, and reduce career stress	1987	USA	Organisational and career studies	Career resilience
Lyons, S. et al.,	Resilience in the modern career	2015	Canada	Career Studies	Career resilience
Mache, S. et al.	Being prepared to work in Gynaecology Medicine: evaluation of an intervention to promote junior	2017	Germany	Medical profession	Developing resilience

	gynaecologists professionalism, mental health and job satisfaction.				
Maree, J.G.	Perspective: promoting career development in the early years of people's lives through self-and career construction counselling to promote their career resilience and career adaptability.	2018	S. Africa	Child Development	Career resilience
Maree, J.G. & Venter, C.J.	Improving the career resilience of a survivor of sexual abuse.	2018	South Africa	Child Development	Career resilience
Maree, J.G.K.	Opinion Piece: Using Career Counselling to Address Work-Related Challenges by Promoting Career Resilience, Career Adaptability, and Employability.	2017	S. Africa	Child Development	Mid-range theories
Mata, D.A. et al	In Their Own Words: An Analysis of the Experiences of Medical Interns Participating in a Prospective Cohort Study of Depression.	2016	USA	Medical profession	Developing resilience
McAllister, M. and McKinnon, J.	The Importance of Teaching and Learning Resilience in the Health Disciplines: A Critical Review of the Literature.	2009	Australasia	Nursing	Developing resilience
Mercieca, B. & Kelly, N.	Early career teacher peer support through private groups in social media.	2018	Australasia	Education	Developing resilience
Mills, J. et al.	Retention of early career registered nurses: the influence of self-concept, practice environment and resilience in the first five years post-graduation.	2017	Australia and New Zealand	Health Science	Measuring resilience

Mira, T., Carvalho, P.G. and Ramos, L.	Impact on a sportive past on well-being, resilience and success in current professionals.	2017	Portugal	Psychology	Career resilience
Mishra, P., & McDonald, K.	Career resilience: An integrated review of the empirical literature	2017	USA	Management Studies	Career resilience
Neumann, J.L. et al.	Burnout, Moral Distress, Work-Life Balance, and Career Satisfaction among Hematopoietic Cell Transplantation Professionals	2018	USA	Medical professions/ Psychology	Resiliency strategies and burnout
Noe et al.,	An investigation of the correlates of career motivation	1990	USA	Organisational and career studies	Measuring career resilience
O'Connor, M., et al.	Does positive mental health in adolescence longitudinally predict healthy transitions in young adulthood?	2017	Australia	Psychology/Youth Studies	Developing resilience
Packirisamy, P., Meenakshy, M. & Jagannathan, S.	Burnout during early career: lived experiences of the knowledge workers in India.	2017	India	Management studies	Developing resilience
Pooley, J. and Cohen, L.	Resilience: A Definition in Context.	2010	Australia	Psychology	Ecological model of resilience
Raghavan, R. & Griffin, E.	Resilience in children and young people with intellectual disabilities: a review of literature.	2017	UK	Nursing	Ecological model of resilience
Raper, S.E. et al.	Overcoming adversity—a critical step toward career satisfaction and leadership in academic surgery.	2018	USA	Medicine	Definitions of resilience
Rawoot, I., Van Heerden, A. and Parker, L.	Operational Forces soldiers' perceptions of attributes and skills for career success.	2017	South Africa	Psychology	Career success and resilience
Rees, C. S., et al.	Understanding individual resilience in the workplace: the interna-tional collaboration resilience model	2015	Australia	Psychology	Ecological model of resilience

Richards, K.A.R., et al.	Physical education teachers' perceptions of perceived mattering and marginalization.	2018	USA	Health Science	Development of career resilience.
Van Rijswijk, M., et al.	Past perceptions and future expectations: Sensed dis/continuity at the start of teacher education.	2016	Netherlands	Education	Development of career resilience.
Russell-Watts, L. and Stringer, H. (2018)	Enhancing students' career resilience	2018	UK	Careers professional practice	Development of career resilience
See, B.H., Gorard, S. & Siddiqui, N.	Does participation in uniformed group activities in school improve young people's non-cognitive outcomes?	2017	UK	Education	Definitions of resilience
Serwint, J.R., et al.	The AAP resilience in the face of grief and loss curriculum.	2016	USA	Medicine	Definition of resilience
Sievert, M., et al.	The influence of temperament and character profiles on specialty choice and well-being in medical residents.	2016	USA	Medical profession	Measurement of resilience
Shapiro, J., Boyle, M.J. & McKenna, L.	Midwifery student reactions to workplace violence.	2018	Australia	Mid-wifery	Career Resilience
Shellman, A. & Hill, E.	Flourishing through Resilience: The Impact of a College Outdoor Education Program.	2017	USA	Leisure Studies	Measurement of resilience
Singhal, H. & Rastogi, R.	Psychological capital and career commitment: the mediating effect of subjective well-being.	2018	India	Psychology	Measuring resilience
Slay Ferraro, H., Prussia, G. & Mehrotra, S.	The impact of age norms on career transition intentions.	2018	USA	Business Studies	Measuring resilience
Stevenson, J.	Reconceptualising Resilience: Problematising Deficit Discourses	2016	USA	Sociology	Ecological model of resilience

Taormina, R.J.	Adult Personal Resilience: A New Theory, New Measure, and Practical Implications.	2015	China	Psychology	Definitions of resilience
Towers, E. & Maguire, M.	Leaving or staying in teaching: a 'vignette' of an experienced urban teacher 'leaver' of a London primary school.	2017	UK	Teaching careers	Career Resilience
Trusty, J.	Effects of Students' Middle-School and High-School Experiences on Completion of the Bachelor's Degree.	2004	USA	Counselling	Ecological model of resilience
Turner, T.R., et al.	Participation, representation, and shared experiences of women scholars in biological anthropology.	2018	USA	Anthropology	Career resilience
Turner, M., et al.,	Promoting wellbeing at university: the role of resilience for students of the built environment	2017	Australia	Higher Education	Ecological model of resilience
Ungar, M.	The Social Ecology of Resilience: Addressing Contextual and Cultural Ambiguity of a Nascent Construct	2011	USA	Orthopsychiarty	Ecological model of resilience
De Vos, A. & Van der Heijden, B.I.	Current thinking on contemporary careers: the key roles of sustainable HRM and sustainability of careers.	2017	Belgium	Career studies	Career resilience
Wagnild, G. M., and Young, H. M.	Development and psychometric evaluation of the resilience scale.	1993	USA	Nursing	Measurement of resilience
Waterman, R. et al.,	Developing a career resilient workforce	1994	USA	Management studies	Career resilience
Wilkins, C.	'Elite' career-changers and their experience of initial teacher education.	2017	UK	Education	Career resilience
Windle, G., Bennett, K. M., and Noyes, J.	A methodological review of resilience measurement scales.	2011	USA	Health Science	Theoretical developments

Yu, K.	Better and worse: A dual-process model of the relationship between core self-evaluation and work-family conflict.	2016	USA	Psychology	Measuring career resilience