Additional information
Vice Chancellor Scholarship awarded by the University of Kent, and scholarships by the Hendrik Muller Fund, the Netherlands, and the Headley Pitt Charitable Trust, UK.

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Capacity Development in Nature Conservation:
New approaches to strengthen individual professionals

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Thesis submitted for the degree of Doctor of Philosophy in Biodiversity Management
March 2021
Word count: 66975

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Acknowledgements

It has been an intense and incredible 4,5-year journey. Not all progress is measurable and, as I've found during this journey, my capacity developed in interaction with my environment. I have many people to thank who have contributed to this work's development by playing a significant role in my environment. First and foremost, I would like to thank my supervisory team Tanya Humle and Simon Black, sincerely. As my primary supervisor, Tanya always freed up time to discuss my ideas and share helpful suggestions. Simon's words of encouragement and guidance whilst I made my way through the 'thick forest' of management and psychology literature have been of invaluable support. Both supervisors gave me the freedom to make my own research decisions, the confidence to communicate and test my findings in writing and conversations with other academics and practitioners. Thank you both for believing in me and in this work, for being there and coaching me tirelessly. I am grateful to Bob Smith for his support and presence during my PhD research, for the many fruitful conversations about capacity development in general and about the fantastic DICE alumni network, of which I am proud to be part. I must also thank Linda Koopmans and Jan de Jonge for allowing me to use their questionnaire measures in Chapter 5, and Ben Davies and Carola Leicht for their help with survey design and structural equation modelling. Special thanks to Susan Cheyne and Madhu Rao, who helped me write the original PhD proposal and guided me along the way; it has been a pleasure working with you both. A warm thank you to all my colleagues at DICE and SAC for making me feel welcome from day 1, for being my sounding board, my brainstorm partners, a listening ear and much more.

This PhD research required lengthy interviews and focus group discussions with conservation professionals, exploring professional development, work performance, and work motivation. Thank you for your openness in sharing your many work experiences, your challenges and successes along the way. I couldn't have started this journey without your input. I owe thanks to the many conservation professionals who helped distribute, and the 561 individuals from 98 countries who took the time to complete, our global survey: your voices matter! In 2019, I had the opportunity to help organise an international conference on capacity building for conservation in London. In this process and afterwards, I had many inspiring conversations with our organising team. In particular, I would like to thank Andrea Santy, Leo Curran, Jamie Copsey, Kiragu Mwangi, Stuart Patterson, Rod Sterne, Marianne Carter, Eleanor Sterling, Kay Farmer and last, but not least, organiser Mark O'Connell, for their enthusiasm and time to discuss the many facets of capacity development with me. In the last few years, I developed wonderful and supportive relationships with inspiring professionals who work on related topics: Jessie Panazzolo, Allison Catalano and Megan Jones. Thank you for making this journey less lonely, and I look forward to our future collaborations! Finally, a huge thank you to my family, husband, and friends for your continuous support, the many meals, walks, and words of encouragement. My PhD has been made possible by a Vice Chancellor Scholarship awarded by the University of Kent, and scholarships by the Hendrik Muller Fund and the Headley Pitt Charitable Trust to support my final write-up year.

Note: please find a 2-minute animation presenting some of the results of this PhD research through **this link.**

Prologue

Self-care experts often express how one cannot care for others unless they care (well) for themselves. Building on this notion, this four-year research journey provides evidence that we can care for and conserve nature to the best of our abilities, and can do so sustainably, if we apply principles of conservation to ourselves and ask "what is it that we need? Which energy sources will help me do this work in a sustainable and effective manner whilst experiencing fulfilment?" The conservation profession comes with high levels of social responsibility and is not without risk, whatever job position professionals are in. This responsibility can feel like a behemoth and, at times, can be overwhelming. Reflecting on our values, past successes, and the energising relationships we hold dear can help us recognise whether we are on the right (career) path.

Author's declaration

T.A.C. Loffeld collected all data and wrote all chapters with comments and editorial support from T. Humle and S. A. Black (all chapters), S. M. Cheyne (Chapter 3), and M. Carter and E. J. Sterling (Chapter 4). All research was approved by the School of Anthropology & Conservation Ethics Advisory Group, University of Kent.

Chapter 2 was conceived, analysed and written by T.A.C. Loffeld with analytical support from and comments and editorial support from T. Humle and S. A. Black.

Chapter 3 was conceived, analysed and written by T.A.C. Loffeld with analytical support from and comments and editorial support from T. Humle and S. A. Black. Advice on direction and editorial support was provided by S. M. Cheyne.

Chapter 4 was conceived, analysed and written by T.A.C. Loffeld with analytical support from and comments and editorial support from T. Humle, S. A. Black, M. Carter and E. J. Sterling.

Chapter 5 was conceived, analysed and written by T.A.C. Loffeld with analytical support from B. Davies and comments and editorial support from T. Humle and S. A. Black.

Publication status of results chapters 3 and 4

- LOFFELD, T.A.C., HUMLE, T., CHEYNE, S.M. & BLACK, S. (2020) Professional Development in Conservation: An Effectiveness Framework (Chapter 3). Oryx Advance online publication DOI 10.1017/S0030605321000648.
- LOFFELD, T.A.C., BLACK, S. A., CARTER, M., STERLING, E. J. & HUMLE, T. (2020). What makes conservationists persevere? Resilience strategies at work (Chapter 4). Manuscript submitted for publication to Oryx (under review).

Additional publications

- CHAO, N., LOFFELD, T.A.C., MASTRO, K., WILLCOX, D. H. A., GUTHRIE, V. & RAO, M. (2020). Strengthening capacity for species conservation in Southeast Asia: a provisional assessment of needs and opportunities for the Asian Species Action Partnership. Manuscript submitted for publication to Oryx (under review).
- SANTY, A., LOFFELD, T.A.C., PATERSON, S., COPSEY, J., CHRISTEN, C., BAKARR, M. I., RAINER, H., REHSE, E., BJORGVINSDOTTIR, S., SCHOLFIELD, K., MWANGI, M. A. K. AND CURRAN, K. (2020). Donor perspectives on strengthening capacity development for conservation. Manuscript submitted for publication to Oryx (under review).
- STERLING, E. J., SIGOUIN, A., BETLEY, E., CHEEK, J. Z., SOLOMON, J. N., LANDRIGAN, K., PORZECANSKI, A. L., BYNUM, N., CADENA, B., CLEMENTS, K. R., CHENG, S. H., FINCHUM, R., GERESY, M., GOMEZ, A., GROOM, M., LOFFELD, T. A. C., MILLER, D. C., RAKOTOBE, D., RAO, M., ROBERTS, R., SHINBOT, X. A., WILLIGAN, E. AND JONES, M. S. (2021). The

State of Capacity Development Evaluation in Conservation and Nature Resource Management. Oryx, 1–12. DOI 10.1017/s0030605321000570

Abstract

Nature conservation is a challenging profession. Professionals may face many obstacles before reaching their goals. Conservation work has been described as cognitively challenging, emotionally demanding, and physically straining and, at times, open to dangerous encounters caused by wildlife and people. Furthermore, the field of conservation is ever-changing, both by advances in its or associated disciplines and by rapid changes at a global political, social, and ecological level. Therefore, this doctoral research had as central research question: which role can capacity development have in optimising the work performance of conservation professionals? This study's results, arising from a mixed methods investigation, show that job resources, especially those provided by the organisation, are crucial for professional development and resilience building processes, and for optimising work performance. By thematically analysing the data of 22 interviews and 2 focus groups, organisational resources that were found to be linked to positive psychological states (e.g. experiences of energy, work engagement) were recognition and appreciation, and opportunities for growth and development. Results concerning work resources that were associated with positive psychological states were related to autonomy (i.e. freedom in work) and task significance (i.e. meaningful work). The strengths of these relationships were tested on a dataset obtained through 561 questionnaire respondents and by means of structural equation modelling. Quantitative data results confirmed the central role of job resources in reducing stress and burnout and increasing work engagement, which, in turn, positively influenced work performance. Overall, the results have highlighted the importance of considering

both job demands and job resources when optimising work design and work environment for conservationists to maintain energy and perform their jobs well. Furthermore, individual processes of professional learning and resilience building can enhance thriving in the workplace in uncertain and rapidly changing environments.

Keywords: capacity development, work performance, conservation professionals, motivation, work engagement, burnout, professional development, resilience.

Table of contents

List of figures

List of tables

List of supplementary tables

Chapter 1 Introduction

1.1. Capacity for biodiversity conservation

Biodiversity conservation relies on the capacity of the conservation workforce to implement effective conservation action. However, a broad consensus exists that there is a lack of this capacity, especially in resource-poor countries with high biodiversity (e.g. Bonine et al., 2003; Duckworth et al., 2012; Meine, 2010; Müller et al., 2015; O'Connell et al., 2019; Rodríguez et al., 2006; Sodhi et al., 2010; Wemmer et al., 1993). Meanwhile, measures of biodiversity show significant population declines and extinctions of terrestrial vertebrate species (WWF, 2016a; Ceballos et al., 2017), which is echoed in reports on forest ecosystems that harbour a large proportion of the world's biological diversity (Millenium Ecosystem Assessment, 2005; Crowther et al., 2015). The majority of biodiversity hotspots can be found in tropical countries where capacity and access to resources are limited (Dobson et al., 1997; Myers et al., 2000; Borgerhoff Mulder & Coppolillo, 2004), and with the biodiversity threats intensifying, there is a sense of urgency to take effective action, specifically in these regions.

Debates and discussions on the effectiveness of conservation practice are ongoing (e.g. Kapos et al., 2008; Kapos et al., 2009; Salafsky et al., 2002; Sutherland et al., 2004). Drivers of biodiversity decline often span national borders (e.g. plastic pollution in the sea, illegal wildlife trade) and, when planning conservation action, it is essential to assess the scale of these drivers. Several multilateral environmental agreements have been designed as a framework to halt the loss of biodiversity, including most notably the Convention on Biological Diversity (CBD) in Rio in 1992. National Biodiversity Strategies and Action Plans have been drafted within signatory countries to translate

such governance into action, guided by the question which financial, human and technical resources are needed to implement these plans (CBD, 2010), indicating human resource management as a fundamental component of biodiversity strategies to enable conservation success.

Recommendations on capacity development approaches derived from the health care sector include that to ensure effective action in resource-poor countries, one should invest in their communities as opposed to "parachute" temporary capacity in from resource-rich countries (Muller, 2006). The United Nations Development Programme (UNDP) similarly highlights that "the optimum use of national (as opposed to expatriate) human and organisational resources" as a key theme for capacity development in mid- and lower-income countries (UNDP, 1997: 3). Also within conservation, it has been argued that the approach of relying on foreigners to solve environmental issues is not as effective and sustainable as building local conservation (Mistry et al., 2011; Radeloff et al., 2013) and research capacity (Barber et al., 2014), nor is it ethical (Rudd et al., 2021).

Several major non-novernmental organisations (NGOs) in conservation have recognised the importance of building human resources for conservation and adapted their strategies accordingly. The Conservation Leadership Programme, a partnership between BirdLife International, Fauna & Flora International and the Wildlife Conservation Society, was originally developed for UK university students to enhance data collection on biodiversity internationally. Their focus has meanwhile shifted to developing national conservation capacity in biodiversity-rich and resource-poor countries (Paterson & Dalzen, 2015). Another example is World Wildlife Fund's (WWF) Russell E. Train Education for Nature Program (EFN) that financially supports education opportunities for

mid- to lower-income country nationals (WWF, 2016b). Most of these opportunities are located in higher-income countries and conservation scholars have questioned whether this presents a sustainable solution to meet an increasing demand for capacity within the tropics (Bawa, 2006; Rodríguez et al., 2006; Barber et al., 2014). Financial limitations and the gap in academic knowledge and skills have to be addressed when looking for alternative solutions (Bonine et al., 2003). For example, WWF's EFN developed the Russell E. Train Legacy Scholarship Program to financially support new and growing academic programmes at universities in Brazil, Bhutan, Guyana, Laos, Cameroon, and Tanzania, to support the need for institutional capacity development in these countries. In Cambodia, a Master's Programme in Biodiversity Conservation was established in 2005 at the Royal University of Phnom Penh in collaboration with Fauna & Flora International to respond to the urgent need for skilled professionals to manage and conserve the rich biodiversity in the country (Sethik, 2009). In addition to enrolling students, this programme provides professional development for staff from government agencies, non-governmental organisations and the private sector.

Developing capacity through institutions in biodiversity-rich countries, in collaboration with their governments, is seen as a long-term investment in realising capacity in-situ (Bawa, 2006; Rao et al., 2014; Rodríguez et al., 2005). The success of increasing conservation capacity in Laos can be partly attributed to fruitful collaboration between international NGOs, government, education institutes and international capacity development initiatives, such as the Network for Conservation Education Practitioners (Rao et al., 2014). Effective capacity development takes long-term commitment, in the current example of the Laos project seven years, a timeframe in which normal conservation projects

do not operate (Mistry et al., 2009, 2011). Smaller projects, operating in a shorter timeframe, are nevertheless in need of capacity. Although donor-assisted projects may include capacity development components, these may focus on the project outcomes rather than a needs assessment among personnel to build organisational capacity (Appleton, 2015b; Bonine et al., 2003). Moreover, short-term projects may not leave sufficient time for staff to develop skills such as problem-solving and critical thinking (Mistry et al., 2011). Essential skills such as these are not often fostered during undergraduate programmes at universities in resource-poor countries that often adopt a traditional education approach (Bonine et al., 2003), which results in significant gaps in the capacity of early career conservationists in these countries.

Presently, capacity development appears to be more prominent on the agenda of donors (Santy et al., 2020). Some donors require the incorporation of national or local human and institutional capacity development in project outcomes (e.g. Critical Ecosystem Partnership Fund, U.S. Fish & Wildlife Service). Despite these funding opportunities, a lack of knowledge may impede current efforts; a standardised framework on capacity development for the sector is currently absent as well as evidence on whether capacity is developed systematically. Finally, and perhaps most importantly, a direct link between capacity development efforts and the impacts on conservation goals seems inconclusive in the reported literature (Geldmann et al., 2018; Schleicher et al., 2019) and this knowledge gap has been identified as a high priority to guide the future biodiversity frameworks (Bacon et al., 2019).

The aim of the proposed research is to explore which role capacity development can have in optimising the work performance of conservation professionals, especially in those countries that have high biodiversity and are limited in information, human and financial resources. For the purpose of our research, these countries include Asia (with the exception of Japan, Hong Kong, Macau, Singapore, South Korea and Taiwan), Central America, South America, Mexico, Africa, and the Middle East (with the exception of Israel). Such improved understanding could offer conservation managers and organisational leaders a useful and justifiable foundation to obtain funding and schedule capacity development activities around the greatest needs of their staff and organisation (Kopylova & Danilina, 2011; Pitkin, 1995; Stone, 1997; Tegt, Jones, & West, 2010). The conservation sector does not stand alone in its quest to strengthen its professionals. Across sectors, non-profit and for-profit organisations are trying to understand which factors predict high performance to create a stronger workforce and subsequently improve the realisation of sector specific goals (Weiss et al., 2006). For this reason, it is useful to compare the relevant literature on capacity development processes across sectors and disciplines, especially given the scarcity in literature on this topic in the conservation sector. The aim of the present review is to comprehensively integrate these findings, and herewith justify the proposed research methodology.

The remainder of this literature review is organised as follows. In the next section, we review definitions and typologies to discuss the different reported meanings of capacity development. This is followed by a review of theoretical frameworks to capacity development, noting four prominent models in the literature. Following that, previous research is reviewed, organised by a three-level framework: studies at the individual, organisational and sectoral level are considered in turn, and

strengthened by findings that touch upon multiple levels. Finally, we present a constructive critique of the existing research and gaps in our understanding of capacity development within the conservation sector, followed by an overview of the proposed research questions this PhD thesis aims to address.

1.2. Definitional clarity

As noted by Müller et al. (2015), capacity is more than just an individual employees' knowledge and skills. They argued that work performance is influenced by the combination and interaction of capacity at the levels of the individual, the organisation and the sector. Clarity on the specific definition of capacity is one of the key challenges regarding capacity development, as opinions vary across fields and there does not seem to be a consensus on the definition for the conservation sector (Müller et al., 2015; O'Connell et al., 2019). Meanings of capacity range from individual capabilities to processes, such as financial capacity, that can attribute to an organisation's overall capacity, as well as to societal capacity (Whittle et al., 2012). Following the US Agency for International Development (USAID) in Ford et al. (2010), an adapted definition is used here: capacity building is a long-term process that improves the ability of an individual, group, organisation, or society to enhance conservation results.

It is important to realise that capacity can change over time and is subject to contextual influences. On an organisational level, this can be internal factors such as management and available resources, and external factors such as political influences. It is therefore useful to link the concept of

capacity building to time, which would then translate to capacity development, defined by Simister & Smith (2010: 3) as a "deliberate process whereby people, organisations or society as a whole create, strengthen and maintain capacity over time". Emerging in the 1980s, capacity development seems to be a preferred term in the organisational development domain, since it indicates long-term investment in capacity and considers how to sustain the capacity that is built (Lusthaus et al., 1999; Whittle et al., 2012). For this reason, in this thesis the term capacity development will be used. Other associated terms are institution building, institutional development, human resource development, development management and institutional strengthening, and can be seen as conceptual predecessors to capacity development. A comprehensive discussion of these terms is outside the scope of this review and is provided by Lusthaus et al. (1999) and Whittle et al. (2012) but should be considered as being encompassed within this study's consideration of capacity development.

Whilst acknowledging the vital role that communities have in developing capacity for conservation (Appleton, 2015b), this doctoral research will mainly focus on conservation professionals who work in biodiversity-rich and resource-limited countries. We defined conservation professional as an individual who is paid or receives compensation in exchange for work, and works towards nature conservation goals. Capacity development can be seen as an umbrella term, under which fall organisational development and individual capacity development (Lusthaus et al., 1999). One of these processes on an individual level is the professional development process which may include training, yet a commonly held belief is that professional development is training per definition (Appleton, 2015b). Professional development is not an isolated activity however and can be seen as nested within larger workforce systems (Weiss et al., 2006). It is often used interchangeably

with the terms 'professional education' and 'continuing professional development' or a combination of these. There are many definitions of professional development and a few will be explored here before proposing an integrative definition.

First of all, it is important to distinguish professional development from professional learning. Professional learning refers to the outcomes of the process, such as what is learned, how well it is applied in the workplace and herewith indicates a consistent change in behaviour, whereas professional development is referring to the process that prompts such changes (Killion, 2013). Scholars in Human Resource Development Chalofsky & Lincoln (1983: 21) termed professional development as "a process of keeping current in the state of the art, keeping competent in the state of practice, and keeping open to new theories, techniques, and values. It is related to present and near-future positions and usually based on work objectives". In education, professional development is referred to as the process used to promote professional learning and the context and resources that support this (Killion, 2013; Campbell et al., 2017). The Academy of Medical Royal Colleges defined continuing professional development as a continuing process, outside formal undergraduate and postgraduate training, that enables individual professionals to maintain and improve standards of practice through the development of knowledge, skills, attitudes and behaviour (Schostak et al., 2010). Finally, the Royal Society of Biology (RSB) defines continuing professional development as "the process through which an individual maintains and extends the knowledge and skills necessary for lifelong professional competence" (RSB, 2016).

Based on the above perspectives, the following integrative definition is proposed for the purpose of this research: Professional development is the active process of growth and development an individual undertakes in their professional life, which spans across their entire career; it aims to improve standards of practice, includes a wide range of approaches and activities and encompasses the context and resources to support this process.

1.3. Theoretical models

To consider capacity development from a theoretical perspective, most frameworks focus on either an organisational or sector level. A number of leading models and tools can be identified in the human resource development (HDR) and education literature, yet in the conservation literature only few models were found. In the next sections, four capacity development models are presented and briefly discussed; these are derived from human resource development, human services, international development and biodiversity conservation, respectively.

1.3.1. Human Resource Development model

Human resource development scholar McLagan indicated that capacity development should be integrated as part of a chain of change and that "problem solving and change usually require multiple and diverse action, such as training, plus policy change, plus job redesign" (1989: 51). McLagan (1989) introduced the Human Resource Wheel (Fig. 1-1), consisting of eleven areas of human resource practice. She described that human resource development (HRD) can be defined as "the integrated use of training and development, organisation development, and career development to improve

individual, group, and organisational effectiveness" (1989: 52). Training and development, organisation development and career development (Fig. 1-1) are of particular interest when considering individual performance improvement (McGuire, 2010). McLagan furthermore emphasised that organisational development is not confined to one department, but involves processes in all layers of the organisation, as a result of formal or informal activities. This model for HDR practice was designed for use by practitioners, managers and academics, and is still broadly supported in HRD (McGuire, 2010), which is also known today as the field of Learning & Development (Armstrong & Taylor, 2017). Its relevance to conservation may lie in its emphasis on the importance of revising and adapting models for capacity development every few years, in particular in rapidly evolving fields like biodiversity conservation.

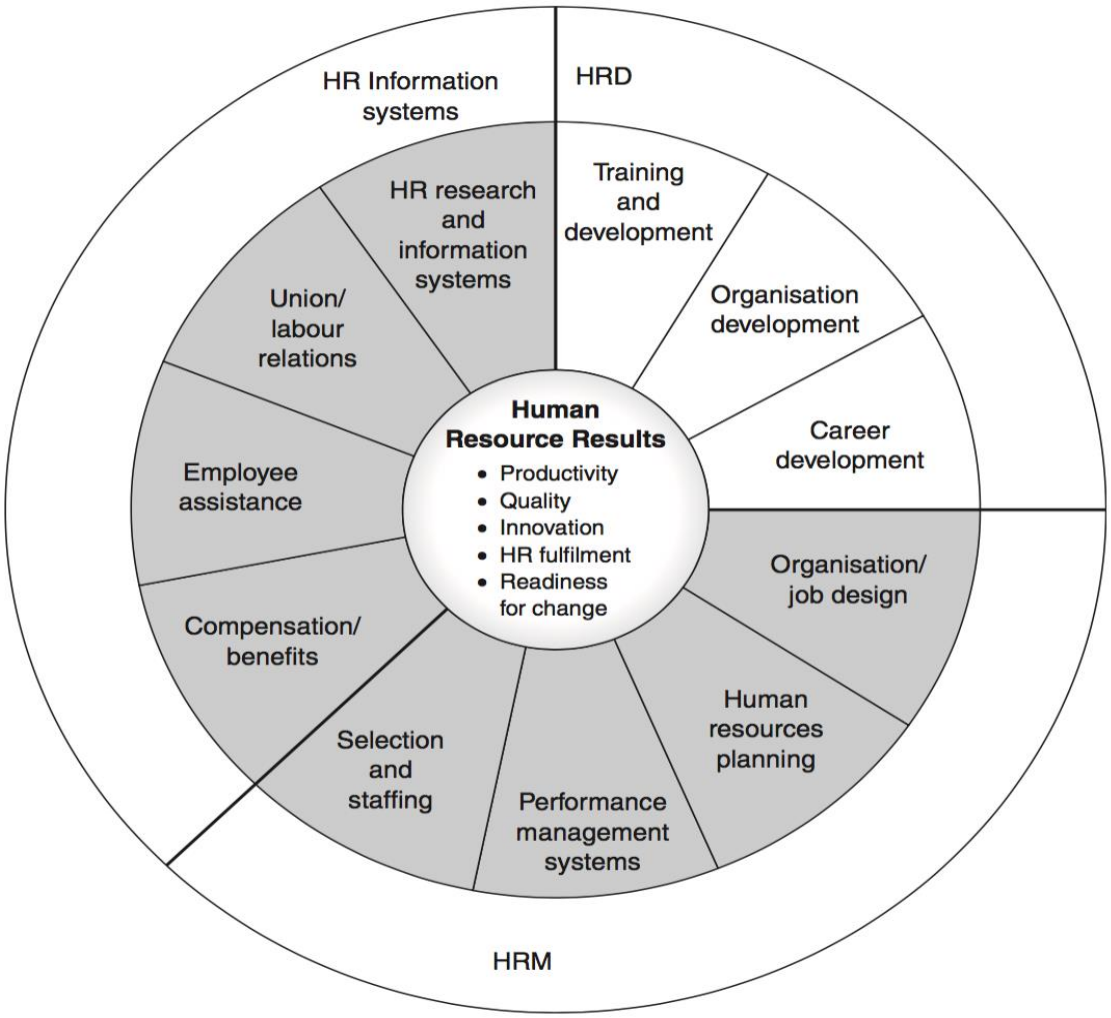

Figure 1-1. McLagan's Human Resource Wheel, showing Human Resource Development consists of three elements: Training and Development, Organisational Development, and Career Development, segments shown in white (McGuire, 2010: 6).

1.3.2. Human services model

A less well-known model was developed by Weiss et al. (2006) to promote a high performing workforce and mitigate the risks of burnout, turnover and poor performance in frontline human service professionals (i.e. child care, child welfare, juvenile justice, and youth service workers). It aims

to identify evidence of a connection between workforce and child outcomes (e.g. student achievement) and assumes that professional staff development is a key process in a larger process of overall workforce development, including organisational and policy support activities (Weiss et al., 2006). The model illustrates that there are several activities (e.g. staff professional development, improved organisational support for staff, and improved policy support) and pathways that link the professional workforce and improved child outcomes (Fig. 1-2), and it has been suggested that it can assist in decision-making about which activities to prioritise in terms of funding. Weiss et al. (2006) furthermore argued that is important gather details about the workforce, such as the reasons why they entered the field and why professionals leave the field, and which organisational support they require (e.g. supervision, peer support) to work towards improved practice. Policies could aid a positive work environment, provide guidance on salaries and benefits to ensure stability in the workforce, ensure that adequate resources are invested in workforce development and hold organisations accountable for improving outcomes through high standards, certification, and accreditation (Weiss et al., 2006).

The Weiss et al. (2006) model and similar models have been tested in the human services industry using qualitative data which, for example, led to a refined model for the Cornell University accredited Family Development Training and Credentialing Program for human services professionals (Crane, 2010), illustrating the usefulness of the encompassed constructs in such contexts. Findings of a meta-analytic review provided evidence that professional development of human services staff enhanced their work performance, which, in turn, positively impacted child developmental outcomes, such as language, literacy, math, and social skills (Egert et al., 2018). This

review study by Egert et al. (2018) furthermore underlined that substantial improvements are needed at a teacher level (e.g. awareness, orientations, competences, performance) and classroom level (e.g. learning activities, emotional support, instructional support) before improved child development may be expected.

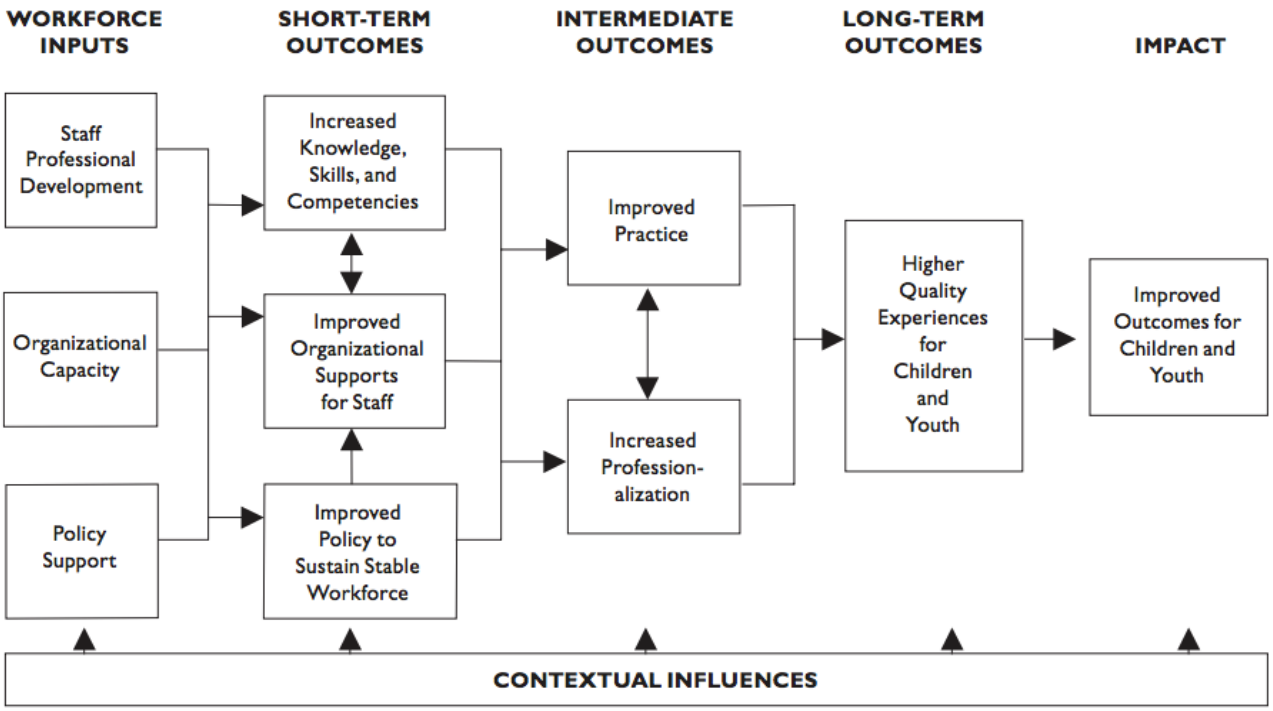

Figure 1-2. The human services model connecting workforce development with staff outcomes (e.g. increased competences and practice), which in turn positively influence experiences for children and improved child outcomes (Weiss et al., 2006: 3).

1.3.3. International development model

Monitoring and evaluation specialist Kotvojs developed the Capacity Development Evaluation Framework (CDEF), which was largely based on Kirkpatrick's (1996) well-known four level model of training evaluation (Kotvojs, 2017). In 2016, Kotvojs tested the CDEF (Fig. 1-3) with the aim to improve the quality of evaluations of capacity development efforts in the international development sector. They used case studies to assess the framework's suitability and found that its simplicity facilitated a clear and shared understanding among stakeholders and provided information on both performance and processes (Kotvojs, 2017). Furthermore, users of this framework argued that it improved both the evaluation of capacity development initiatives, as well as the quality of the initiative itself; it helped detect changes to which the initiative contributed, evaluate the effectiveness of capacity development strategies and progress towards goals, and identify lessons learnt (Kotvojs, 2017). Stated disadvantages of the framework's application were that it did not detect unintended change or contextual changes (i.e. changes in the environment) that may influence outcomes (Kotvojs, 2017). This model is useful in that international development challenges are often placed in contexts similar to conservation.

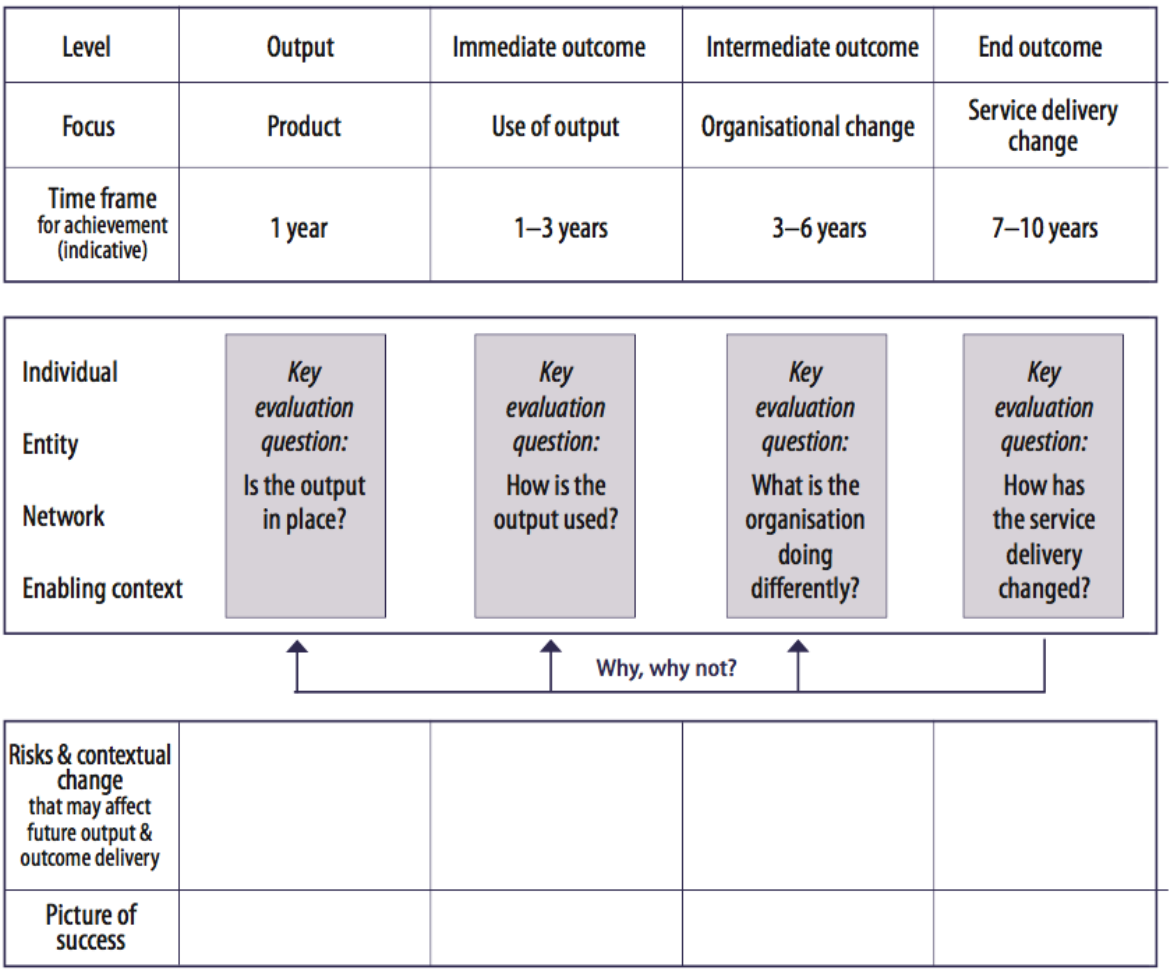

Figure 1-3. The Capacity Development Evaluation Framework consists of four levels, namely 1) output, a tangible output which the capacity development initiative produces, 2) immediate outcome, the application of the particular output, 3) intermediate outcome, that is the organisational change that is brought about by the application of the output, and 4) end outcome, changes in the organisation's service delivery (Kotvojs, 2017: 15).

1.3.4. Conservation model

Cambridge Conservation Forum (CCF), a consortium of 36 global conservation organisations based in the UK, developed a conceptual framework for conservation project evaluation (Kapos et al., 2008). This framework builds on a conservation project model proposed by Salafsky et al. (2002, 2008) and conservation actions as classified by the International Union for the Conservation of Nature – Conservation Measures Partnership (IUCN-CMP). For each of these actions, including capacity building, CCF developed an evaluation tool (Kapos et al., 2009). The model of capacity building illustrates the linkages between activities (i.e. implementation) and antecedents of conservation impact. Identified antecedents are improved skills applied to conservation problems on an individual level, and an improved enabling environment on an organisational level (Fig. 1-4.). This together should lead to improved quantity and/or quality of conservation action, organisation learning (i.e. improved understanding), resulting in improved responses of conservation target(s) and threat reduction. Although it is one of the few capacity development models currently available in the conservation sector, the CCF's framework is missing the antecedents of attitude or intent (see section 1.5.2 on motivation) and no moderating factors, such as socio-economic factors, have been included. Although stakeholder consultation is included in this model as part of the implementation, any outcomes regarding stakeholders seem to be absent. CCF's framework is in the process of being tested by conservation organisations to assess the outcomes and effectiveness of their projects, and, on a sector scale, to contribute to the evidence-base of conservation success and failures (Kapos et al., 2009; Redford & Taber, 2000), which will hopefully lead to its further refinement.

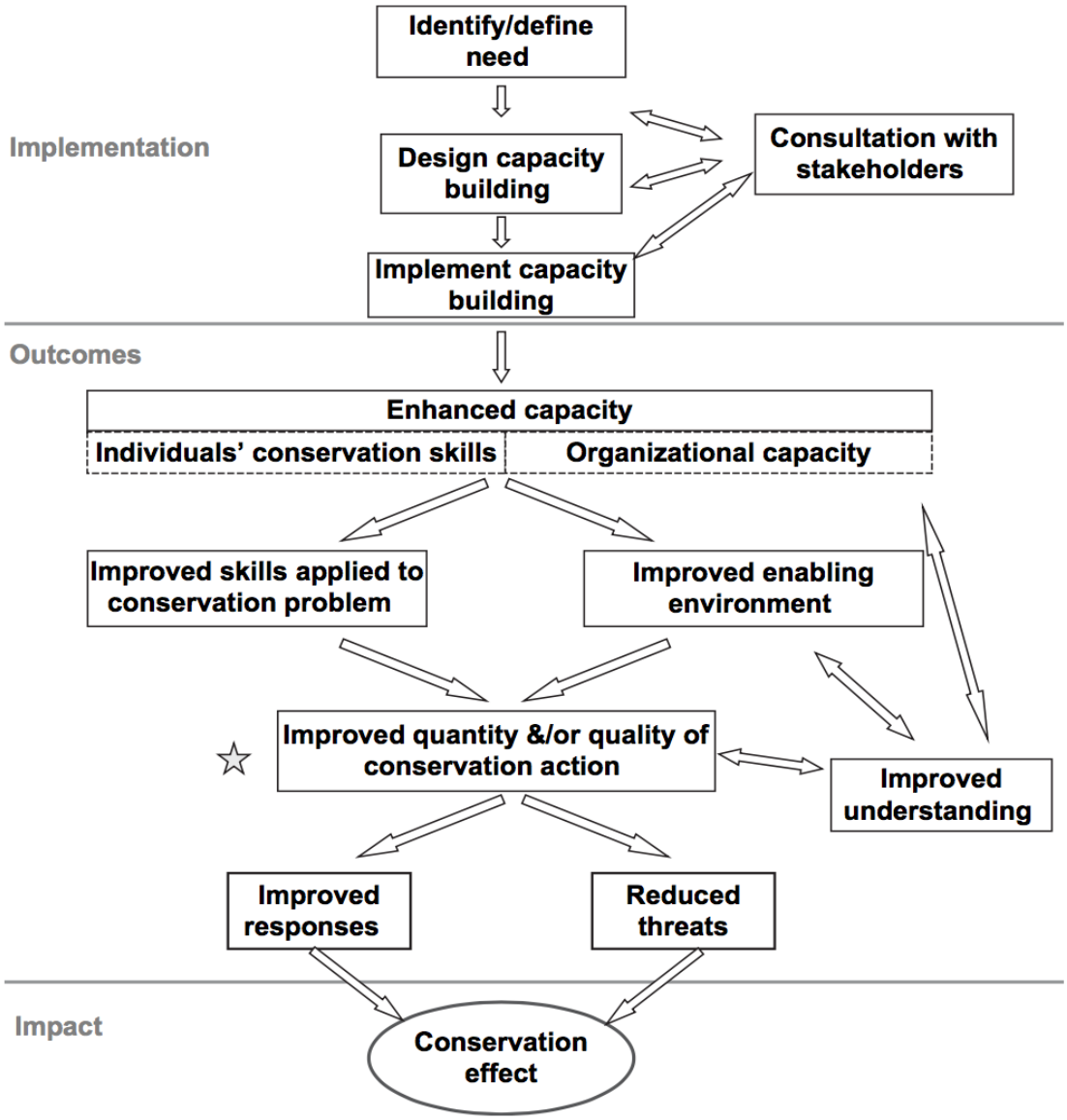

Figure 1-4. CCF's model for capacity building efforts in conservation, illustrating two levels, i.e. individual and organisational capacity (Kapos et al., 2009: 339).

1.4. Defining a levels-of-analysis framework

As Kapos et al. (2008; 2009) illustrated in their conceptual model, one of the goals of capacity development is to work towards conservation impacts. Conservation aims to instigate lasting environmental and social change for the benefit of biodiversity. In general, these changes are considered long-term outcomes. Strong organisations, and thus a strong workforce are needed, and employee engagement and organisational sustainability play a role in this. Additionally, conservation impact is achieved through high work performance, i.e. improved quantity and/or quality of conservation action (Kapos et al., 2009). These topics will be discussed next to place the importance of capacity development in context of the systems in which it operates in practice. This section is organised by three levels of analysis: individual, organisational, and sector level. A summary of the research organised by each level is given, and subcategorised by key variables reported in past studies to have an effect upon capacity development in the workplace. Where available, related studies from the conservation sector are included. As conservation staff are the core of capacity at any level, the individual level is discussed in greater depth.

1.5. Individual level

1.5.1. Work performance

An understanding of the predictors (i.e. antecedents) of conservation professionals' work performance could aid this research in determining which processes are most relevant in their capacity development and under which conditions antecedents positively or negatively influence performance (Black, 2018). Previous studies explored a wide range of antecedents of work

performance using various theoretical frameworks. Among many other antecedents, past research has tested the relationship between work engagement and work performance (e.g. see Bailey et al. 2017 for an overview), the contribution of job satisfaction and psychological well-being as predictors of work performance (Wright & Cropanzano, 2000), and the influence of Human Resource Management practices on different types of work performance (Tabiu et al., 2016). Other factors that were found to have an effect on performance related to personality traits, such as conscientiousness (i.e. the quality of working hard and being careful), and organisational characteristics, e.g. the level of organisational politics (Shoss et al., 2012).

Several indicators of work performance are described in the literature, which can be seen as reflections of work performance (Koopmans et al., 2011). Broadly, indicators of work performance can be categorised in three dimensions. Firstly, in-role performance or task performance, referring to those core behaviours that are central to the job and serve organisational goals (Campbell et al., 1990; Demerouti & Cropanzano, 2010). Secondly, extra-role performance or contextual performance, which relates to supporting the psychological social and organisational environment and herewith the effective functioning of the organisation (Motowidlo & Van Scotter, 1994; Demerouti & Cropanzano, 2010). A third dimension, often referred to as adaptive performance, relates to outcomes and behaviours that demonstrates to ability to adapt to changes in the job related to the work itself and/or the work environment (Griffin et al., 2007).

Predictors can be different for each type of work performance, although there are relatively limited contexts that have been examined in previous research studies. For example, Shoss et al.

(2012) found that there was a positive relationship between adaptive performance and task performance among call centre employees high in conscientiousness, but only those who also reported high levels of organisational politics, characterised by uncertainty and adversity. Past research has also identified mediators of the relationship between job characteristics and organisational characteristics on the one hand and work performance types on the other hand. The main mediators include motivation (Halbesleben & Bowler, 2007), work engagement (e.g. Rich et al., 2010; Christian et al., 2011; Bailey et al., 2017) and burnout (Maslach et al., 2001; Bakker et al., 2004) and these will each be discussed briefly in the sections below.

1.5.2. Motivation

Work motivation can be seen as the psychological processes that energises, directs and sustains actions towards certain work-related responsibilities or goals (Kanfer, 1990). The two main types of motivation that have been identified are intrinsic motivation and extrinsic motivation. Intrinsic motivation relates to engaging in an activity because the individual finds it interesting and/or enjoyable in itself, whereas extrinsic motivation is connected to doing an activity for instrumental reasons, e.g. reaching a goal that one values, increasing one's sense of confidence, avoiding criticism/punishments, or receiving approval and rewards (Gagné et al., 2015). Grant (2008) argued that people can also be motivated to extend efforts aimed at helping others, which is termed prosocial motivation. This type of motivation focuses on others, both in values and in goals, with the intention to produce beneficial outcomes and is therefore distinguishable from intrinsic motivation (Grant, 2008). Work motivation has been studied for decades and therefore it is not surprising that numerous

perspectives and theories have been developed to understand this construct, and only a few will be discussed here.

Grant & Shin (2012) suggested that there are two main types of work motivation theories; theories that relate to internal or endogenous processes, often associated with within-person differences or traits, and those relating to external or exogenous processes, linked to contextual influences. One example of a theory that looks at endogenous processes is the theory of planned behaviour (Ajzen, 1985; 1991). Central to this theory are one's beliefs, i.e. behavioural beliefs influencing one's attitude toward the behaviour, normative beliefs which are linked to subjective norms, and control beliefs which are associated with a person's beliefs that they could affect change. Ajzen (1985) argued that generally, with a favourable attitude and subjective norm, and perceived control, a person should have the motivation (i.e. intention) to perform a certain behaviour. However, actual behavioural control influences whether the behaviour will occur, such as having the resources and opportunities to perform that certain behaviour (Ajzen, 1985). Perceived behaviour control is analogous to Bandura's (1977; 2000) description of self-efficacy, i.e. how an individual perceives their abilities, including the ability to influence their environment and accomplish valued goals. High levels of self-efficacy has positively associated with participating in personal growth activities (van Woerkom & Meyers, 2018), work engagement (Salanova et al., 2011), and stress resistance in the face of adversity (Bandura, 2000).

Contextual influences on work motivation are described in theories related to job design or job enrichment, which can be defined as changing certain characteristics of staff's tasks to increase

their potential for motivating employees (Herzberg, 1968). A well-established perspective on job enrichment is derived from the Job Characteristics Model (Hackman & Oldham, 1976) where work should be perceived meaningful, challenging and interesting. This model specifies that experienced meaningfulness can be enhanced by task significance (tasks having a positive impact on valued beneficiaries), task identity (working on a task from start to finish) and by skill variety (using a variety of one's skills) or the 'fit' with one's talents. Experienced challenge at work could be promoted when one experiences responsibility for work outcomes, such as being given autonomy in planning work, choosing work methods, and decision-making. Lastly, a job may become more interesting by having knowledge about the results of one's work which could be boosted by the job characteristic feedback, i.e. information gained from completing the work or provided by others (Hackman & Oldham, 1976). Grant & Shin (2012) argued that there are also hybrid perspectives that include the well-known self-determination theory by Deci & Ryan's (1985) that is widely applied and researched globally. Self-determination theory looks at intrinsic and extrinsic motivation in cognitive and social development and personality. The theory posits that the greater an individual's experience of autonomy, competence and relatedness, the higher that person's motivation and engagement for certain activities. Deci & Ryan (1985) furthermore suggested that the degree in which these three psychological needs are supported within a social context, will affect that person's wellness. In the work setting, autonomy is related to the freedom employees have in their work, whereas competence describes the ability to proficiently interact with the work environment. Relatedness can be seen as sense of connectedness, closeness and/or belonging to a social group, which is in correspondence with primary needs categories identified by Maslow's hierarchy of needs (1954).

When discussing capacity development, motivation is of relevance in two ways, i.e. motivation is vital to learning (Shaw & Kemp, 2011; Müller et al., 2015), and motivation is linked to increased work performance (Grant, 2008). In a study of two quite contrasting types of workers, firefighters and fundraising callers, Grant (2008) found that intrinsic and prosocial motivation positively influenced persistence, work performance and productivity. In a meta-analysis, Rubenstein et al. (2018) found that motivated workers demonstrated more perseverance and were less likely to quit when facing obstacles. Grant & Berry (2011) found that the 'other-focused' psychological processes of prosocial motivation and perspective taking, positively influenced creativity in the workplace (e.g. military staff). They point out however that prosocial motivation may be directed towards goals that are not necessarily in line with organisational goals. One of their recommendations was for managers to provide employees with the opportunity to interact with beneficiaries of their work, which builds on Oldham and Hackman's job design suggestions of allowing staff to work on a project from start to finish and increase opportunities for feedback (Grant & Berry, 2011).

1.5.3. Work engagement

The construct of engagement overlaps with both motivation and commitment, as well as positive discretionary behaviour (Fig. 5). Occupational commitment can be seen as the degree to which an individual identifies with his or her occupation or career and has positive feelings about their occupation (Blau, 1985). Positive discretionary behaviour describes employee behaviour that goes beyond the job description and contributes to organisational effectiveness (Armstrong, Brown, & Reilly, 2010). Since the concept of employees' personal engagement in their work was first introduced

by Kahn (1990), the research on engagement has expanded rapidly as well as its definitions. Schaufeli et al. (2002: 74) defined work engagement as "a positive, fulfilling, work related state of mind that is characterised by vigour, dedication and absorption". Work engagement and its role in capacity development is a major focus of today's organisations. Bailey et al. (2017) conducted a systematic review involving 214 studies and found that engagement was positively associated with work performance. Engaged professionals are also reported to experience fewer health issues (Bakker et al., 2011).

In an attempt to summarise the research conducted on engagement, Crawford et al. (2014) identified three key drivers, building on the original work of Kahn (1990):

1. Experience of meaningfulness. Antecedents are job challenge, autonomy, variety, feedback, fit, opportunities for development, and rewards and recognition.

2. Experience of psychological safety, referring the belief that people feel safe for interpersonal risktaking in team settings (Edmondson, 1999). Antecedents are social support, transformational leadership, leader-member exchange, workplace climate, organisational justice, and job security.

3. Experience of availability, referring to if a person feels ready to engage and thus feels available at that point in time. Antecedents identified are role-overload, work-role conflict, family-work conflict, resource inadequacies, time urgency, off-work recovery, dispositions, and personal resources (i.e. individuals own sense of ability to control and impact ones environment successfully, linked to resilience, self-efficacy, and optimism).

The synthesis of evidence conducted by Crawford et al. (2014) is presented in the conceptual model in Fig. 5. This evidence is merged with a model proposed by the Institute for Employment Studies (Robinson et al., 2004) which was visualised by Armstrong et al. (2010) to represent the overlap between motivation, commitment and discretionary behaviour with work engagement. Each antecedent represents a field of study and is only included here to illustrate the complexity of processes underlying work performance, with the most relevant highlighted here, i.e. work engagement. Additionally, insights in how to positively influence work engagement can help employees and organisations work towards improved practice. Crawford et al. (2014) point out that the majority of these antecedents influencing work meaningfulness, are related to job design and can offer simple and cost-efficient ways of enhancing employee engagement. They furthermore recommend to integrate practices that allow employees flexibility and off-work recovery, especially in fast-paced or high-pressure work environments. Limited off-work recovery could trigger negative psychological states (e.g. exhaustion) which may develop into burnout over time (Sonnentag et al., 2010).

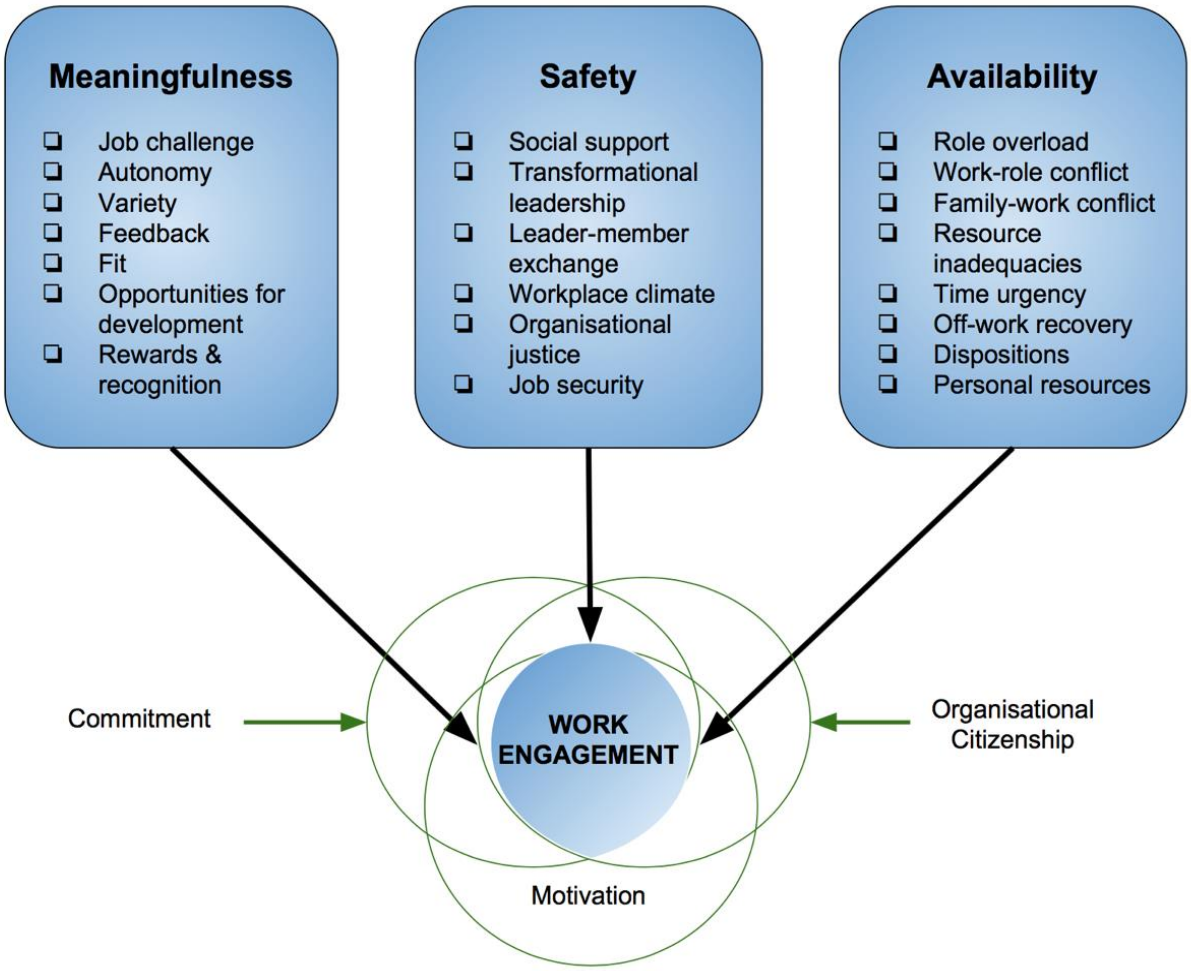

Figure 1-5. Conceptual model of work engagement based on Crawford et al., 2014; Robinson et al., 2004; and Armstrong et al., 2010.

1.5.4. Burnout

Within psychology, characteristics of work and the work environment has been increasingly researched in relation to employee' stress resistance and well-being. In the work context, characteristics can relate to different domains, including the structuring and design of work (e.g. performance feedback and task significance), social relations (e.g. supervisor and co-worker support), and the organisational environment (e.g. salary, promotion opportunities) (de Jonge, Demerouti, & Dormann, 2013). Maslach et al. (2001) described that burnout is a persistent reaction to chronic

emotional and interpersonal stressors, and is defined by the three dimensions of exhaustion, cynicism (depersonalisation), and inefficacy (reduced personal accomplishment). Decades of research point to several predictors of burnout, including experienced workload and time pressure (Demerouti et al., 2004), emotional demands (de Jonge et al., 2012), a lack of autonomy and absent social support (Bakker et al., 2004). Burnout can lead to professionals withdrawing from their job emotionally and cognitively, which can be measured in absenteeism and turnover. Professionals who experience burnout are known to have lower productivity and effectiveness (Bakker et al., 2004), which, in turn, may negatively impact job satisfaction and organisational commitment, and increase turnover intentions (Alarcon, 2011). Burnout is also known to decrease physical health (Goering et al., 2017).

1.5.5. Professional development

As previously mentioned, professional development can be seen as the active process of growth and development an individual undertakes in their professional life using a wide range of approaches and activities. On an individual level, predictors of effective professional development include motivation to learn, whereas on an organisational level a supportive context and adequate resources, e.g. time and funding, are key (Brekelmans et al., 2013). Different professional development approaches and activities are linked to an increase in knowledge and skill (Shaw & Kemp, 2011), higher motivation (Purcell et al., 2003), promoting work engagement (Purcell et al., 2003; Crawford et al., 2014), and information sharing, which encourages a creative climate (Sundgren et al., 2005) and creative capacity (Kienitz et al., 2014). Professional development has also been positively associated with quality of working life (Walton, 1973), job satisfaction (Purcell et al., 2003), it may enhance individuals' career prospects (Kahn, 1990; Shaw & Kemp, 2011), strengthen their professional

credibility (CIPD, 2017), and increase staff retention (Allen et al., 2010; Rubenstein et al., 2018). Interestingly, professional development has been linked to fostering resilience in frontline health care professionals who work in remote and isolated areas (Matheson et al., 2016), both of which are work contexts familiar in many conservation roles.

1.6. Organisational level

1.6.1. Leadership styles

In addition to the previously discussed job enrichment approaches, certain job characteristics can be changed by means of interpersonal interactions. For example, Zhang & Bartol (2010) found that managers in an IT company in China positively influenced intrinsic motivation and engagement among employees using an empowering leadership style. Using this leadership style, managers enhanced employees' experiences of meaningfulness, autonomy, and competence by communicating how staff's work related to the company's goals, by encouraging participation in decision-making, and by conveying trust and constructive feedback, respectively. Subsequently, measures of intrinsic motivation and employee engagement increased, which, in turn, promoted creativity in the workplace (Zhang & Bartol, 2010). In a similar vein, Slemp et al. (2018) found in their meta-analytic review that leaders' support of autonomy was positively associated with basic needs fulfilment, wellbeing and positive work behaviours in the people that work for them. Direct relationships were found between engaging leadership (i.e. inspiring, strengthening and connecting followers) on the one hand and several dimensions of work performance on the other hand in a study of employees

working in health and welfare, commercial services, and retail sectors in the Netherlands (Schaufeli, 2015).

Research by Caniëls et al. (2018) illustrated that leaders who would like to promote work engagement should pay attention to individual differences in staff. For staff who had a proactive personality and a motivation to learn (i.e. growth mindset), a transformational leadership style (i.e. providing intellectual stimulation and inspirational motivation) could be successful in encouraging work engagement (Caniëls et al., 2018). The importance of employing different leadership styles in different situations has been underlined by leadership scholars in the conservation context (Black, 2018), with an emphasis on developing leaders' interpersonal skills to build trust among employees, stakeholders and partners (Bruyere, 2015; Englefield et al., 2019). Mission-driven organisations often attract employees with high levels of prosocial motivation. In their research of fundraising callers, Grant & Sumanth (2009) examined under which conditions prosocial motivation predicts higher levels of work performance in mission-driven organisations. They found that manager trustworthiness strengthened the association between prosocial motivation and performance and this relationship was mediated by employee's perceived task significance (Grant & Sumanth, 2009). They recommended for managers to actively communicate the significance of one's work, especially when a team member is prosocially motivated, herewith increasing the perceived meaningfulness of their work (Hackman & Oldham, 1976).

1.6.2. Organisational policies and administration

Based on findings from 12 organisations from different sectors, Purcell et al. (2003) identified a key factor in high performance, i.e. a clear organisational mission, underpinned by values and a culture practiced at all levels in the organisation, embedded in policy and spearheaded by leadership. Successful organisations where those who could sustain performance over a longer period of time and their human resource policies and practices matched their overall organisational strategy, and demonstrated flexibility in adapting to new circumstances (Purcell et al., 2003). The integration of monitoring and evaluation methods in policies and practice on an organisational level could furthermore contribute to quality assurance (Oakley et al., 2003). This would also enhance the sharing of lessons from experiences, and experiential and social learning from individual to sector level. When constant changes make each situation unique, there is a need for dynamic and adaptive approaches when evaluating complex systems (Margoluis & Salafsky, 1998; Salafsky et al., 2002; Preskill et al., 2014).

Few studies have focused on the perceptions of conservation professionals and even fewer have examined their experiences regarding organisational policy and administration. Moreto (2016) reported discontent among national park rangers in Uganda about the distribution of promotions. Perceptions of workplace fairness, also referred to as organisational justice (Greenberg, 1990), can be divided into 1) distributive justice, which relates to organisational rewards such as pay and promotion, 2) procedural justice, referring to organisational policies and procedures, 3) interpersonal justice, determined by how fairly employees feel treated by management, and 4) informational justice, indicating the fairness in communication about certain procedures (Colquitt, 2001; Jordan & Turner,

2008). Previous studies have established that workplace fairness is an important factor that can influence burnout (Maslach et al., 2001), work performance (Colquitt et al., 2001) and project failure in conservation (Catalano et al., 2019).

In a study on 50 women conservation leaders in the U.S., Jones & Solomon (2019) found that one of the main barriers to their career development had been the assumption, by mainly male co-workers, that they were inadequate in their work or unfit as leaders, highlighting a lack of recognition and appreciation. Formal professional development opportunities, including mentorship, coaching and trainings, and supportive relationships, helped to mitigate such gender-related challenges in the workplace. Additionally, structural changes to improve organisational justice were mentioned, e.g. by assessing and improving diversity and harassment policies, as well as the distribution of salaries (Jones et al., 2020).

1.6.3. Organisational climate

Acting in a similar way to leadership, an organisation's culture or climate is an important influencer of employee behaviours, either by actively moulding or simply permitting a specific set of social norms to be cultivated (Nikolova et al., 2018). The organisational climate herewith contributes significantly to an organisation's effectiveness (Nielsen, 2012). Interestingly, Nikolova et al. (2018) found that the positive relationship between leader-employee interactions and contextual performance (i.e. extra-role behaviours) that are beneficial to the organisation was less strong when the job insecurity climate was high among employees at 14 different organisations in both the public

and private sector. In a study covering 40 countries across Asia, African and Latin America, wildlife rangers expressed concerns regarding job insecurity given the contractual nature of the job, which some rangers reported as a reason why they would not like their children to follow in their footsteps professionally (Singh et al., 2020). In another study, conservation professionals in Kenya and South Africa described the challenge of finding and keeping skilled and experienced conservation staff. This study highlighted that conservation professionals were drawn to the higher income and better benefits offered by the private sector, leaving only a small pool of candidates that were highly skilled who were willing to work for a relatively low income (Sanders et al., 2021). In addition to concerns regarding job security, ranger studies in Uganda and Democratic Republic of Congo highlighted that safety issues caused occupational stress and affected performance, with consequences varying from dangerous situations (e.g. increased risk of retaliation by communities or prison sentences) to ineffective law enforcement where rangers were not recognised and respected by superiors and other law enforcement services (Moreto, 2016; Spira et al., 2018).

Results of a meta-analysis study, focusing mainly on publications in the psychology and management disciplines, indicated that job characteristics, leadership, climate and organisational support are equally important as predictors of turnover (Rubenstein et al., 2018). Interestingly, they found that employees with low job satisfaction and commitment were more likely to quit their jobs when surrounded by peers who are mostly satisfied and committed to their jobs. Rubenstein et al. (2018) argued that this perceived attitudinal dissimilarity to others increased negative feelings and affected turnover. This dissimilarity may result in decreased feeling of relatedness or belonging to a social group, which, according the self-determination theory, relates to the motivational process (Deci

& Ryan, 1985). According to Balmford & Cowling (2006), conservation implementation is regularly impeded by professionals who work in isolation. They advocated for the involvement of a broad spectrum of stakeholders to assess the social and economic effects of proposed conservation plans (Balmford & Cowling, 2006). Multidisciplinary collaboration could serve as a key factor to ensure work quality, and may enhance the capacity of conservation workforce through social learning (Barber et al., 2014). Preskill et al. (2014) suggested to support the organisational learning capacity by strengthening feedback loops and improving access to information. A learning culture in which organisational leaders and managers are committed to the continuous development of all staff is vital to organisations focussed on innovation and growth (Psarras, 2006). Findings by Nikolova et al. (2016) indicated that a learning climate can promote the professional development of employees and result in the acquisition of new skills and knowledge. Leaders and other key staff should act as role models to influence the learning of others and create a climate of expectations that shapes and supports valued outcomes (e.g. increased skills, improved work performance) which, in turn, are measured and rewarded (Marsick & Watkins, 2003). Based on their study examining the psychological wellbeing of forest guards in Indian tiger reserves, Belhekar et al. (2020) recommended creating a learning climate to encourage capacity development of these guards by providing supervisory feedback, opportunities for growth and development (including inclusive decision-making opportunities), and rewarding outcomes by increasing opportunities for recognition and acknowledgement for one's work, which could increase guards' sense of social status and personal pride.

As the above studies illustrated, leadership, organisational policies and administration (including communication and perceived workplace fairness), and an organisational climate characterised by safety, security and favourable to learning are influential factors when considering developmental processes on an individual level (e.g. motivation, engagement, professional development and work performance).

1.7. Sector level

Although overlapping with the individual and organisational levels, factors related to capacity development that are especially relevant on a sector level are briefly discussed below.

1.7.1. Measuring capacity

Evaluating capacity building initiatives and approaches is seen as fundamental to measuring conservation success (Kapos et al., 2009; Rao et al., 2014). The US Agency for International Development (USAID) states that there is a lack of rigorous, controlled studies that demonstrate the connection between capacity building efforts and changes in service delivery, and that there are no common indicators to measure progress nor are there benchmarks to identify the critical minimum and aspirational standards of capacity building (Ford et al., 2010). Similar notions can be found within the education sector in terms of connecting professional development efforts to student outcomes (Yoon et al., 2007; Guskey & Yoon, 2009). In the conservation context, it is argued that clearly defined international standards for competencies may aid the capacity development process, as well as enhance professional mobility across sites and countries (Appleton, 2001; Appleton, 2015b; Appleton, Texon, & Uriarte, 2003; Dobbin, 1996; Stone, 1997). A global register and user guide on the

competency-framework for Protected Area practitioners was published by Appleton (2016) as part of a global IUCN World Commission on Protected Areas (WCPA) initiative, and more competency-framework (e.g. for species recovery) are underway (Loffeld, personal observation). Appleton furthermore highlighted the importance of other qualities relevant to the conservation workforce (Appleton, 2015a: 44): "Conservation success needs inspired, motivated, committed and courageous people, and those qualities cannot be described, codified or taught and learned as readily as skills and knowledge".

It can be argued that conservation organisations' capacity development strategies for their employees have not yet fully matured (Salafsky et al., 2002) and succession planning, career paths, and leadership development should be carefully considered at all levels (O'Connell et al., 2019). Although some conservation organisations are already adopting systematic approaches to capacity development, published works on this topic are rare. For this reason, sharing lessons learned on cost-efficient and effective methods is essential (Rao et al., 2014; O'Connell et al., 2019).

1.7.2. Capacity needs in conservation

Conservation work has strong roots in natural sciences, and it is increasingly recognised that knowledge derived from other disciplines, including social sciences, needs to be integrated in research and practice as threats to biodiversity span across the social, political, economic divide (Balmford & Cowling, 2006; Moon & Blackman, 2014). The abilities needed by the conservation

workforce are nevertheless context specific, and depend on the organisation's purpose, goals and objectives, and the country-specific situations the organisation is embedded in.

Previous studies identified capacity gaps among conservation professionals, including interpersonal skills and communication skills (Blickley et al., 2013; Parsons & MacPherson, 2016; Lucas et al., 2017; Elliott et al., 2018; Englefield et al., 2019), project-management skills (Blickley et al., 2013; Barlow et al., 2016; Lucas et al., 2017), interdisciplinary skills (Andrade et al., 2014; Parsons & MacPherson, 2016; Elliott et al., 2018), and strategic thinking or problem solving abilities (Lucas et al., 2017). Non-profit and governmental organisations, and the private industry appear to have different requirements for prospective conservation employees. Blickley et al. (2013) identified that skills in project management, programme leadership, interpersonal, networking, and oral communication were required more frequently in non-profit job advertisements than in private-sector ones. Non-profit and government jobs also favoured outreach communication skills more than private sector positions, which in turn emphasised technical and IT skills more than government job advertisements (Blickley et al., 2013). Differences in geographical location of work were also found; with language and interpersonal skills mentioned more in mid- to lower-income countries while technical, analytical and written communication skills appeared more in job advertisements for higher-income countries (Lucas et al., 2017).

Job skills are valued differently among conservation professionals in different parts of the world, e.g. people working in Europe appear to value project management skills less than Asian-based workers (Barlow et al., 2016). The provision of capacity development opportunities also

differed across regions, for example, no leadership development opportunities were identified in Oceania, Asia, South or Central America (Elliott et al., 2018). Many factors influence capacity needs as well as the intended outcomes of acquired skills, knowledge, abilities and other characteristics (KSAOs; also called 'competences'). Although skills certification in conservation is common (e.g. WIO-COMPAS by the Western Indian Ocean Marine Science Association, Conservation Coaches Network), standardising skill levels and knowledge remains less common (e.g. Barlow et al., 2016; Robinson et al., 2018) when compared to other disciplines such as the health care and law. This makes it challenging to assess the quality of capacity development initiatives and individuals' skill levels, which may impede conservation efforts and professionals' career progression (Barlow et al., 2016).

In conservation, there appears to be a disconnect between the education and training received and the competences needed to work in complex "real-life" situations (Andrade et al., 2014; Lucas et al., 2017). Capacity needs also change over time; for example, by contextual factors such as newly emerging technical challenges and changes in demographics, or changes internal to the organisation (e.g. restructuring). Moreover, capacity needs assessments of conservation professionals have been predominantly focussed on relevant skills and knowledge and little attention has been given to exploring the antecedents of their performance found in their work environment (Ojha & Gairola, 2014).

1.7.3. Resources

Traditionally, funders and donors have been more interested in financially supporting new ideas and programmes rather than investing in long-term capacity development (Kapos et al., 2008; Santy et al. 2020). Also within organisations, programme work may be valued over core work such as finances, strategic planning, and human resources, due to a sense of urgency that comes with the discipline. However, realisation has grown that to achieve desired environmental and social change to benefit biodiversity, strong organisations with a long-term presence are vital to continuously implement conservation action (Black & Copsey, 2018). Such conservation impacts mostly occur outside project time frames (Kapos et al., 2008), resulting in only short-term outputs being presented to funders. Short funding cycles and limited resources dedicated to evaluating conservation effectiveness (Kapos et al., 2008) could impede reporting conservation impacts and learning from successes and failures in the sector (Redford & Taber, 2000; O'Connell et al., 2019). Especially in some tropical countries, technical and financial resources are limited and shortages in human resources have been defining conservation practice in these regions (Rao & Ginsberg, 2010). Weak and corrupt governments lead to conditions where barriers arise to effective capacity development for biodiversity conservation, as well as creating dependence on multilateral and bilateral donations (Reid et al., 2002). Capacity development could furthermore be viewed as challenging, time-consuming, and expensive in the short run. Nevertheless, funders have the opportunity to put capacity development on the map, in a way expressed accurately by the McKinsey & Company: "Given the enormity and urgency of the issues that society faces, [non-profit] donors can legitimately demand that organisations undertake systematic capacity building efforts to increase their effectiveness, secure in the knowledge that investments in capacity bear long-term fruit in the form of higher social impact" (McKinsey &

Company, 2001: 30). The above quote highlights the opportunity of improving policies to support capacity development in conservation on a sector level.

1.8. Thesis outline

Multiple aspects were considered when a research approach was chosen, inclusing the research aims, the geographical scope of the research, prior knowledge on the research topic, ethics, and any constraints such as time and budget. Capacity development in conservation is a field of inquiry with limited empirical evidence, we therefore choose to use an inductive research strategy involving observational research to work towards an in-depth description and understanding of the research topic (Newing, 2011). Organisational characteristics, such as leadership, organisational climate, and policies and administration, are influential factors when considering capacity development processes (e.g. Nikolova et al., 2018; Slemp et al., 2018) and organisation's effectiveness (Nielsen, 2012). Equally, societal factors, such as socio-economic factors, legislation, cultural values, social norms and public attitudes, influence capacity development for conservation (Appleton, 2015a). A case study design would allow in-depth exploration of capacity development within a single or a few organisations or societies. However, with our focus on high biodiversity countries with limited information, human and financial resources, a cross-sectional design was selected to allow inferences about the characteristics of conservation professionals as a population and patterns of variation within this population (Newing, 2011).

From this literature review, we found that work performance, as a set of behaviours, largely depends on an individual's beliefs (e.g. attitudes, values and norms) and perception of their abilities whether they intend to perform a certain behaviour (Ajzen, 1985; Bandura, 2000; Salanova et al., 2011), in addition to their perceptions of factors in their work and work environment (Colquitt, 2001; Purcell et al., 2003; Grant & Sumanth, 2009; de Jonge et al., 2013; Schaufeli, 2015; Nikolova et al., 2018). Few studies have examined the perceptions of conservation professionals and even fewer have focused on their experiences regarding organisational characteristics in connection with their work performance. This PhD thesis therefore focuses on the individual level, i.e. data were collected from individual conservation professionals' perspectives on which processes are in place to support them in performing their jobs to the best of their abilities. The tangible availability of resources, and opportunities to perform a certain behaviour also influence whether the behaviour will occur. However, we aimed to explore capacity development in a variety of contexts, without having to limit ourselves to only a few case studies as is a common limitation when including organisations, therefore exploration of the organisation' perspective is beyond the scope of this research. Based on our research results, we nevertheless sought to make recommendations on how organisations can support their employees in optimising their performance; individual organisations may use these to crosscheck whether they have such support and processes already in place, or not.

As clarified in this literature review, employee effectiveness and work performance are influenced by many factors. Capacity development can play a role in enhancing conservation practice and professionalization across individual, organisational and sector levels; however, any strategy should take into account the complexity of the processes of motivation, work engagement, burnout,

and professional development and that these change in time and among individual employees. The aim of the proposed research was to generate evidence on each of these processes by means of primary data collection. Based on the preceding literature review, the following central research question was formulated to underpin this proposed PhD research:

Which role can capacity development play in optimising the work performance of conservation professionals?

The above question is increasingly important, particularly when considering the rising environmental pressures, the accumulating demands on conservation staff and the limited resources available in conservation. By exploring and answering the central research question, some of the identified gaps will be addressed and results will contribute to the bodies of literature on capacity development and conservation practice. This thesis consists of the following chapters.

Chapter 2: This chapter offers a provisional conceptual model of individual capacity development and how it pertains to work performance, including the constructs work motivation, work engagement, and professional development. Based on qualitative data analysis of the interview and focus group data we gathered, we evaluated this provisional conceptual model. This process resulted in a revised (second) conceptual model that informed the development of a global online survey to gather quantitative data, which is presented in Chapter 5.

Chapter 3: This work builds on the previous chapter by taking a closer look at professional development. Where, in chapter 2, we presented a definition of professional development and factors that influence this process, in Chapter 3 we again apply qualitative data analysis to identify key components of effective professional development. Based on these key components, we introduce a new framework to assess the effectiveness of professional development.

Chapter 4: Modern day, conservation professionals face cognitive and emotionally challenging work and their ability to positively adapt to such challenges, i.e. resilience, is imperative to help them thrive in their roles. Building on the qualitative data, we explored factors relating to positive and negative job events. This chapter identifies, for the first time, resilience strategies that are deemed salient to conservation professionals.

Chapter 5: By undertaking a global online survey and quantitative data analysis, i.e. structural equation modelling, this chapter examines the relationships between job characteristics on the one hand and multiple dimensions of work performance on the other hand, and the role of burnout and work engagement in these relationships.

Chapter 6: This chapter presents the main points of each chapter and how the insights and findings across chapters relate to each other. We also present recommendations based on the current research and highlight research avenues and gaps that warrant further investigation. Finally, this discussion chapter draws conclusions on the role of capacity development play in optimising the work performance of conservation professionals.

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Chapter 2 Exploring work performance and professional development in conservation

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2.1. Introduction

In the literature review, we identified multiple factors that influence work performance. We constructed a provisional conceptual model of individual capacity development and how it pertains to work performance based on some of the identified factors, including work motivation, work engagement, and professional development (Fig. 2-1). This provisional conceptual model is a synthesis of the literature on work performance rather than one based on a theoretical study and does not include an all-encompassing overview of the wide variety of factors that may influence work performance. Its function, however, is to serve as a starting point for the process of exploration, aimed at understanding and explaining work performance in the conservation context.

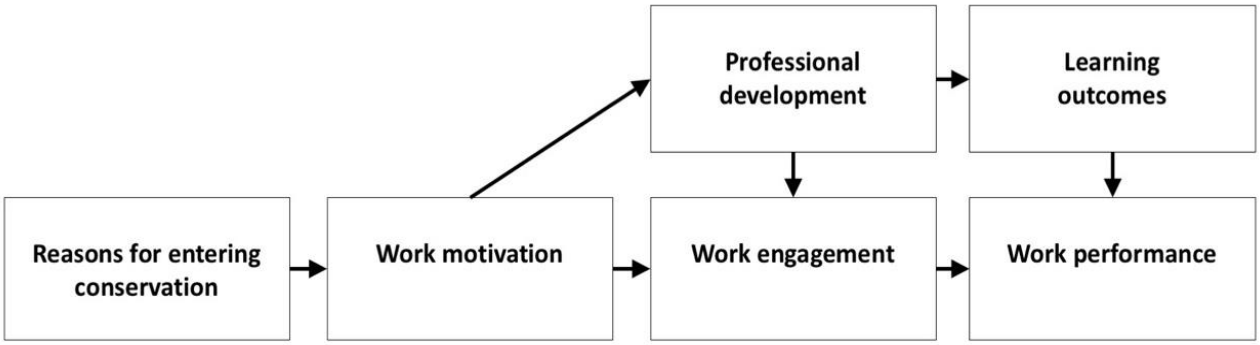

Figure 2-1. Provisional conceptual model from a synthesis of literature themes.

In this chapter, we describe a qualitative study comprising 22 interviews and two focus group discussions with conservation professionals, in order to gain an indication of the appropriateness of the provisional conceptual model, and to identify other factors that might be pertinent to work performance in the conservation sector. This qualitative study is not meant to test a theory, but rather to generate the basis for a theory, which can be tested empirically in the subsequent chapters (Chapter 3 through to Chapter 6). The research questions for this first exploratory phase of the research are:

1. Why do people start working in the conservation sector?
2. Which individual approaches do conservation professionals adopt to keep motivated at work?
3. Which factors influence the work performance of conservation professionals?
4. How do we define professional development within the conservation sector?
5. Which knowledge, skills, abilities and other characteristics (KSAOs) do conservation professionals need?
6. Which factors influence the professional development of conservation professionals?
7. When do conservation professionals consider professional development to be effective?
8. What are the main needs in professional development for conservation professionals?

2.2. Materials and methods

2.2.1. Participants and interview guide

In a field of inquiry with limited empirical evidence, it is preferable to explore the broad experiences of each individual rather than examining focusing on only a few experiences at a certain point in time of a representative sample (Hayley et al., 2017). Therefore, we used qualitative methods of data collection and analysis to answer the above research questions, which are particularly appropriate for building propositions on complex processes to guide future research (Berg et al., 2010; Newing et al., 2011). We chose convenience sampling (Newing, 2011) and participants were recruited from three

sources: i) the University of Kent, UK, ii) attendees at an international conference of conservation professionals hosted by the University of Pune, India, 18-21 March 2017, and iii) through the authors' professional networks, with all three sources drawing people from a range of ages, job positions, and settings. All respondents had professional experience working in high-biodiversity countries where capacity and access to resources are limited, i.e. countries that are in Africa, Latin America and the developing parts of Asia. A final sample of twenty-two conservation professionals were interviewed by the first author (Table 2-1) and two Focus Group (FG) discussions were held with seven and eight participants, respectively (Table 2-2). Participation was based on the interviewees' interest to share and pass on their own experiences; there was no further incentive. The sample size was deemed adequate to identify meta-themes across different sites and reach saturation, i.e. when new information results in little to no change to the codebook (Hagaman & Wutich, 2017). Prior to the interview and/or focus group, respondents were informed by email of the research aims, assured anonymity and confidentiality, and that they were free to withdraw from the study at any time. The overall study was approved by the Research Ethics Advisory Group of the School of Anthropology and Conservation, University of Kent (Ref no 0401617). Data were collected between March and June 2017 at a location convenient to the interviewee, i.e. place of work or work activity, with no non-participants present, with the exception of one interview where the interviewee's colleague was present (but was not involved). Interviews lasted an average of 74 minutes (range = 30-130 minutes). Focus Group 1 and 2 lasted 130 and 180 minutes, respectively. Interviews and focus groups were semi-structured, meaning they were guided by a systematic list of points of discussion yet allowing some flexibility in exploring alternative explanations concerning our research topic with participants (Newing, 2011). Questions for both interviews and FGs were based on the research questions and tailored to the individual respondents (e.g. why did you start working in the conservation sector?).

2.2.2. Analysis

Interviews and focus group discussions were audio recorded, transcribed verbatim, and coded in NVivo 12 (QSR International Pty Ltd, 2018) by the first author using keywords underpinning positive and negative perceptions with conceptual links to identify patterns and themes. We followed Braun and Clarke's (2006) Thematic Analysis, integrating the inductive development of codes with an deductive approach (Bradley et al., 2007) to identify factors that were said to influence the constructs of work motivation, work performance and professional development. For the deductive approach, we used various start lists based on previous research identified in Chapter 1 (Introduction). Themes were identified, refined and/or expanded through the comparison of data to identify theoretical saturation (Hagaman & Wutich, 2017). During the process of transcription, participants were given pseudonyms to remain anonymous in accordance with the UK Data Protection Act 1998, and we will refer to them using these pseudonyms throughout this thesis.

2.3. Results

2.3.1. Participant characteristics

Demographic characteristics of interviewees are summarised in Table 2-1. Half of the sample were professionals in conservation roles at the time of the interview (n = 11). University-based participants included two Senior Lecturers, two Lecturers, one Post-Doctoral Researcher, one Doctoral (PhD) student and five Master of Science (MSc) students (Table 2-1). All interviewees had recent experience of professionally paid work in conservation (X= 8.5 years; SD= 5.47) within the 6 months prior to the interview.

Table 2-1 Demographic characteristics of twenty-two interviewees, across twelve different nationalities, participating in semi-structured interviews in 2017.

Characteristics	Total Sample (n = 22)	Female Professionals (n = 12)	Male Professionals (n = 10)
Demographics			
Average professional experience in years (±1SD)	17.5 (±9.8)	16.1 (±10.1)	19.1 (±9.8)
Average age in years*(±1SD)	41.3 (±9.9)	38.9 (±10.5)	43.3 (±9.5)
Country nationals**	12	7	5
Non nationals	10	5	5
Employer			
University	5	1	4
Students	6	4	2
Non-Governmental Organisation (NGO)	4	3	1
Government	1	0	1
Charitable organisation or trust	2	2	0
Non-Profit corporation	2	2	0
Not-for profit company	2	0	2

*Average age based on 8 female and 10 male professionals (n = 18), ** Country nationals here refer to those interviewees who are nationals of countries with high biodiversity and limited access to informational, financial and human resources.

The demographics of the Focus Group (FG) are somewhat different from the interviewees' demographic characteristics since 14 out of 15 participants were students (9 MSc and 5 PhD students). A difference can also be seen in the average in professional experience, which is lower than in the interviewees. Ten out of fifteen (67%) participants had worked professionally within the six months prior to participating in the FG and the remaining five participants had worked within three (n=2), five (n=1) or eight (n=1) years previous to the FG.

Both FGs were held before the interviews, and we subsequently invited six of the FG participants to participate in individual semi-structured interviews. For this reason, the

demographics in Table 2-2 (FG participants) shows overlap with the demographics in Table 2-1 for these six FG participants/interviewees. This qualitative study counted a total of 31 unique respondents across 14 different nationalities. Respondents' nationalities comprised 11 biodiversity-rich countries with limited access to financial, informational and human resources, i.e. Bangladesh, Brazil, Ecuador, India, Indonesia, Mozambique, Nepal, Seychelles, South Africa, Uganda, and Yemen, in addition to other countries, namely Singapore, UK and US. Respondents from the latter three countries drew on professional experiences when working in biodiversity-rich countries with limited resources, including but not limited to Costa Rica, Guyana, Liberia, Madagascar, Malaysia, Micronesia, Mexico, Peru, Polynesia, and Tanzania, and are therefore referred to as 'non-nationals'.

Table 2-2 Demographic characteristics of focus group participants consisting of fifteen conservation professionals, across ten different nationalities. The two focus group discussions were held between March - June 2017.

Characteristics	Total Sample (n = 15)	Female Professionals (n = 7)	Male Professionals (n = 8)
Demographics			
Average professional experience in years (±1SD)	9.6 (±6.5)	6.4 (±5.0)	12.4 (±7.3)
Average age in years(±1SD)	34.6 (±6.4)	32.3 (±5.9)	36.6 (±6.5)
Country nationals*	12	6	6
Non nationals	3	1	2
Employer			
Self-employed	1	0	1
Students	14	7	7

*Country nationals here refer to those interviewees who are nationals of countries with high biodiversity and limited access to informational, financial and human resources.

2.3.2. Important findings

Here we provide an overview of the important findings that inform the review of the provisional conceptual model.

1. With regards to the first research question (Why do people start working in conservation?) and the second (How do they keep motivated at work?), the following considerations emerged from the data that are essential to the evaluation of the provisional conceptual model.
    a. Our interviewees' reasons for starting to work in conservation were linked to their personal values. It therefore fell under the category "individual differences". This in contrast with work motivation, which was also influenced by the workplace context, i.e. job characteristics, in addition to a professional's individual differences.
    b. The reasons to start working in conservation, i.e. drive, can be a factor, though not the only factor, that influences work motivation. Other factors, derived from the qualitative data, included job design factors, e.g. autonomy, variety, feedback, and factors on the interface between job characteristics and individual characteristics, such as perceived meaningfulness and sense of competence and relatedness.
    c. While reasons for starting working in conservation are fixed at a point in time, work motivation can be seen as a psychological state that fluctuates through time and one's career.
    d. Reconnecting with the reason why one started working in conservation emerged from the data as a behaviour strategy to improve work motivation.

With regard to the other research questions, the following issues emerged from the data as crucial for answering these questions.

2. Work performance
    a. Upon analysis of the different factors influencing work performance, again, the two themes of job characteristics and individual differences emerged.
    b. Job characteristics could be divided into what is demanded of a professional in their job, i.e. job demands, and the resources at work that can be used to deal with these job demands, i.e. job resources, such as decision-making power or social support.

3. Professional development
    a. Professional development crosses the divide between job characteristics, individual differences and work behaviours and work outcomes and can be seen as a continuous process
    b. Professional development should not be defined on the basis of employment with one specific employer. We may consider it as a learning process that spans across one's entire career.
    c. The knowledge, skills, abilities and other characteristics (KSAOs) that conservation professionals require in their work, appeared as part of the individual characteristics, and the needs depended on the interaction between job demands and individual characteristics.

4. Across the above research topics, two additional themes emerged from the data, i.e. family and unfairness.

In order to reach further data reduction, the data of the 31 unique respondents were summarised in separate tables (Miles et al., 2013) for the topics mentioned above. The tables represent one statement per respondent, on the basis of available statements from the individuals on the topics, and are discussed in the next sections. The tables on the factors that influence work motivation (Table 2-3), work performance (Table 2-4) and professional development (Table 2-6) are mostly based on general information concerning job characteristics, individual differences, and work outcomes. The tables on the elements of professional development (Table 2-5) and thematic categorisation of the

unexpectedly emerging themes of family and unfairness (Tables 2-7 and 2-8, respectively) are based upon converging individual statements from respondents.

Qualitative data related to professional development effectiveness are presented separately, in Chapter 3, where we introduce a new framework derived from the education sector to aid the deductive development of codes. Chapter 4 on resilience building in conservation work includes more elaborate versions of Table 2-3, based upon a secondary analysis of the interviews regarding their resilience strategies at work. In chapter 5, we test the factors identified in the current chapter and their relevance to the work performance of conservation professionals by means of a quantitative study.

2.3.3. Reasons for entering conservation and work motivation

The reasons why our interviewees started working in conservation, here referred to as 'drive', appeared to be based on their personal values. The first thing to emerge from the interviews was that the concept of drive is more complex than had been expected. Grounded in personal values, a professional's drive may influence work motivation, although not exclusively. It appears from our data analysis, which is in line with previous studies, that identified contextual factors also influence motivation (e.g. Herzberg, 1968). It is therefore useful to look at both drive and motivation in more depth.

Our results indicate that respondents connected various factors to the development of their values, pertaining to certain experiences and exposure. Environment-related experiences during one's education were said to have shaped a person's drive, as well as past job experiences. Personal contacts played a role here, in that some respondents had the opportunity to gain a first conservation-related (work) experience via friends, family or school contacts. Such experiences often triggered strong positive emotions, e.g. a sense of belonging and/or calling, or strong negative emotions, e.g. a sense of inequality and/or injustice, as well as a combination of the two. A feeling of inequality in this context related to (socially perceived) minorities, for example one respondent stated that their drive was to strive for gender equality in the conservation workforce in a certain geographical region. A sense of injustice was often mentioned in reference to wildlife crime and natural resource exploitation.

Findings demonstrate that exposure to environmentally-aware role models during childhood and young adulthood, such as parents and celebrities on television, could also inspire the development of personal values that informed someone's drive. Social norms, e.g. through culture and/or religion, influenced these personal values as well, and were said to instil a sense of responsibility to help others and achieve positive social impact on those around you. For example, one respondent named Christopher (pseudonym) shared such a cultural norm: "We were told from a very young age that we need to conserve our natural beauty because the tourist industry depends on it".

The first Focus Group discussion (FG1), illustrated contrasting experiences on the topic of reasons why people start working in the conservation sector. There seem to be geographical and

temporal differences. In some countries, conservation work appeared to be highly valued in society because of the high salary, in comparison to other available jobs. Salary levels were often linked to international funding and were said to fluctuate in time: "[conservation] used to be one of these high status jobs, …but the government started regulating this process to ensure that the money coming from the international community was actually going to do something good instead of just paying salaries. Now the salaries are lower and there are less people interested in working in conservation" (Christina, FG1).

In the second Focus Group (FG2), the discussions on people's reasons for starting to work in conservation took a direction of evaluating the definition of what constitutes a conservation professional. Examples given were the Maasai in Kenya and Tanzania and Tibetan monks, whose activities may contribute to contemporary conservation goals, yet are rooted in their culture and/or religion as a way of life. More importantly, these peoples may not identify with the term conservationist, even if they would receive monetary rewards for their conservation undertakings. Similar to FG1, in this Focus Group, it was concluded that working in conservation for the reason of making a living (livelihood) and/or life style, should be included as a possible drive.

Interviewee Joan shared that it important to reflect on one's personal values and reasons for entering the conservation profession and to be mindful that these values and reasons may vary per person: "I remind myself of that all the time, that our vision of intrinsic value or stewardship at the expense of practical use is not universally shared and it shouldn't necessarily be universally shared. So I think people engage in conservation for all kind of reasons." (Joan).

Based on our respondents' reasons for entering the conservation sector, these reasons could be categorised into three types corresponding to one's personal values: 1) conservation-orientation, e.g. pro-conservation change, animal focus, 2) prosocial-orientation, i.e. helping others, and 3) job characteristic-orientation, e.g. salary, travel, different than office jobs. We found that the extent to which someone's work would be congruent with their personal work values, could influence the level of experienced work motivation. We employed the antecedents of work motivation identified in Chapter 1 (Introduction, section 1.5.2.) as a framework and herewith found other factors influencing the work motivation of our respondents (see Table 2-3).

We additionally identified different behavioural strategies which our respondents adopted to maintain their motivation at work. A person's reconnection with the reason that they started working in conservation emerged from the data as a behavioural strategy to improve work motivation. These strategies will be discussed and explored in more depth in Chapter 4. In the next paragraph, we will explore factors that were said to influence work performance and categorise these in a way that allows us to build a research model which can then be tested by quantitative data collection.

Table 2-3 Examples of participants' predictors of work motivation, using a framework of known antecedents of work motivation from the literature review in chapter 1. Each line represents a different respondent, though not all respondents are represented. It has to be noted that most respondents expressed multiple predictors.

Predictors of work motivation	Exemplary quote:
(1) Competence/ Mastery, i.e. the ability to proficiently interact with the work environment (Deci & Ryan, 1985)	"You should have a goal in your life, [..] short or long term and it could change, but yeah it's a good practice you know, to keep you motivated." (Patricia)
(2) Relatedness, i.e. the feelings of closeness and belonging to a social group (Deci & Ryan, 1985)	"No-one really of my family does anything in conservation[..], but then within my work space and within the networks that I have built through my work, those are the kind of people that talk about conservation and the challenges and the issues and also the good stories and I think that helps to keep me kind of motivated in what I do." (Katharine)
(3) Skill variety (Katz, 1964; Hackman & Oldham, 1976)	"If you are doing routine things every day, at some point you will get bored or uninterested. But when there are other activities going on, it diversifies your interests and your curiosity, so it gets you more motivated." (Christopher)
(4) Feedback and (5) recognition (Hackman & Oldham, 1976; Herzberg, 1968)	"The lead researchers saying that: "She is great. […] other researchers come and say: "I would like to meet Lisa, I would like her to go with us". Like wow, you see that! It's those little things that really change the way you motivate yourself." (Lisa)
(5) Interesting work (Hackman & Oldham, 1976; Ryan & Deci, 2000)	"When I track gorillas, already I get highly motivated, just being there with them, that's what it is all about" […] watching animal behaviour, you are relating to the gorillas or to the tourists […], that is very interesting." (Ruth)
(6) Meaningfulness/ perceived task significance (Hackman & Oldham, 1976)	"So thinking about new generations of people on the planet. I like to think about, well what do I want the planet to look like in 100 or 200 or 500 years' time? If humans are still here I want it to be utopia and I want it to be green […] And if I do anything towards that, that keeps me motivated." (George)

2.3.4. Factors influencing work performance in conservation

One of the research questions in this study is to investigate factors that are influencing the work performance of conservation professionals and determine which of these are most salient to the sector. In general, we found that the absence or presence of a certain factor could result in either a promoter of work performance or work strain. For example, Michelle described how the presence of career development opportunities, provided by her supervisor, motivated her to work harder in her job. On the other hand, George shared that the absence in perceived fairness in career development opportunities resulted in a loss of work motivation in his case.

In investigations such as these, where either the presence or absence of a certain factor influences work outcomes negatively or positively, it is useful to cluster job characteristics together as independent variables (Deci et al., 2017). Following Demerouti et al., (2001), we then categorised these job characteristics according to a) what is demanded in one's job, i.e. job demands, such as workload, and b) which 'resources' one is offered or already has to meet these demands, i.e. job resources, such as support from co-workers. We found that some resources could be classified as individual differences or personal resources, which is in line with Hobfoll's (1989) Conservation of Resources theory. For example, one personal resource is a person's proactive pursuit of job challenges with the aim to improve or grow professionally. Respondents shared several personal resources that they viewed as influencing work performance, e.g. optimism, resilience, and passion (Table 2-4). Personal resources in the work context refer to the wide array of knowledge, skills, characteristics and other abilities (KSAOs) that a conservation professional would need to be effective in their jobs, and include both technical (e.g. knowledge of survey methods) and non-technical (e.g. ability to

persevere in the face of adversity or resilience) KSAOs. As stated in paragraph 2.3.3, the reason why someone chooses the conservation profession can be based on personal values. Personal values can therefore also be categorised as personal resources.

Furthermore, respondents referred to psychological states when asked the question: "Which factors influences your work performance?". Examples could be grouped into negative psychological states, e.g. experiences of stress, frustration, and exhaustion, and positive psychological states, e.g. feeling professionally satisfied, motivated at work, energised, and inspired. Our findings illustrated that psychological states may explain why or how predictors influence the outcomes. Psychological states therefore may mediate (i.e. explain the mechanism for) the relationship between job characteristics (e.g. supervisory support, workload) and outcomes such as work performance behaviours and staff retention. For example, Melissa shared that: "I am doing what I consider quite meaningless stuff and whilst I don't expect to enjoy every minute of every day, I get quite disheartened if I feel that I am not making a difference. [..] I intend to leave [employer] quite soon, look for something else, something where it has got a bit more meaning to, more that I can feel that I am having some impact" (Melissa).

When analysing Melissa's example, we found that she experienced insufficient meaning or task significance in her job (job characteristic), leading her to feel disheartened (psychological state), followed by her intention to leave her employer (outcome). This example from Melissa illustrates the relationship between predictors and work outcomes, as mediated by psychological states. Respondents described that personal resources could influence the strength of the relationships

between the job characteristics and psychological state and therefore may be seen as moderators in these cases (i.e. explain the strength and direction of the relationship). For example, Terry shared he experienced a depression after he invested years in a conservation project which then failed. He recovered from this hardship by reconnecting with his reason for entering the conservation profession, i.e. his passion to facilitate pro-conservation change, by connecting with inspiring individuals that sparked that passion and his optimism (personal resources). His positive thinking was connected to freeing up new energy: "Looking at other people's positive work and positive stories, sort of re-energised me and made me feel happy [again]" (Terry).

Table 2-4. An overview of factors influencing work performance and other outcomes.

Job Characteristics (independent variables)		**Proposed moderators**	**Proposed mediators**	**Dependent variables**
Job demands	**Job resources**	**Personal resources**	**Psychological states[1]**	**Behaviour/ outcomes**
*Quantitative workload (e.g. time pressure) *Cognitive demands (e.g. task complexity) *Emotional demands (e.g. unrealistic expectations) *Physical demands (incl. physical safety issues) *Role conflict *Restructuring *Job insecurity *Responsibility *Required mobility *Red tape (e.g. bureaucratic stressors) *Interpersonal conflict (e.g. gender issues) *Office politics	***Structural*** *Job challenge *Work role clarity *Feedback *Task variety *Autonomy (e.g. freedom to determine work method) *Perceived meaningfulness of work *Availability of resources (e.g. tools, information) ***Cultural*** *Fair pay *Organisational justice (e.g. fair rules) *Opportunities for learning and development (incl. supervisory coaching) *Communication *Participation in decision making *Goal clarity *Leadership *Organisational culture ***Relational*** *Recognition and appreciation *Informational support from others (e.g. colleagues, supervisor) *Social support from others (e.g. colleagues, supervisor) *Support from stakeholders (e.g. partners and communities) *Perceived organisational support *Career possibilities offered by supervisor (advancement) *Off-work recovery *Family support	*Cognitive abilities (e.g. conservation knowledge & skills) *Confidence *Readiness for change *Perspective taking *Open-mindedness *Passion *Optimism *Resilience *Resourcefulness *Flexibility/ adaptability *Creativity *Proactivity *Personal values *Motivation to learn *Career commitment	*Motivation *Vigour (i.e. energy) *Dedication *Professional accomplishment *Cynicism *Exhaustion *Burnout *Boredom *Depression *Feeling of isolation *Psychological trauma *Physical trauma	*Work Performance *Perceived work success *Work-life balance *Career awareness *Organisational commitment *Intention to quit *Job Satisfaction *Competence (proficiency in certain KSAOs) *Organisational development *Organisational memory loss

[1] Psychological states can also be seen as dependent variable, depending on the research question.

2.3.5. Identifying causality patterns

By identifying all the constructs (i.e. job characteristics, personal resources, psychological states and general outcomes) in the following example, we can see that they interact and do not follow a unidirectional causality pattern, as we had initially assumed in the provisional conceptual model: "I think that your passion for what you do drives you to perform better. You are willing to work harder and longer hours but you can also then get to a point where you start burning out and then it kind of just reverses and you don't perform as well as you did. [….] The harder you work, the more people expect of you, and the more responsibility they give to you. I think within two years, I got to a point where I was kind of fed up. Not necessarily to leave conservation, but I was thinking I need to find another job" (Katharine).

Katharine's situation reflects the job demands of high workload and high level of responsibility. Katharine's passion acted as a personal resource that buffered against these job demands (i.e. not 'minding' the hard work and long hours). However, this was up to a point where she had depleted her energy sources and felt burned-out (i.e. a psychological state). On the outcome side, this situation resulted in Katharine's intention to leave. When discussing her situation in more detail during the interview, Katharine shared how she regained her energy and work motivation by activating job resources: she explained her situation to her supervisor and gained his support to limit her work hours. She additionally enhanced her off-work recovery by making time for physical exercise and for cultivating personal relationships with friends and family. Katharine: "That changed things slowly, where I actually started to look forward to getting to work again, knowing that I will be leaving between 5 and 6, going to the gym, getting exercise and I will be back in the morning to do what is left to do".

In summary, working conditions in the conservation profession are subjected to an interaction between job characteristics and individual characteristics (i.e. personal resources such as optimism), resulting in different work outcomes.

2.3.6. Professional development in conservation

Due to the semi-structured nature of the interviews and time restrictions, we discussed possible definitions for professional development (hereafter abbreviated to PD) in conservation with a total of thirteen out of 22 interviewees. By means of thematic analysis, we extracted references to four different elements, i.e. (1) what PD seemed to refer to according to these interviewees, (2) how PD occurs, (3) PD characteristics, and (4) the goals of PD (Table 4-5).

In general, we found that the acquisition of knowledge, skills, attitudes and behaviour in the work context was seen as professional learning. According to the respondents, professional learning could occur in two contexts: planned/structured and unplanned/unstructured and these two contexts were seen to be complimentary. However, for the definition of PD, two characteristics were identified: the learning is (1) active or purposeful and happening in a (2) gradual, step-by-step process. The PD definition therefore seemed to relate more to structured and planned activities and thus indicate a certain level of intent. The direction of intent could vary per PD goal, and generally could be split into short- and long-term goals, on an individual and organisational level.

Table 2-5. Four elements linked to the construct professional development based on semi-structured interviews with 13 conservation professionals.

No	PD Element	Description	Example quote
1.	*What*	Acquire knowledge, skills, attitudes and behaviour in the work context	"Essentially it is to equip the staff with the skills and the knowledge to perform their job and their job grade, that is professional development." (Raymond)
2.	*How*	Either formally (education) or informally or complimentary	"There are two kinds of professional development; there is the formal education in a way that you get the degrees or the certificates. And there is also the informal professional development. And all of it is just as important as each other. " (Ruth)
3.	*Characteristics*	Active learning/ development (purposeful/ intentionally)	"I think there's an active component to it. When I hear the term professional development […], there's been a decision to engage in a particular thing in order to make you better at your job" (Toby)
		Gradual, step-by-step process	"Professional development [is to] enhance […] working capacity. It should be a step-by-step process" (Dorothy)
4.	*Goals* Short-term goals	Improve competence, or improving "effectiveness in your field"	"I think professional development is to help me become better at what I do, and to become more efficient in what I do." (Katharine)
	Mid-term goals	Advancement in career	"A maturing of the person in the job or the institution they work in. It's about giving additional skills that allow that person to be more versatile, but also to sort of rise up the pyramid in terms of responsibility and authority, and capability of engaging outside of the institution with other institutions." (Charles)
	Longer-term goals – individual level	Adapts to change in professional and personal life while true to own values	"Professional development is about adapting to changes in life but somehow managing to keep that passion alive and working towards it." (Melissa)
	Longer term goals – organisation level	Enhancing work capacity on organisational level	"It's the readiness and the support for an organisation, to be able to function effectively. [One needs to] assess whether someone is being effective and then there might be areas that are weaker or that are stronger and then working to identify ways to strengthen those things." (Joan)

The above four elements (see Table 2-5) of professional development identified in this study, illustrate that when we explore PD as a topic, it can be seen as a continuous process that crosses the divide between job characteristics (e.g. formal/informal learning opportunities, organisational support), individual characteristics (e.g. readiness to change, adaptability), and outcomes (e.g. improved competence, career advancement, organisational development). Based on these data, it is also clear that professional development should not be defined on the basis of employment with one specific employer. We may therefore consider PD as a process that spans across one's entire career.

Upon asking the interviewees the question: "Which factors influence professional development?", results showed a similar trend to the factors influencing work performance (Table 2-4), in that these could be divided in (1) job characteristics and (2) personal resources, which were linked to different outcomes (3). Newly revealed factors (i.e. not mentioned to influence work performance) are highlighted in bold and will be discussed in the text below Table 2-6.

Table 2-6. Factors that influence professional development based on thematic analysis of interviews with 20 respondents.

Job Characteristics (independent variables		**Proposed moderators**	**General outcomes (dependent variables)**	
Job demands	**Job resources**	**Personal resources**	**Behaviour**	**Outcomes**
*Quantitative workload (e.g. time pressure) *Restructuring	*Structural* *Accessibility learning opportunities ***Provision of time and funds for PD** *Organisational justice *Perceived organisational support *Cultural* *Organisational culture *Leadership *Relational* *Social support from others (e.g. colleagues) *Career possibilities by supervisor (advancement) *Supervisory coaching *Role clarity *Family support	*Cognitive abilities (e.g. conservation knowledge & skills) *Readiness for change *Open-mindedness *Flexibility/ adaptability Proactivity ***Individual learning styles** *Motivation to learn *Professional commitment	***Participation in professional learning opportunities**	*Competence (proficiency in certain KSAOs) ***Career advancement** *Intention to quit *Organisational memory loss *Organisational development

2.3.7. Professional development specific factors

It is not uncommon for conservation work to be project-based with certain deadlines that professionals work towards. Our findings illustrated that both time and funding for professional development were generally considered to be absent or insufficient by this study's respondents. Experienced limitations in the provision of time and funding for PD by the programme or organisation was mentioned to be connected to a tension between individual PD goals and project goals, and therefore this limitation can be linked to the sector's funding cycles and structures. Both organisational support and policy support (sector level) for staff's professional development was considered vital to prompt positive outcomes, such as increased competence of individual staff and organisational development. Other reported contextual influences within the organisation were organisational size and diversity in the workforce. For example, larger organisations were thought to have better structures that facilitate PD, such as specialised human resources staff, and financial stability. High diversity in teams was believed to enhance knowledge exchange through social learning. External contextual influences that may contribute to professional development processes were related to economic, social and legal factors. The examples provided by respondents included poor quality schooling, low paying jobs, weak legal institutions and political instability in a region which could impede professional development processes. The above internal and external contextual factors are not included in Table 2-6, but will be taken into account when developing further PD-specific conceptual models in Chapter 3.

At an individual level, two interviewees expressed a preference for a particular learning style, i.e. learning through observing professional role models and observing colleagues, and was therefore

categorised as a factor under 'personal resources'. Both job characteristics (e.g. organisational support and learning opportunities) and individual characteristics (e.g. individual learning styles, motivation to learn) appear to influence behaviour outcomes which, in the context of PD, was identified as participation in professional learning opportunities (Table 2-6).

When considering individual career advancement as an outcome, respondents highlighted the importance of the attitude of the direct supervisor. An attitude of care among organisational leaders was regarded to encourage one's exploration of desired career paths, even if that would mean for the professional to leave the organisation/programme. The role of leadership in effective professional development will be explored in more depth in Chapter 3.

2.3.8. Sector-wide needs and strains

The factors influencing work performance and professional development show significant overlap. The most prominent overlapping factors were related to family and perceived unfairness and will be discussed in this section.

2.3.8.1. The meaning of family to conservation professionals

Data on the overarching theme 'family' were grouped according to sub-themes and are displayed with corresponding exemplary quotes in Table 2-7.

Family support and social norms: In the first Focus Group discussion (FG), two female participants mentioned that they did not meet their family's expectations by choosing the conservation profession. In a similar vein, two female participants in the second FG mentioned that the idea of women working in the forest was not socially accepted in their geographical area, because of the family's expectations of marriage and one starting a family. Paul reflected on these challenges in his interview: "In [country], there are still many areas that have cultural issues. [A lot] of the time, girls are not able to come [work in conservation], because their families do not support [it]". One of the male interviewees expressed a challenge akin to the above, when stating that he went against family expectations when entering conservation work. Interestingly, these six respondents share similar experiences that happened across different regions of South America, Asia, and Africa. Interviewee Linda shared her perspective as a provider of funding for professional development to conservation professionals. When asking their grantees about barriers to being more effective in conservation, she discovered that: "One is family support, which I think is something we forget about

but it is really important". Family support was also considered important in realising the investment needed to build the right employee profile and get a job in conservation. In her interview, Michelle explained: "In [country], you need to go to a second school to learn English, you need to invest. Your family needs to value that English is important". Family could furthermore play a role in providing the network to gain relevant conservation-related experiences.

Table 2-7: The overarching theme family; a thematic categorisation of the data.

No	Theme/Variable	Illustrative quote
1	Family support and social norms **(Job resources)**	"When someone decides to enter [the conservation profession] it is really personal because it isn't for salary. And I had to go through this [reaction from family]: 'Why don't you go and get another profession that [you] maybe are going to get more money out of?'." (Michelle, FG1)
2	Proximity to family/Personal values **(Personal resources)**	"My life has changed. I don't want to be living all over the world anymore. I want to be home with my husband." (Grace)
3	The opportunity to start your own family **(Job demands)**	"Personally you get affected because you are put into a situation where, if you want to start a family, it's kind of hard because your job specification does not allow you to have your wife and kids where you are working [referring to an island]." (Christopher, FG2)
4	Organisational support **(Job resources)**	"The HR is actually getting much more progressive. It has to be, because these are different times […] We have got very good people, and we want to retain [them]. Sometimes a motivation is also being able to say "yes, that you can take a one-year break, and we'll employ you back". [..] The practices are getting a bit more family friendly." (Raymond)
5	Sense of relatedness **(Psychological state)**	"At [name organisation] we are also very open, I call them like my second family." (Patricia)

Proximity to family: Multiple respondents reported to make the decision to move closer to home, after working far away from their family and friends. "From my experience, living in the bush on your own for three years, is quite emotionally stressing sometimes, where you don't have your friends or your family […]. And definitely to maintain relationships is next to impossible […] That was one of my reasons for leaving" (Joshua, FG2). Others, while acknowledging the challenge of spending time away from family, shared: "Even though it was tough for me in the beginning, mostly because of not being there with my family […], I was in the field all the time, [..] in keeping going, your children appreciate what you are doing" (Kevin, FG1). This quote indicates that adhering to personal values of working in conservation can justify the means of not being close to family for some professionals.

The opportunity to start a family and organisational support: Where one FG participant expressed to feel limited by his employer in starting a family, (Christopher, Table 2-7), an interviewee expressed the personal choice to postpone having a family to be able to continue to conduct field work. In both cases, respondents indicated that the opportunity to start a family had to do with their working conditions. Organisational support to employees who would like to start families or already have families was indicated as important under this sub-theme and was illustrated by Raymond when referring to the HR policies in his organisation (Table 2-7).

Sense of relatedness: Two interviewees expressed that one way of maintaining their work motivation is to be around people that can relate to what they do professionally and support them, and that they did not find this connection in their families. Co-workers may fill this psychological

need of relatedness and even become "a second family" (Michelle, Table 2-7). This need fulfilment appeared to be particularly relevant to those professionals who reported to feel socially isolated due to working in remote conditions, cultural differences and/or being far away from their family and friends.

In summary, our respondents reported on working conditions that require high mobility and often include low salaries. Both these factors may result in a turnover of professionals, either in changing employers or changing sectors. Due to the turnover, respondents mentioned the challenge of keeping "a good set of people around you" (William), and fulfil the psychological need of relatedness. Moreover, a required high mobility increased the chance of being away from friends and family and low financial means to start a family of your own. Salary levels, and financial resources in general, also appeared under the second overarching theme 'unfairness' and will be discussed next.

2.3.8.2. The role of perceived fairness in the conservation profession

A second theme, namely perceived fairness, appeared in respondents' answers across the research questions. Descriptions of perceived fairness or unfairness could be grouped according to the previously identified job characteristics of sections 2.3.4 (work performance) and 2.3.5 (professional development) and an overview is given in Table 2-8.

Resources inadequacies: Interviewees reported living and working situations that, due to insufficient salary or funds to work with, led to energy and/or health impairment and decreased work

performance. Melissa: "I was supposed to been given enough money to have rented a room somewhere [..] I was in the little backroom in a house, which was airless, next to a smoky generator full of rats". Two others reported a discrepancy between salaries and the actual living costs in some areas: "They [conservation professionals] are in a place where their conservation organisation is, but is very expensive to live there and then they don't get paid a liveable wage. It just puts so much stress on them that in the end I think they just leave because they have skills that could be valued in another area" (Joan). Exemplified in the respondents' accounts above, it can be argued that the job characteristics of salary, financial work resources, and the organisational structures in place to divide salaries and such resources, could influence outcomes such as staff retention, organisational memory and development.

Performance appraisal procedures and feedback: When staff attrition happened during the course of a project, these gaps in capacity would not always be filled. Katharine shared how, in a small project team, two people left in the last half of a multiple-year project. No new staff were hired, meaning that their roles were absorbed by the remaining team members. Next to the risk of impeding the off-work recovery of the team by increasing their workload, this may negatively impact work performance as Katharine illustrated : "The work never becomes less; every month, our workload was more [..] Because we are such a small team, you start doing stuff that is not part of the scope of your work [..] Some of my work then became neglected because I was taking on other activities". Referring to her bosses, Katharine shared her perception of unfairness in this context: "When they do your job performance evaluation with you, they do recognise that there is other work that you are

doing as well but when it comes down to the paper work it is about how well you performed on your scope of work".

More respondents referred to an organisational culture where staff would fulfil more than one role. This extra-role work performance, i.e. the time spent on additional roles beyond your 'official' scope of work, seems to be expected of staff yet not formally acknowledged by supervisors or management in their appraisals and may cause a feeling of unfairness. Furthermore, one interviewee added caution to integrating this expectation into a team's culture and assuming that an employee has the skills necessary for the extra roles, which could negatively impact the performance outcome on these extra roles. Terry described how a learning culture is of essence here and a clear professional development path within the organisation to allow for employees to become skilled in other areas or roles, based on a combination of their individual strengths and the organisation's needs and goals. Another point raised was related to the credibility and trustworthiness of the person in charge of performance appraisals (Table 2-8).

Table 2-8: The overarching theme unfairness; a thematic categorisation of the data.

No	Job characteristics mentioned to be related to perceived unfairness	Description	Illustrative quote
1	Division of monetary and non-monetary resources (incl. salary)	Living and working situations that, due to insufficient salary or funds to work with, led to energy and/or health impairment and decreased work performance	"[Living in the office] I was barely able to pay the electricity bill of the office and constantly harangued by the head office about keeping costs down."(Grace)
2	Performance appraisal procedures and feedback	Ill-defined work responsibilities and scope feed into poor quality performance appraisals that are largely unstructured and prone to bias due to a top-down approach	"The supervisor will give feedback on your performance like in a monthly report. This can be biased; it all depends on if your supervisor likes you. If he doesn't like you, even if you work well, you don't get a satisfactory [assessment]." (Christopher)
3	Job opportunities	Exclusion of socially perceived subordinate groups (incl. women) in the provision of job opportunities	"You're working with rural people, but members of those rural communities don't have the paper qualifications to get a job with your NGO. So even if there might be other things that are actually much more important, […] a good understanding of the social context. Those things are not on the job description." (Toby)
4	Professional development opportunities	Favouritism in professional development opportunities towards individuals with academic affiliations	"They did not give me the [PD] scholarship, because I am not in academia… They prioritise people in academia." (Lisa)

Job opportunities: The justification of having conservation degrees as job requirements in recruitment procedures was brought up in the FG2, with the group concluding that it may be used as a way to reduce high numbers of candidates yet may lead to the exclusion of valuable sources of capacity. This corresponded with interviewee Toby's point of view who explained that after working in the same country for 10 years, he observed that 95% of conservation NGO staff came from one dominant ethnicity in the capital city, because they had university degrees and foreign (i.e. English) language skills. The communities in the rural areas where these conservation NGOs implemented their projects were part of ethnic minorities who often did not have the qualifications to work as a conservation professional, herewith excluding them from job opportunities (Table 2-8). According to Toby, racial prejudices from the dominant ethnic group towards other ethnic minorities impeded relationship building and herewith conservation success in this context.

As can be seen from Table 2-8, interviewees also reported unfairness in terms professional development opportunities, which is further discussed in chapter 3.

2.5. Discussion

In this chapter, we presented the results of an exploratory study that explored work and professional development processes on an individual and organisational level, within the context of nature conservation. By means of an integrated approach of thematic analysis, we examined factors influencing work performance and professional development that have been described across sectors

(deductive approach) and factors that may be specific, yet not exclusive, to the conservation profession (inductive approach).

2.5.1. Motivation in conservation professionals

In our provisional conceptual model, motivation was thought to influence both work performance and professional development, which seems to align with the qualitative data from this exploratory study, as well as previous research (e.g. Brekelmans, Maassen, Poell, Weststrate, & Geurdes, 2016; Herzberg, 1968). When taking a closer look at which factors influenced motivation, we found that, among our respondents, these were related to job design such as skill variety, feedback and task significance, and the psychological needs fulfilment of feeling competent and connected to others or part of a social group, and herewith correspond to the Job Characteristics Model (Hackman & Oldham, 1976) and self-determination theory (Deci & Ryan, 1985). Antecedents of negative psychological states identified in this study (e.g. work stress, frustration, demotivation, burn-out and psychological trauma) were mainly related to the work context, such as the proximity to family and family support, off-work recovery, monetary (incl. salary) and non-monetary resources (e.g. information, human resources), leadership or management and perceived fairness. Thus, the results of this study indicate that negative psychological states are influenced by factors that are different from the factors that contributed to our respondents' motivation which corroborates Herzberg's (1959) Motivation – Hygiene Theory. Cross-sectoral research among 1,685 employees by Herzberg (1968) showed that factors that were associated with job dissatisfaction generally relate to the work context (e.g. relationships with supervisors, peers, salary, organisational policies), whereas feelings of job satisfaction were often linked to the job content (e.g. work success, responsibility,

advancement). The first set of factors were referred to as 'hygiene factors', the second as motivators: both categories are important to consider when the aim is to motivate people and engage them in work. Hygiene factors relate to basic needs such as the necessity to earn money to be able to eat and pay for accommodation. Intrinsic motivators are those factors fulfilling our need for achievement, psychological growth and self-actualisation (Maslow, 1954).

The other themes that emerged from our study, related to one's personal life (e.g. family) and perceived fairness, can be seen as hygiene factors; when perceived positive, these factors may not lead to job satisfaction or motivation, however when perceived negatively, they could lead to job dissatisfaction. Negative crossover effects from personal life to job satisfaction have been reported (Georgellis et al., 2012), as well as that job satisfaction can lead to higher satisfaction in personal life (Ilies et al., 2009), indicating that the work and personal life domains are interconnected. Moreover, off-work recovery (i.e. psychological detachment from work) appears to be an important factor to safeguard employee well-being and work engagement (Sonnentag et al., 2010). More research on work-life balance is required and should also explore the sense of relatedness in the context of conservation professionals. Some respondents explicitly mentioned that they went against social norms by choosing the conservation profession. One could suggest that those conservation professionals who did not conform to social norms or family expectations in their choice of profession, highly value a sense of relatedness in their work to replace the gap of relatedness in personal life. This may be important in particular for those professionals who live further away from friends and family or work in (socially) isolated circumstances. Results from this study suggest that perceived meaning in one's work is another salient factor with regards to motivation. Respondents described

to have experienced positive psychological states (e.g. joy, meaning, motivation) when their work matched their values. When personal values did not correspond to their work, for example when not receiving adequate freedom to enhance the perceived meaningfulness of their jobs, interviewees reported to become disheartened or even leave their jobs.

Certain leadership approaches may facilitate (intrinsic) motivation among employees. Research by Zhang and Bartol (2010) illustrated that, when leaders minimise the 'red tape' for their team, express confidence in their high performance, provide them with decision-making power and make team members feel part of the 'bigger picture', this can trigger intrinsic work motivation and creative process engagement. This is however dependent on individual characteristics. For example, empowering leadership had a greater effect on employees with lower levels of KSAOs and experience for that particular job position, as opposed to employees with higher levels of job knowledge and expertise (Ahearne et al., 2005).

To summarise, our results highlight the need to look at both motivational processes and well-being at work, and explore their links with certain antecedents (i.e. job and individual characteristics) and outcomes (e.g. work performance, organisational commitment, work-life balance) in more depth.

2.5.2. Building capacity for conservation

Individual work performance is key to reaching organisational goals. Generally, the conservation professionals' work performance in the current study seems to be influenced by job characteristics and individual characteristics that are described across many different work sectors (Herzberg, 1968). With regards to job demands, it is important to distinguish between quantitative job demands, that are related to the pace and amount of work requested, and qualitative job demands (van Veldhoven, 2013). The latter relate to the cognitive, emotional or physical effort needed to perform certain tasks. In a recent review of capacity needs in conservation, Elliot et al. (2018) highlighted the cognitive demands placed upon modern conservation professionals. The conservation of global biological diversity is characterised by complex challenges that require transdisciplinary interventions across social-ecological systems (Elliott et al., 2018). Professionals are required to have an understanding of biodiversity threats that range from a local scale (e.g. illegal behaviour influenced by local cultural practices) to a global scale (e.g. illegal wildlife trafficking in response to global demand).

Next to their complexity, conservation issues are time-urgent: professionals are commissioned to find effective and long-lasting solutions within a limited time-frame that are often prescribed by the length of funding cycles. There appears to be a discrepancy between project goals and the duration of funding, in that longer-term goals, such as behaviour change in local practices, are meant to be achieved within an average of 1-3 years of funding (Kapos et al., 2008; Santy et al., 2020). A combination of limited funding for conservation work with the time-urgency may result in a general shortage in capacity. Previous calls have gone out to address this gap in conservation capacity and to

evaluate the effectiveness of current capacity development strategies in the sector (Bonine et al., 2003; Rodríguez et al., 2006; Rao et al., 2014; O'Connell et al., 2019).

2.5.3. Professional development: an interplay between individuals and organisations

Learning is a nonlinear process, happening naturally and learning outcomes are not necessarily positive for the individual who undergoes the learning process nor for their environment (e.g. organisation). For example, an employee may challenge a decision which is met with hostility by the team leader. Such interaction may result in an adaptive behaviour whereby the employee no longer provides feedback to this leader which, in turn, may limit critical thinking on a team level (van Woerkom, 2003). It is therefore worth exploring in which context professional development can contribute towards positive outcomes, e.g. increased work motivation, improved well-being at work, and improved work performance, while being mindful that it involves a dynamic interaction between the individual and the organisation (van Woerkom, 2003). Furthermore, in our study we found that the meaning of professional development to our respondents could not be defined on the basis of employment with one specific employer. Thus, we concluded that professional development can be considered a process that spans across a professional's entire career.

Upon exploration of the factors influencing professional development, we found a number of factors that have been recognised in previous research in the education and health care sectors, i.e. time and funding for professional development (Evers et al., 2016), learning styles (Jacobson et al., 2006; Mathieson, 2015) and participation in professional learning opportunities (Brekelmans et al.,

2013, 2016). There appears to be a difference between work-related learning, which is more directed by the individual, and the facilitation of learning processes organised by external actors, i.e. 'formal learning'. Work-related learning can be viewed as a continuous learning process that is interwoven in the daily work and based on the interaction between the individual and the situation (van Woerkom, 2003). In contrast, formal learning is often seen as separate of daily work processes and usually comprises time away from core job tasks by participating in, for example, training outside the organisation. According to our respondents, these two types of learning were seen as complimentary, yet they defined professional development as having a certain level of intent or purpose. Professional development scholar Thomas Guskey (2000) suggested that employees should develop professionally as a result of intentional, ongoing and systemic learning processes. Additionally, our results illustrated that the intent (or goals) of professional development as described by the organisation may not necessarily match the goals of an individual employee, nor do the goals of both these parties equal donor agendas. It would therefore be useful to explore key indicators of effective professional development; with which we will further address in the next chapter (Chapter 3).

Lastly, our study results indicate that there is an ethical discussion around the importance of individual learning goals versus organisational and sectoral goals: what takes precedence? In her early work, management scholar van Woerkom (2003) pointed out that placing learning in an economic context, for example by aiming to measure Return-On-Investment (ROI), may not be appropriate and therefore a sole focus on learning outputs would seem inappropriate. These ethical considerations expand when we include our results on the unexpected theme that arose in both interview sessions and focus group sessions, i.e. the feeling of unfairness regarding the division of

job and PD opportunities, and career advancement (including performance appraisal procedures and feedback). Employees perceptions of workplace fairness, also referred to as 'organisational justice, are known to influence desirable organisational outcomes, including job satisfaction, organisational commitment, and work performance (Colquitt et al., 2001), and is therefore an important factor to include in future explorations.

Finally, we come to our research question on professional development needs. The knowledge, skills, abilities and other characteristics (KSAOs) that conservation professionals require in their work (i.e. needs) depended on the interaction between job demands and individual characteristics. As we discussed in the text above, these needs would also differ depending on the intent or purpose, and whether this relates to individual, organisational or sectoral goals.

2.6. Conclusions

We started this study with the intent to understand work motivation, professional development (PD) and work performance and how these three constructs connect. For this purpose, we synthesised a provisional conceptual model, based on the idea that professional development would lead to improved work performance, and the assumption that both constructs would be influenced by work motivation. The aim of the interviews and focus group discussions was to explore what these constructs meant to conservation professionals based on their work experiences and to explore which factors were influencing this process to determine their salience in the conservation sector.

The interviews and FGs resulted in rich data that call for a revision of the provisional conceptual model. First, we saw that a professional's reasons for entering the conservation profession, based on one's personal values, interacts with psychological states such as work motivation and work engagement (i.e. vitality, absorption and dedication). For example, respondents who felt drawn to conservation work, using words such as passion or love, shared that they felt intrinsic joy, motivation and/or meaning when performing such work. Next to these individual differences, psychological states were furthermore influenced by job characteristics. Job characteristics could be divided into job demands, such as responsibility, and job resources, e.g. variety and feedback. In the second section of our results, we presented factors that were reported to influence the work performance of our respondents. When considering work performance as an outcome, our data indicated that psychological states may function as mediators in the indirect relationship between job characteristics and work performance. For example, when increased responsibility and workload (job demand) in combination with decreased off-work recovery (job resource) resulted in a burnout in one of our respondents, this situation negatively influenced their work performance by neglecting the responsibilities described in their official job role. When starting this role, this respondent however described that their passion (i.e. a personal resource) buffered against the hard work and long hours. Thus, personal resources such as these appear to have a moderating effect on the relation between job characteristics and psychological states. An interplay between different job and individual characteristics was also found to influence one's participation in professional learning opportunities, resulting in various outcomes (e.g. acquisition of new KSAOs, improved competence and employability and career development).

Human behaviour is multi-faceted and involves interaction between personal characteristics and the environment, both of which change through time. We conclude that the interactions between job characteristics, individual differences and psychological states are more complex than assumed in our provisional conceptual model. We therefore propose a second conceptual model, displayed in Figure 2-2, that represents a better fit with our data.

Looking back at the provisional conceptual model we adopted at the start of the study, we see a one-directional overview. However, the qualitative data in this chapter made clear that interactions happen between the different constructs that are included in this conceptual model. This model therefore does not represent causality. For example, from the interview data we infer that perceived work success, based on work performance outcomes, can enhance work motivation. These interactions therefore need further exploration.

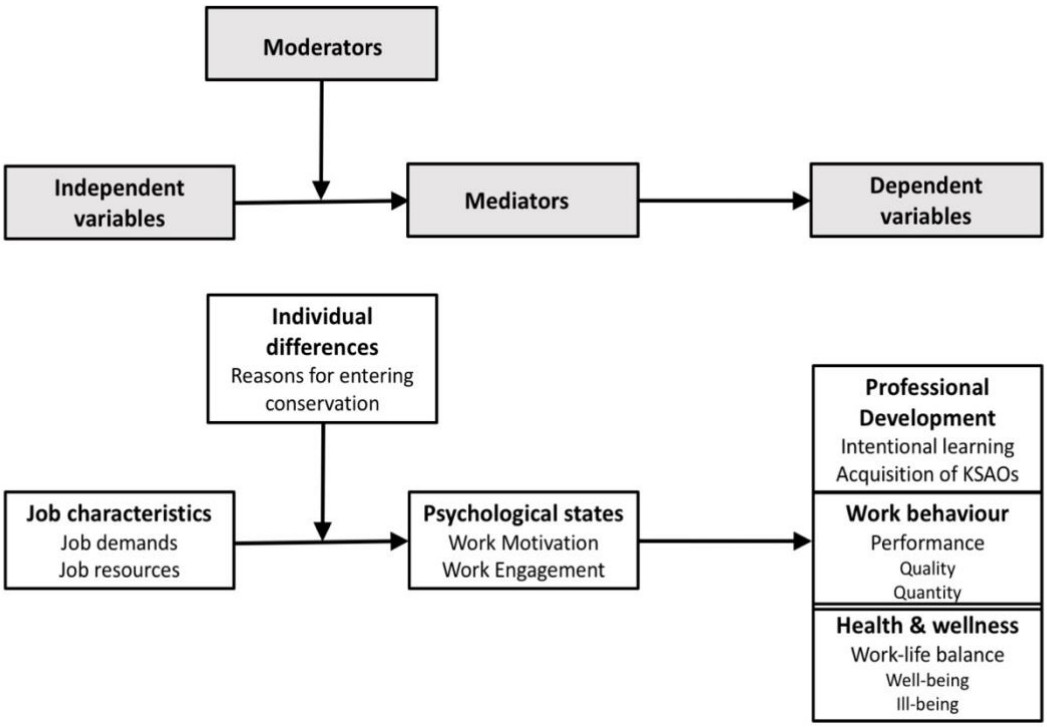

Figure 2-2: Second conceptual model (adapted from Deci, Olafsen, & Ryan, 2017: 23)

By adopting mixed-methods (FGs and interviews,) in this qualitative study, we tested the salience of different factors that influence conservation professionals in their work and professional development. By means of 22 semi-structured interviews and two Focus Group discussions, representing a total of 31 unique respondents with different backgrounds and countries of residence, we were able to reach theoretical saturation on the study concepts (i.e. no to little change to our thematic coding). This qualitative work has informed the development of the next stage of the investigation, namely quantitative data collection, i.e. the design of a global online survey (Chapter 5).

In the next chapters, we examined the interaction between working conditions (i.e. job demands and job resources), psychological states (e.g. engagement), and individual outcomes (e.g. work performance, learning outcomes) in more depth. In particular, we explored the topics of professional development effectiveness (Chapter 3), resilience strategies at work (Chapter 4) and burnout and work engagement in the conservation workspace (Chapter 5).

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Chapter 3 Professional Development in Conservation: An Effectiveness Framework

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Submitted to Oryx (under review)

LOFFELD, T.A.C., HUMLE, T., CHEYNE, S.M. & BLACK, S. (2020) Professional Development in Conservation: An Effectiveness Framework.

3.1. Abstract

Contemporary conservation professionals are part of a workforce that aims to overcome complex transdisciplinary challenges under great time pressure. The characteristics of conservation work, and in particular the evolving demands placed on the workforce, means that these professionals require capacity development opportunities to continually enhance their skills and abilities to remain effective in their work. Currently, there are no sector-wide guidelines to promote systematic professional learning that addresses both individual and organisational development. This study builds upon existing knowledge in other sectors by examining professional development in conservation through an in-depth qualitative thematic analysis of interviews with 22 conservation professionals, resulting in an effectiveness framework for professional development in the conservation sector. Findings indicate how individuals' motivation-to-learn, proactivity, and open-mindedness towards alternative information and views were considered preconditions for effective professional development. A balance between organisational goals and professional career ambitions was found essential to maintain this motivation-to-learn and vital for staff retention and preservation of institutional knowledge. Professional development plans may help distinguish between individual career aspirations and organisational objectives and aid a discussion between staff and management on how to balance the two. Leaders have the opportunity to barriers to effective professional development. Solutions to overcome specific barriers are discussed to promote an inclusive approach to diverse learners in terms of learning design, learning opportunities and resource-distribution for professional development. This effectiveness framework can be used by conservationists and conservation organizations to plan and decide on professional development.

Keywords: capacity, conservation workforce, human dimension, inclusion, leadership, learning, personal agency, professional development

3.2. Introduction

The Convention on Biological Diversity highlights the need for capacity development for conservation and is currently drafting the long-term strategic framework for capacity-building post-2020. One priority is to understand better how staff capacity inputs influence outcomes (e.g. positive management within organisations, social and ecological outcomes) to guide future policy (Bacon et al., 2019). To date, research aimed at filling this knowledge gap predominantly focused on protected areas, where some studies have identified staff capacity as a critical predictor of positive conservation impacts (e.g. Geldmann et al., 2018), while others have highlighted a disconnect between protected area management and mitigation of forest loss and pointed towards contextual influences (e.g. wider law enforcement, corruption, and land title issues) as the main predictors of conservation success (Schleicher et al., 2019).

Capacity, whether referring to the individual or organisation, fluctuates and is subjected to contextual influences. It is therefore useful to link the concept of capacity-building to time, i.e. capacity development. Capacity development is defined as the intentional process during which individuals, organisations or the wider society build, strengthen and maintain capacity over time (Simister and Smith, 2010). Capacity development can be seen as an umbrella term that includes organisational development and individual capacity development (Lusthaus et al., 1999). While

acknowledging that capacity development may concern many different participants and capacity is more than just an employees' knowledge and skills (Müller et al., 2015), our study focused on individual capacity development, in particular the professional development of conservation professionals. This research does not include pre-professional education which is largely outside the influence of conservation organisations. Building upon work in the education sector (Campbell et al., 2017), we used the term professional development to denote the active process of growth and development an individual undertakes in their professional life, that spans across their entire career, and includes a wide range of approaches and activities that are involved in professionals' development, as well as the context and resources to support this process. It is important to distinguish between professional development and professional learning. Professional learning refers to the outcomes of the process, such as what is learned, how well it is applied in the workplace and herewith indicates a consistent change in behaviour, whereas professional development is referring to the process that prompts such changes (Killion, 2013).

Systematic reviews of professional development outcomes in conservation remains absent. Attempts to link professional development directly to conservation impact may risk over-simplifying the situation, since there are many steps where contextual factors may influence this process. If we were to take the professional development of conservation staff as an input, we may find that it contributed to improved conservation impacts through improved work performance, yet conservation success may not be directly attributed to a single professional development initiative, due to contextual influences (Fig. 3-1.). Although within conservation the evidence of professional development outcomes and effectiveness is scarce, other sectors offer useful insights. Findings from

the international development sector indicate that the further away from the professional development intervention (e.g. organisational, beneficiary and/or biodiversity level) you measure impact or change, the more challenging it is to attribute the change to that intervention (James, 2009). The most immediate or 'first level' of measuring change is assessing the quality of the staff development intervention (short-term outcomes), followed by internal organisational changes (level 2: intermediate outcomes), external changes at beneficiary level (level 3: long-term outcomes) and external changes at biodiversity indicators (level 4: impact) (Figure 3-1.).

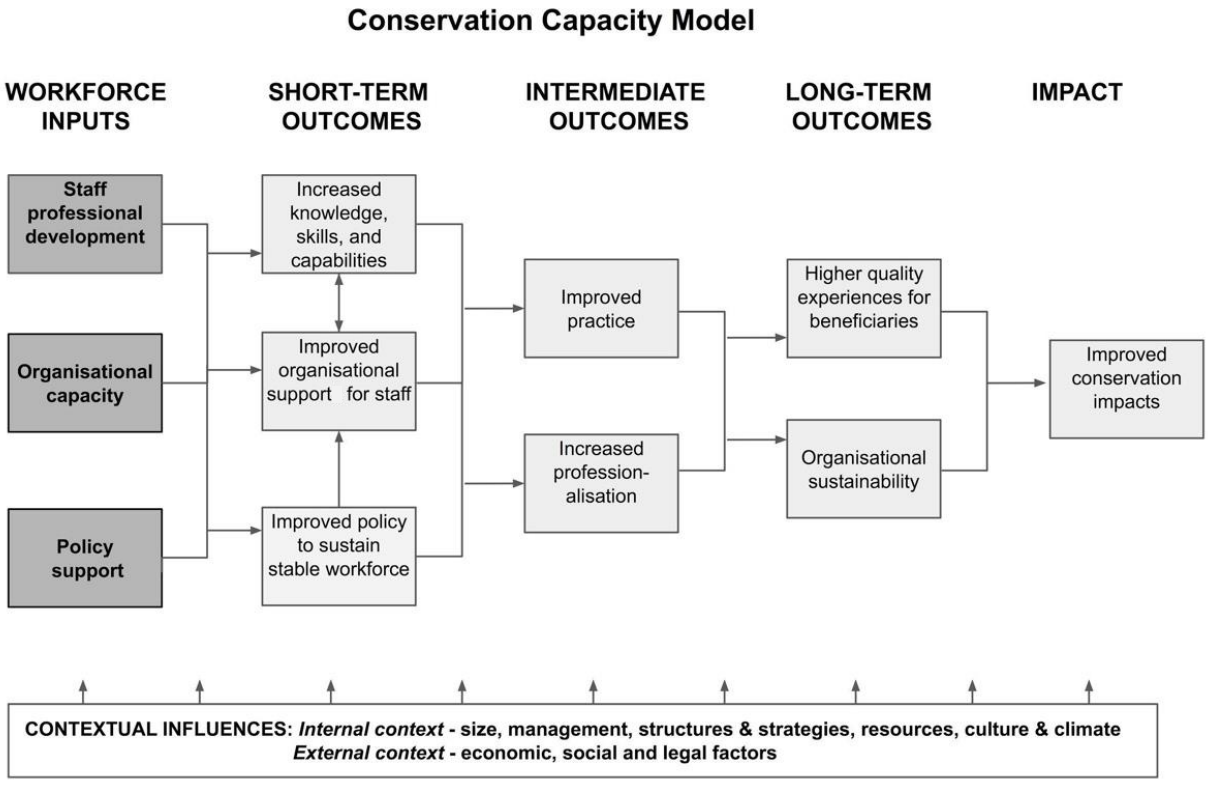

Figure 3-1. Conservation capacity model, adapted from a previous education model (Weiss et al., 2006). Inputs, outcomes and impact are not all encompassing and are provided here as examples.

3.2.1. Professional development needs in conservation

Recent studies on conservation capacity needs include analyses of job advertisements, evaluations of graduate programmes and capacity building initiatives, and views of conservation professionals, and collectively highlight gaps in non-technical skills and knowledge, including interpersonal skills and communication, project-management, interdisciplinary skills, and strategic thinking or problem solving abilities (Barlow et al., 2016; Blickley et al., 2013; Elliott et al., 2018; Lucas et al., 2017; Parsons & MacPherson, 2016; Robinson et al., 2018).

Professional development opportunities are important determinants in attracting and retaining staff (Nielsen, 2012) and have been positively associated with higher motivation, greater work engagement, and job satisfaction (Purcell et al., 2003). There appears to be a disconnect between the education and training received and the competences needed for complex situations encountered in conservation practice (Lucas et al. 2017). These competence needs furthermore vary per employer type (Blickley et al., 2013), the geographical location of employers and employees, and the location of the provided professional development (Lucas et al., 2017; Barlow et al., 2016; Elliott et al., 2018). Many factors come into play when seeking relevant knowledge, skills, abilities and other characteristics (KSAOs; also called 'competences'), and needs change over time due to socio-economic and technological developments that shorten the relevance of professionals' existing competences. Standardisation of competences remains less common in conservation compared to other disciplines (e.g. health care and law) making it challenging to evaluate professional development initiatives and individuals' skill levels, which in turn may impede conservation efforts and career progression (Barlow et al. 2016).

Despite efforts to identify the skills needed, few studies have examined what makes professional development effective in the eyes of professionals. This study therefore examined the components of effective professional development that are salient within the conservation sector. We defined conservation professional as an individual who is paid or receives compensation in exchange for work, and works towards nature conservation goals. The process of professional development and learning outcomes is largely dependent on professionals' behaviour, such as the participation in professional development opportunities and implementation of newly acquired competences on the job (Brekelmans et al., 2016; Evers et al., 2016). The availability of resources and opportunities to perform a certain behaviour also influence whether the behaviour will occur (Purcell et al., 2003). However, we aim to explore professional development in a variety of contexts, without having to limit ourselves to only a few case studies as is more common when including organisations, therefore exploration of the organisation' perspective is beyond the scope of this research. Based on our research results, we nevertheless expect to be able to make recommendations on how organisations can support their employees in optimising their professional development process and help achieve valued learning outcomes.

We used semi-structured interviews with conservation professionals to explore the disconnect in professional development provision and what is needed "on the ground" by looking beyond learning content. To achieve this, we adopted a three-dimensional definition of work performance, used in other sectors (Koopmans, 2014), which is divided into task performance, contextual performance and adaptive performance. Task performance can be seen as the competence with which an individual performs the core or technical tasks central to their job (Campbell et al., 1990).

Competences relevant to support the psychological, social and organisational environment relate to contextual performance (Motowidlo & Van Scotter, 1994). Lastly, adaptive performance is the ability to adapt to changes in work roles or work environment (Griffin et al., 2007). Our findings are expected to help conservation organisations and donors assess the quality of professional development provided, or for professionals to reflect on the quality of development they may undertake. By including practices and experiences in other sectors and disciplines, this paper aimed to fill the knowledge gaps to support global capacity development for conservation.

3.3. Materials and methods

3.3.1. Participants and interview guide

We used a qualitative research methodology due to the exploratory nature of our study and the limited empirical evidence on this topic, with the aim to develop propositions to guide future research (Newing, 2011). We chose convenience sampling (Newing, 2011) and participants were recruited from three sources: i) the University of Kent, UK, ii) attendees at an international conference of conservation professionals hosted by the University of Pune, India, 18-21 March 2017, and iii) through the authors' professional networks, with all three sources drawing people from a range of ages, job positions, and settings. All twenty-two respondents had professional experience working in high-biodiversity countries where capacity and access to resources are limited, i.e. countries that are in Africa, Latin America and the developing parts of Asia (Table 3-1). The sample size was deemed adequate to identify meta-themes across different sites and reach saturation, i.e. when new information results in little to no change to the codebook (Hagaman & Wutich, 2017). Prior to the

interview, respondents were informed by email of the research aims, assured anonymity and confidentiality, and that they were free to withdraw from the study at any time. Interviews were conducted by the first author between March and June 2017 at a location convenient to the interviewee, i.e. place of work or work activity, with no non-participants, apart from one interview where the interviewee's colleague was present (but was not involved). The semi-structured interviews lasted an average of 74 minutes (range = 30-130 minutes). Questions were based on the research question (see Table S3-1 for the interview guide).

3.3.2. Analysis

Interviews were audio recorded, transcribed verbatim, and coded in NVivo 12 (QSR International Pty Ltd., 2018) by the first author using keywords underpinning positive and negative perceptions with conceptual links to identify patterns and themes. We followed Braun and Clarke's (2006) Thematic Analysis and used both the inductive development of codes as well as a deductive approach to identify factors that were said to influence professional development and learning outcomes (Bradley et al., 2007). For the deductive approach, we used various start lists based on previous research on professional development from other sectors, e.g. Campbell et al., (2017). Themes were identified, refined and/or expanded through the comparison of data to identify theoretical saturation (Hagaman & Wutich, 2017). During transcription, participants were assigned pseudonyms (used hereafter).

3.4. Results

3.4.1. Characteristics of the participants

Half of the sample were professionals in conservation roles at the time of the interview (n = 11). University-based participants included two Senior Lecturers, two Lecturers, one Post-Doctoral Researcher, one Doctoral student and five Master of Science students (Table 3-1.). All interviewees had recent experience of professionally paid work in conservation (X= 8.5 years; SD= 5.47) within the 6 months prior to the interview. Respondents' nationalities comprised 9 biodiversity-rich countries with limited access to financial, informational and human resources, i.e. Bangladesh, Brazil, India, Indonesia, Mozambique, Seychelles, South Africa, Uganda, and Yemen, in addition to other countries, namely Singapore, UK and US. Respondents from the latter three countries drew on work experiences when being based in biodiversity-rich countries with limited resources, including but not limited to Costa Rica, Guyana, Liberia, Madagascar, Malaysia, Micronesia, Mexico, Peru, Polynesia, and Tanzania, and are therefore referred to as 'non-nationals'.

Table 3-1 Demographic characteristics of twenty-two conservation professionals, across twelve different nationalities, participating in semi-structured interviews in 2017.

Characteristics	Total Sample (n = 22)	Female Professionals (n = 12)	Male Professionals (n = 10)
Demographics			
Average professional experience in years (±1SD)	17.5 (±9.8)	16.1 (±10.1)	19.1 (±9.8)
Average age in years*(±1SD)	41.3 (±9.9)	38.9 (±10.5)	43.3 (±9.5)
Country nationals**	12	7	5
Non nationals	10	5	5
Employer			
University	5	1	4

Students	6	4	2
Non-Governmental Organisation (NGO)	4	3	1
Government	1	0	1
Charitable organisation or trust	2	2	0
Non-Profit corporation	2	2	0
Not-for profit company	2	0	2

*Average age based on 8 female and 10 male professionals (n = 18), ** Country nationals here refer to those interviewees who are nationals of countries with high biodiversity and limited access to informational, financial and human resources.

3.4.2. Characteristics of effective professional development

All interviewees shared experiences covering at least one identified theme (component); 86% (19/22) of respondents reported experiences in four or more of these components. We identified seven components of professional development (Tables 3-2, 3-3, 3-4) that participants experienced in conservation that, together, comprised our presented professional development effectiveness framework (Fig. 3-2).

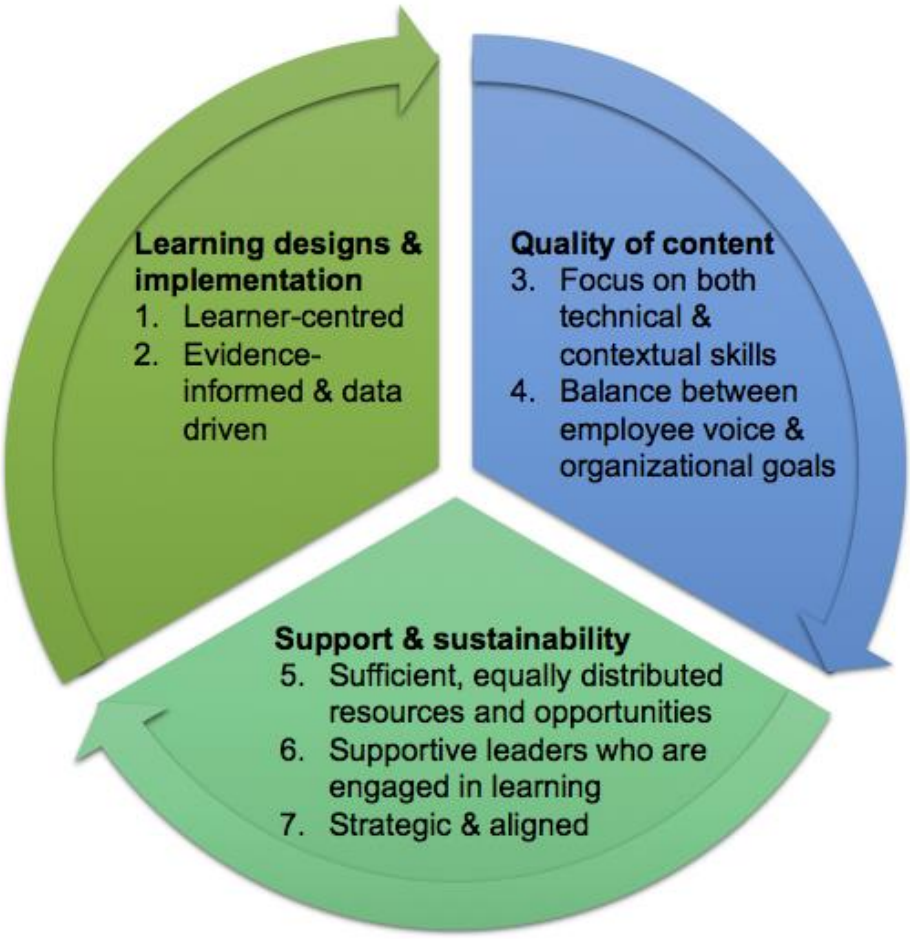

Figure 3-2. Effective professional development framework consisting of seven key components and three higher-order themes (A-C), indicating how higher level components encompass, and set pre-requisites for, effective professional development. This explanatory model is derived from interviews with 22 conservation professionals.

3.4.2.1. Learner-centred

This key component comprises descriptions of effective professional development where adult learning theories emerged, including experiential learning (i.e. learning from doing), and direct application of what is learned to work practice (Table 3-2). Some respondents highlighted the role of supervisory coaching and support to integrate newly acquired competences, while others mentioned learning opportunities among peers. The majority of interviewees illustrated social learning experiences that occurred within organisations and wider professional networks. Some respondents stressed that structured and sustained follow-up after the professional learning initiative (e.g. workshop, training) improves the effectiveness of that initiative.

3.4.2.2. Evidence-informed and data driven

Few people reported evidence-based learning initiatives and most initiatives were reported as not data-driven. The importance of professional expertise and judgement was mentioned to play a role when assessing effectiveness (Table 3-2). Performance analyses at employee and/or organisational level were rarely reported. Joan mentioned that a broad range of indicators of conservation and professionalization outcomes is important, including quality and quantity. A starting point to developing qualitative indicators, according to Joan, could be to explore how knowledge exchange is influenced by contextual factors (e.g. national culture, organisational culture).

Table 3-2 Quotes related to learning design and implementation from interviews with conservation professionals (n = 22), during March – June 2017, illustrating key components and features of effective professional development.

Major and sub-component(s)	Illustrative quote from interviews
1. Learner-centred	
Application of competences	"People need to be given the space to put what they are learning into practice. Either they first learn the theory and then they do the practice or they are doing it as they are going along." (Ruth)
Facilitating various learning styles and social learning	"I learn from seeing and trying to copy it. Only reading does not really work for me. To work together and then practice it straight away is more beneficial to me." (Patricia)
Different levels of advancement	"You are recognised officially and internationally that you are certified as a practitioner at a certain level. Then there are different levels and this is motivating you to improve." (Christopher)
Structured and sustained follow-up	"Normally we provide training, but it is not one short training, there is also refresher training after 6 months." (Edward)
2. Evidence-informed and data driven	
Empirical evidence from research, evaluation and data	"A lot of times it's just training because they just need to tick the box [..] to say that we trained 50 people in this. There is no real follow up to make sure that people actually learned something new." (Katharine)
Professional judgement	"A lot of it is intuitive, a lot of it is trial and error [..] I don't need a full formal written evaluation to know whether it [training] is working." (Mary)
Qualitative and quantitative indicators of success	"How do you measure capacity development when so much of it is about relationships and not necessarily about how many times somebody went to a workshop? [..] You are not looking at the real lessons [learned], you are looking at what is feasible to be counted. And often the things that are feasible to be counted are not what drive success. A lot of resources are put in the wrong place, because of those disconnects." (Joan)

3.4.2.3. A focus on both technical and contextual skills

This component encapsulates comments on competences that are required for effective professional work and relate to the content of learning initiatives. Most comments addressed non-technical

activities, here referred to as contextual competences (Koopmans, 2014), such as communication and interpersonal skills (Table S3-2). Several respondents emphasised that a professional has to learn how to keep skills and knowledge updated, which we label as adaptive competences (Koopmans, 2014). Motivation-to-learn, proactivity and open-mindedness to new information and others' viewpoints were characteristics perceived to enhance the ability to learn (Table 3-3).

3.4.2.4. Balance between employee voice and organisational goals

This component includes how to assess which skills are important for conservation professionals (Table 3-3). A skill-gap analysis was said to help identify any discrepancies between employees' competences and those required for the job. Several respondents highlighted that professional development initiatives should address urgent and current needs, to be considered effective. Priorities differed between the individual and the organisational level. Some said that professional development plans could help balance career aspirations with organisational objectives. When such a balance was achieved, respondents described well-maintained relationships with their employers. Where an imbalance occurred, interviewees reported decreased work motivation and increased intention to leave.

Table 3-3 Quotes related to quality of content from interviews with conservation professionals (n = 22), during March – June 2017, illustrating key components and features of effective professional development.

Major and sub-component(s)	Illustrative quote from interviews
3. A focus on both technical and contextual competences	
Motivation-to-learn	"There are always new things to learn. The minute you say 'I know everything and I am done with everything', that is when you start stagnating." (Terry)
Proactivity	"The education system is very teacher-centred, so they wait for the teacher to tell them what to do. [..] Whereas [in] more modern education systems, it's centred around the child, and so that, when the child grows up and gets into real life and gets a job, they are not waiting for their boss to do anything; they can actually generate work for themselves It makes it much easier for an organisation to grow when you have people that are self-motivated and very confident, that can generate ideas." (Ruth)
Open-mindedness	"We're nowadays required to be able to transit in different cultures and perform well, even though the culture is different. We need to be open-minded, we need to understand that people and cultures are different." (Michelle)
4. Balance between employee voice and organisational goals	
Identifying needs and priorities	"We have a training needs analysis at the start of the year for every staff. The staff pick the courses that they want to do for their own professional development and then discuss the courses with their line manager or reporting officer to agree why these courses are taken." (Raymond)
Professional development plans	"If you work for an organisation, you will need a career development plan, so they would invest in you. And that way you might stay with them." (Melissa)
Return on investment	"Now people have started [..] actually signing up on legalised papers saying that after getting this training I am putting in 3 years of work." (Terry)

3.4.2.5. Sufficient, equally distributed resources and opportunities

This component addresses the importance of adequate and equally distributed opportunities and funding for professional development (Table 3-4). Jeffrey shared that in 20 years of receiving international funding for conservation, no money was invested in building relevant expertise in his country, resulting in significant project delays when external experts could not enter the country due to contextual influences, e.g. natural disasters, political situations. Interviewees were generally supportive of needs-based approaches, yet in the experience of three professional development providers it was clear that requests for needs resulted in long lists. Instead, it was suggested to develop staff independence in building their own capacity, especially in countries with limited resources, including in-country leadership and fundraising capabilities (Table 3-4).

3.4.2.6. Supportive leaders engaged in learning

This component describes leaders' roles in facilitating a climate conducive to learning. Interviewees mentioned that leaders should support and value professional development as reflected in their actions, e.g. providing professional development to staff and communicating openly about professional development opportunities and decisions (Table 3-4). Five respondents gave an organisational leadership perspective and mentioned an attitude of "bigger picture thinking", i.e. investing in one's professional development is never a waste (Mary and Linda) and "to be okay with staff attrition" (Terry). Edward noted that contingency plans are crucial in addressing negative impacts of staff turnover, whereas Raymond highlighted motivational approaches to prevent staff losses. Leaders' resourcefulness and flexibility were important in creating cost-efficient professional

development opportunities and to stabilise organisational capacity, such as attracting retired professionals as senior advisors.

3.4.2.7. Strategic and aligned professional development

This last key component captures interviewees' experiences regarding the need for strategic and aligned capacity development between individuals, organisations and the wider environment (e.g. region, sector). Overall, respondents noted that priorities for professional learning were driven by (external) funding opportunities rather than aligned with organisational strategies (Table 3-4). Where capacity development strategies were present, these were generally not integrated in the organisation's overarching strategy and evaluation processes, and donor support significantly impacted their realisation. Some participants noted the need to consider individual and organisational "readiness to change" (Table 3-4). For example, Terry observed a conservation organisation sending staff for external professional development, but afterwards gave them the same work and no career progression. This impeded the organisation's sustainability and many of its programmes failed. Multiple interviewees recommended to gather evidence on effective capacity development and share that knowledge between organisations (Table 3-4).

Table 3-4 Quotes related to support and sustainability from interviews with conservation professionals (n = 22), during March – June 2017, illustrating key components and features of effective professional development.

Major and sub-component(s)	Illustrative quote from interviews
5. Sufficient and equally distributed resources and opportunities	
Developing leadership	"If you would talk to someone on my team and ask 'what are your professional development needs?', you will get a huge list [..] But the point is that is just a list, [..] my main challenge is: how do I grow conservation leaders? [..] I need people who will inspire and drive and motivate others." (Mary)
The need for sufficient and equal opportunities to grow	"I got in[to] a university but I couldn't get a scholarship because I was not affiliated with academia [..] I spent almost two years in the field: I went to the national park that is in the middle of nowhere, is there more motivation than that? [..] You don't get the chance to just expand [grow]; that is not fair." (Lisa)
Working towards equal funding opportunities in conservation	"What I've always heard is: 'We need people to be able to manage their resources'. And it's true, but how are we going to get there? Funding is very ad-hoc right now. It's very much about who is 'in the know'. And I think that is where we want to break the cycle; everybody has to be able to be part of it." (Linda)
6. Supportive and engaging leadership	
Leaders commit to professional development (values)	"There is a recognition within the organisation that professional development is important and once they identify the need, they will try to find means to make it happen." (Michelle)
Leaders' characteristics and "bigger picture" thinking (attitude)	"One problem is staff turnover [..] but I don't see it as a problem. For me, if someone gets a good opportunity [..] we have helped them gain knowledge from our project. That is fine. We always have a contingency plan." (Edward)
Leaders provide opportunities for professional growth (behaviour)	"I can learn many things and my boss also gives me more responsibility. Even if it's out of my comfort zone, I am willing to do it and they can see that." (Patricia)
Leaders discuss professional development with	"Where I felt that people tend to leave and go [is when] there is no growth potential for them [..] [A] needs assessment of the organisation and also of the individual. [..] That transparent and open communication environment

their employees (communication)	that is there, so formal and informal mechanisms of filling this information in." (Terry)
7. Strategic and aligned professional development	
Need for strategic capacity development	"There's no strategy. [..] From my experience in the NGO, instead of being like: 'right, what capacity do we need for our staff in X, Y and Z positions and how are we going to build that capacity?', it's a case of 'I got an email [..] they are offering training how to be a good community facilitator for climate change adaptation. That guy working with communities in his park, let's send him there and he can get that training." (Toby)
Readiness for change	"I think that professional development is effective when the individuals in the organisations are ready for change, they recognise what that change needs to be or ready for maintaining what seems to be working." (Joan)
Gather and share evidence on capacity development initiatives	"Standardised evaluations to whatever extent is possible. Because otherwise we are spending all of our time tweaking, when we could be spending all of our time expanding our reach. So I think that that's very important and I think we need to share relentlessly." (Laura)
The role of donors in strategic and aligned professional development	"If you wanted to make policy for increasing capacity in NGOs, all you need to do is get the donors to write it in their requirements and it would be in every proposal. But it's not what is necessarily required now." (Grace)

3.5. Discussion

Our findings largely are in line with previous research in the education sector (Campbell et al., 2017) and support the salience of concepts within the context of professional development in conservation. Based on a sample of conservation professionals, our findings suggest that there are seven key components to effective professional development (Fig. 3-2). There is considerable overlap between these components and therefore we will discuss them under three higher order themes; learning designs and implementation, quality of content, and support and sustainability, noting some interconnectedness of barriers or issues within these themes.

3.5.1. Learning designs and implementation

There are different approaches to professional development and multiple models are used (e.g. training, mentoring); however, it is unlikely that any single model will prove effective for all individuals under all conditions. Constructivist theories suggest that learning is an active process that facilitates changes in understanding and a facilitator should consider learners' prior knowledge and experiences (Mathieson, 2015). It is clear from our data that any professional development initiative should be grounded in adult learning theory and be learner-centred, tailored to learners' previous knowledge and experiences, and should facilitate various learning styles to promote effective engagement of diverse participants. Organisations should support and sustain the practise and integration of newly acquired competences into daily work. Learning cycle theories offer a useful perspective and may help design learning processes (Kainer et al., 2019). The majority of our respondents highlighted the importance of social learning experiences, which corresponds with social learning theory (Bandura, 1971), and empirical evidence in education (Campbell et al., 2017) and conservation (Kainer et al., 2019). It is likely that the success of any given technique or method will also depend on the competences being developed and formal frameworks can provide useful guidance to which activities, tools and techniques could help achieve targeted competences (e.g. Gibb, 2002; Kainer et al., 2019).

Our study revealed that few of the reported professional development initiatives were evidence-informed and data driven, which corresponds to previous findings in health care and education (Campbell et al., 2017; Schostak et al., 2010). Results indicate that the sole use of quantitative indicators of capacity development may obscure what drives success, because these may not reflect

the true complexity of practice (Schostak et al., 2010). Development of qualitative indicators of success, combined with quantitative measures, may help to address this, especially for harder-to-measure contextual and adaptive competences, e.g. Most Significant Change approach (Davies and Dart, 2005).

Before its implementation, a professional development initiative should have a clear goal or purpose (what) and rationale (why), in addition to measurable learning outcomes, progress indicators and a method of evaluation (Guskey, 2000). Evaluation should consider the time learners need to practise and integrate newly acquired competences on the job and for changes in the wider organisation to occur (Kainer et al., 2019). Evaluations should furthermore include details of the pedagogical activities implemented (process) and the theory that both pedagogy and outcomes were based on, in order to measure professional development quality and effectiveness and attribute changes to interventions (Payler et al., 2008).

3.5.2. Quality of content

Conservation professionals need a basic level of contextual skills, e.g. interpersonal and communication skills, as identified in this study and previous research (e.g. Blickley et al., 2013; Parsons & MacPherson, 2016). The ability to learn continuously is considered a core competency in organisations focussed on innovation and growth (Psarras, 2006). It is therefore not surprising that interviewees indicated the ability to keep knowledge and skills up to date as a key adaptive skill. Mentioned characteristics that enhanced this ability were motivation-to-learn, proactivity (i.e. initiate

change) and open-mindedness (e.g. towards the viewpoints of others). These findings agree with previous research in healthcare revealing that an increased motivation-to-learn encourages participation in professional development (Brekelmans et al., 2013), while open-mindedness enables work across science, policy and practice boundaries, an identified capacity gap in conservation (Elliott et al., 2018). Van Woerkom and Meyers (2018) also found self-efficacy to be a prerequisite for engaging in personal growth activities, i.e. individuals were more proactive about personal growth if they believed in their abilities to master challenges and achieve desirable outcomes. We recommend including self-efficacy as a measurement in future research on professional development.

Adaptivity is imperative in contexts that involve uncertainty and in situations where not all work roles can be formalised (Griffin et al., 2007). Our findings underline the importance of including contextual and adaptive competences (Supplementary Table 2), alongside technical/task competences, in any competence register or professional development initiative to guide future workforce development for current and future conservation professionals. Researchers in other disciplines have already recognised that all three dimensions of performance (task, contextual and adaptive) independently contribute to an employee's overall value for the organisation and that without a unifying theoretical framework there is little guidance on which aspects of work performance to assess (Griffin et al., 2007). The work performance model adopted in this study could provide a way to incorporate developmental behaviour in conservation organisations to drive desired outcomes and impacts on an individual, organisational, and societal level. Additionally, a framework like this can compare work capability of individuals across a variety of roles and situations.

Our results indicate that a combination of organisation-directed and self-directed professional development is required to balance career aspirations with organisational goals. Learners are better able to direct their growth by participating in the design of learning processes (Calvert, 2016), thereby increasing the relevance (i.e. demand-driven) and their motivation to participate. As highlighted by some of our interviewees, various tools could help, e.g. professional development plans, return-on-investment contracts, and needs assessments, though needs assessments must be undertaken with care to identify underlying problems at work and barriers to wider sharing of learning. If not, there is a risk that needs assessments will generate superficial 'wants' (Guskey, 2000). Collectively, the above findings highlight another priority area: building agency in one's own learning, namely one's capacity to effectively direct one's professional growth and contribute to the growth of others (Calvert, 2016).

3.5.3. Support and sustainability

The majority of interviewees reported professional development occurring episodically, mostly due to funding restrictions to project-based work, and some suggested that professional development models are shaped by external agendas, e.g. donor requirements. In a similar vein, Nielsen (2012: 302) reported that in 832 protected area assessments (24 countries) training was described as "haphazard, ad hoc and inappropriate to the needs of the staff" and Sanders et al. (2021) identified donor-led conservation agendas as a barrier to effective conservation.

One-time workshops on current fashionable topics may fail to illustrate how new methods fit in with those previously promoted and the kind of organisational support required to implement and sustain the new approach (Guskey, 2000). Professional learning which is externally driven (and top-down), may result in people not acquiring the competence and expertise that is needed to solve complex global challenges, or since short-lived projects result in high staff turnover, demotivate the workforce who feel under-valued (Nielsen, 2012). Biodiversity-rich countries that have limited resources (e.g. lack of information and human capacity) overlap with the most severely under-funded countries for conservation work (Waldron et al., 2013); it is therefore unsurprising that our respondents, all who had worked in the such biodiversity-rich yet resource-poor countries, reported unequal opportunities and resources for professional development and our findings suggest that this decreased both morale and staff retention. Our interviewees reported great satisfaction and engagement at work when they felt invested in by their employers, resembling previous research (Purcell et al., 2003). Leaders hold significant decision-making power over resource allocation and learning opportunities; clear communication and decision-making can positively influence employee perceptions of fairness. Organisational leaders and managers have important roles in promoting a learning culture in which they commit to the continuous development of everyone (Psarras, 2006). Professional development should be open to all who affect conservation outcomes, including administrative staff, communities, and external beneficiaries. Although inclusion of these latter groups will depend on the context, it is encouraged to promote engagement, staff retention and fruitful partnerships (Guskey, 2000). To optimise strategic and aligned capacity development, stakeholder buy-in is required, as well as aligning programmes with the wider country-specific workforce strategies, and the provision of long-term (>5 years) support (Aring & DePietro-Jurand, 2012; Santy et al. 2020). Sectoral leaders (e.g. donors) can uniquely demonstrate how they value

learning and work improvement by prioritising issues related to learning and enabling participation and co-design of professional development initiatives (Marsick & Watkins, 2003; Santy et al. 2020), by providing consistent structural support for professional development (e.g. funding and time) and they can act as an umbrella by providing sector-wide coordination of knowledge exchange, evaluation, and policy development (Aring & DePietro-Jurand, 2012).

One definition of successful professional development that emerged from this study was knowing how a learning opportunity will help improve internal practice and how this change fits into the environment, whether the wider organisation, society, geographical area or sector. According to Guskey (2000), the effectiveness of professional development initiatives should be measured against two criteria: quality (merit) and value (worth). The quality of an initiative is often measured against its intended goal, e.g. learning objectives (inputs, Fig. 3-1). The value of an initiative is determined from whether it fulfils needs, e.g. the needs of an individual conservation professional, if it aligns with the conservation organisation's mission and/or contributes to the public good (outcomes and impact, Fig. 3-1). Both quality and value should be considered when selecting and evaluating professional development initiatives to assess their effectiveness.

3.6. Study limitations

The active process of growth and development of a conservation professional, as a set of behaviours, largely depends on an individual's beliefs (e.g. attitudes, values and norms) and perception of their abilities whether they intent to perform a certain behaviour (Ajzen, 1985; Bandura, 2000), in addition

to their perceptions of factors in their work and work environment (Purcell et al., 2003). In this study, we therefore solely focussed on the individual level, i.e. data were collected regarding the individual conservation professional's perspectives on the processes in place to support them in their professional development. The actual availability of resources and opportunities to support professional development also influence whether this process is effective in reaching the valued learning outcomes. It would therefore be useful to include organisational case studies that include an assessment of these resources and opportunities in future research.

3.7. Implications for conservation

This paper provides guidance on assessing the quality of professional development in conservation, and is (presently) the only such study in the literature. Our framework includes recommendations covering planning, design, implementation and evaluation of any professional development, going beyond common quality assessments that measure learner satisfaction only. This framework complements any evaluation model that assesses outcomes of professional learning. We recommend involving any stakeholders and advisers from the planning phase of a professional development initiative, to ensure a true collaborative approach that is socially relevant to the participants and builds learner agency. We also conclude that more research is needed on the effects of professional development on short-term, intermediate and long-term outcomes, in addition to impact, and assumed causality. Taking an interdisciplinary approach to this kind of research may be helpful in finding both quantitative and qualitative evidence of transformed conservation practice, organisational sustainability, higher quality beneficiaries' experiences and improved conservation impacts. Internal contextual influences (e.g. size, management, resources, culture) and external

contextual influences (e.g. economic, social and political factors) on any conservation organisation should be considered. However, it may be more effective to seek indicators of how professional development initiatives can contribute towards improved outcomes, instead of futile attempts to attribute any changes to any single professional development initiative. Learning and working are interconnected. Conservation organisations will not improve their positive outcomes for wildlife conservation unless their employees grow professionally and improve their practice and share in the responsibility to build organisational memory and expertise. In this study, we discussed organisational and systemic changes that are required to accommodate and facilitate these individual improvements. Although there is no single approach to creating effective professional development, we hope that the framework presented may serve as a good starting point and makes for a timely contribution to the literature on capacity development for biodiversity frameworks post-2020.

3.8. Acknowledgements

We would like to thank the respondents of this study for their willingness and openness in sharing their experiences.

3.9. Ethical standards

This research was supported by a Vice Chancellor's Research Scholarship of the University of Kent, Canterbury, UK, and has been approved by the Research Ethics Advisory Group of the School of Anthropology and Conservation, University of Kent (Ref no 0401617). All authors have abided by the Oryx guidelines by following the British Sociological Association Statement of Ethical Practice 2017.

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3.11. Supplementary information

Table S3-1 Interview guide. More questions were asked during the interview and only the part related to the current study is included here.

Number	Question
1.	According to your experiences, observations and views, what are the characteristics and capabilities of a conservation professional?
	1.1. Which skills and competences do professionals need, especially in countries that have high biodiversity and limited informational, human and financial resources?
2.	According to your experience, observations and views, how would you define professional development?
	2.1. What types of professional development are there?
3.	According to your experience, observations and views, who needs professional development in the field of conservation?
4.	According to your experience, observations and views, what types of professional development are currently offered for conservation professionals working in countries with high biodiversity and limited informational, human and financial resources?
5.	According to your experience, observations and views, what types of professional development are needed?
	5.1. Which gaps exist in current professional development in countries with high biodiversity and limited informational, human and financial resources?
6.	According to your experience, observations and views, what are the barriers to professional development in countries with high biodiversity and limited informational, human and financial resources?
	6.1. What are the challenges when implementing professional development for conservation professionals in countries with high biodiversity and limited informational, human and financial resources?
	6.2. What are the promoters of professional development?
7.	According to your experience, observations and views, when is professional development considered effective?

Table S3-2 Overview of competences needed by conservation professionals according to 22 interviewees with a background in the conservation profession. Number of respondents mentioning a certain competence are indicated in brackets, followed by an exemplary quote of one of those respondents.

	Competence	Exemplary Quote
A. Task competences: competences with which an individual performs the core or technical tasks central to their job (Campbell et al., 1990; Koopmans, 2014).		
1	Monitoring and controlling resources (included [field]work safety, attaining, monitoring and managing financial resources adequately) (13)	[you have] "to be able to report to your funding, you've got to be able to manage your budget." (George)
2	Job knowledge & skills (included conservation expertise, research skills, language skills, local relevant knowledge) (10)	"We must understand forestry, we must understand biodiversity, we must understand wildlife issues, we must understand social issues, so these are very important parts from our side. Unless we understand people, nothing will work." (Edward)
3	Work quality (included setting up and managing administrative processes to improve outputs and control processes such as monitoring and evaluation) (8)	"You are presented with a problem statement and then you find a solution. Then you implement the solution [to] see whether it works and then you refine it [..]. It kind of [..] a loop: [..] refinement and alterations." (Raymond)
4	Planning and organising (included development of clear goals and vision, scenario-thinking and adapting to context, logistical management) (8)	"Scenario thinking. Till I was not doing that, we had a lot of programmes and we came back and we said 'omg, we did so badly'. And after we succeeded we said we have to think of the worst possible situations." (Terry)
5	Work quantity and productivity (included literacy, working across roles, working efficiently, computer skills) (6)	"In small organisations, everyone is multipurpose. You have to be able to do more than just the one thing in your profession." (Ruth)
6	Time Management (included prioritising, work-life balance and off-work recovery) (4)	"We work in such a dynamic environment and it involves lots of traveling. I guess it depends on how

		you manage your time as well. If you can't manage your time wisely, you will be burned out." (Patricia)
7	Critical thinking and problem-solving skills (3)	"Sometimes you go to these workshops at these conferences and it's just the same, people just saying the same things all the time, [..] very few people come up with new ideas [..] people that do come up with those interesting ideas, I think, those are the people that have the critical thinking skills and creative skills when it comes to problem-solving. Because then, at the end of the day, conservation is a problem at the moment, and it requires some problem-solving, so I think that is a really important skill to have." (Katharine)
B. Contextual competences: competences relevant to support the psychological, social and organisational environment (Motowidlo and Van Scotter, 1994; Koopmans, 2014).		
8	Prosociality (i.e. helping others) (18)	"I really think that if people are putting so much effort [in] studying something, that thing better really helps the others, other people or biodiversity but also people. [..] I wouldn't just study, for example only elephant behaviour [..] If my national park, my people, really need something more useful." (Lisa)
9	Communication skills (included active listening and writing skills, effective negotiation, presentation and public speaking skills) (13)	"I think it is about being a good listener, I think it is about bringing everybody to the table, being perceived as a neutral convenor, somebody not motivated primarily by politics or personal gain." (Laura)
10	Interpersonal skills (including teamwork, cross-cultural skills, conflict management, self-awareness and accountability) (13)	"They don't train you in the success of group work and how you work together; they train you as an individual all along the way. And then your success is actually about working in groups. And all these tools and techniques are what I call process skills that you need to be effective in conservation [..] they fall through the cracks everywhere." (Joan)
11	Proactivity (9) (i.e. self-initiated, future-oriented behavior to change a situation)	"I keep telling them: you guys have to find your own opportunities. I can't be searching the web to say this is coming or that is coming. You have to be proactive and go out there."(Mary)

12	Creativity and innovation (9)	"In [region] things are done by rote learning* in schools. It's not by innovation [..] Thinking beyond the box is not really done, it's very hierarchically structured. So breaking down those barriers is one of the ways forward." (William) [**memorization technique based on repetition]*
13	Supervision and management (included promoting diversity and inclusion) (9)	"My own experience in running an environmental NGO was that people came and wanted to contribute, but everyone had different levels of commitment and different abilities and different amounts of time they had available [..] Everyone had a different contribution to make and the important thing was to make them feel needed and a part of the group and make a contribution even if it was different from everyone else's." (Charles)
14	Capacity building - facilitating learning for others (6)	"I shouldn't just think that my field staff want to be field staff forever [..] Maybe they want to live near family [..] they may not want to live in a remote forest for their lives. And field work is repetitive and I think it can get boring. So if you want to keep these good staff, maybe think about whether or not they're going to be happy in that position for a long time or whether you need to build their skill sets so they can move to a different position so they remain with the organisation." (Grace)
15	Leadership skills (included the ability to inspire and systems-thinking or 'bigger-picture' thinking) (4)	"You need somebody who is constantly kind of looking out, looking at the bigger picture, looking around and seeing if what is going on is working." (Melissa)
16	Self-motivation (2)	"For example in the area where I work [..] [there are] many tropical diseases and every time armed militant forces. All this creates disturbance to you, you cannot work, [..] unless you have self-motivation." (Paul)

C. Adaptive competences: an employee's proficiency in adapting to changes in work roles or work environment (Griffin et al., 2007; Koopmans, 2014).

17	Adaptability (included flexibility) (15)	"There is this element of adaptability, and he was successful in many systems. [..] Because time and time again we see that, the people that are kind of the best able to make change are the people who can work within those limitations of their organisation and yet still move things forward." (Linda)
18	Keeping knowledge and skills up to date (6)	"Every year, I had to think about what I was going to develop. [..] I can say that I was someone who took advantage of this in the organisation. I have employees that didn't care too much about this. [..] I realised that this is something that is really related to my profile of, like, I always wanted to learn something new and I am excited about new things." (Michelle)
19	Resilience (5)	"Bouncing back from, defeats, bad news, challenges. Being able to suffer really bad news and go back to work with similar enthusiasm next week. So resilience. [..] I think a 'never say die' attitude is really important in a lot of conservation." (Toby)

Chapter 4 What makes conservationists persevere? Resilience strategies at work.

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Submitted to Oryx (under review)

LOFFELD, T.A.C., BLACK, S. A., CARTER, M., STERLING, E. J. & HUMLE, T. (2020). What makes conservationists persevere? Resilience strategies at work.

4.1. Abstract

Modern day conservation professionals are more than ever faced with cognitive and emotionally demanding tasks and a wide range of working conditions, which may include long hours, isolation from friends and family, and high levels of uncertainty. Positive adaptation to professional challenges, here referred to as resilience, can help individuals thrive in their role. In this qualitative study, we explored factors relating to positive and negative job events. We interviewed twenty-two individuals with professional experience working in high-biodiversity countries where capacity and access to resources are limited. We used thematic analysis to identify themes and strategies to promote resilience in the workplace. Results revealed factors associated with positive psychological states, included answering an occupational calling, achievements, and recognition and appreciation for work. Organisational policies and administration, especially perceived unfairness regarding salaries, recruitment policies, promotion and professional development, were connected to negative psychological states, as were other factors related to the job context. Respondents shared their professional resilience strategies, such as appreciating the positives and maintaining optimism, aligning work with one's values, and personal reflection and goal setting. Organisations can play an important role in supporting employees in the process of building resilience by addressing basic needs and factors that are of motivational value..

Keywords: professional development, human dimension, interdisciplinary, job satisfaction, motivation, self-efficacy, personal agency, unfairness

4.2. Introduction

To reach our collective goal of conserving the world's natural biodiversity, we need a versatile and effective force of professionals. Workplace adversity is an issue gaining increasing attention in the context of health care and social work (Jackson et al., 2007; Kašpárková et al., 2018). Experienced stress at work results in a loss of productivity (Ojha & Gairola, 2014), yet some stressors are unavoidable. Enhancing professionals' ability to positively adapt to changing conditions, uncertainty and adversity, here referred to as resilience (Jackson et al., 2007), is therefore desirable. Conservation professionals are located around the world and often are the first line of defence when dealing with urgent environmental issues. For example, recent studies report that law enforcement rangers suffer from physical and psychological trauma as a result of dangerous encounters with wildlife, poachers and rebels (Moreto, 2016; Spira et al., 2018). Indeed, 79.9% of 1,742 rangers working across Asia, Africa and Latin America reported having faced a life-threatening situation due to such dangerous encounters (Singh et al., 2020). Working in remote areas with less developed infrastructure also increases chances of accidents associated with aviation and cars (Sasse, 2003). Desk-based conservation jobs often require particular cognitive demands, e.g. complex problem-solving dealing with local to global-scale drivers of biodiversity loss, and emotionally straining tasks, such as dealing with stakeholders who hold conflicting interests. Such demanding aspects in the workspace could cause physical and psychological impairment, including burnout and depression, and subsequent loss of productivity and negative organisational outcomes such as staff turnover (De Jonge & Dormann, 2003). This link between the work environment and an individual can also be found in a rapidly growing body of research on resilience in social-ecological systems that illustrates that the capacity of any individual or society to cope and adapt to change depends on the resilience of the

institutions they are part of and the natural resources they depend on (e.g. Adger, 2000; Berkes et al., 2003; Biggs et al., 2015). In this body of work, resilience in social and ecological systems, whether this concerns an individual, a society, an institution or a forest, is seen as an ongoing process to build the capacity to deal with change and still retain its function and structure or state, and increase the capacity for learning and adaptation (e.g. Berkes et al. 2003). In a similar vein, resilience seen through the lens of organisational psychology, is considered a process. In the workplace, the ability to overcome adversity, including stress, and adjust in a positive way, i.e. resilience (Jackson et al., 2007), is critical to increase one's capacity for learning and adaptation. Resilience, previously perceived as a personal characteristic, is now considered a process, linked to skills that may be learned for two functions: preventative, i.e. to protect against adversity, and coping, i.e. handling traumatic situations effectively (Beresin et al., 2016; Zwack & Schweitzer, 2013).

4.2.1. Antecedents of resilience

Self-efficacy is a characteristic that has been associated with resilience and relates to how one perceives one's abilities, including the ability to influence one's environment (Bandura, 2000). A person can experience a high sense of efficacy in one domain, e.g. work, but low-efficacy in another, e.g. personal relationships (Bandura, 2000). Resilience influences positive individual outcomes; in a study among 360 Czech workers in helping professions, resilient individuals experienced higher job satisfaction and work engagement than their less resilient co-workers (Kašpárková et al., 2018). Whereas job satisfaction results from an individual's evaluation of whether job conditions and characteristics facilitate one's job values, work engagement refers to an individual's experiences resulting from doing the work and is characterised by energy (Christian et al., 2011). Job satisfaction

and work engagement are two critical dimensions of work-related well-being (Kašpárková et al., 2018). In this study, we examined well-being from the hedonic perspective, characterised by high levels of satisfaction and enjoyment, and from the eudaimonic tradition which explores well-being from a perspective of actualising one's potential, to address fulfilment and meaning in one's life (Deci & Ryan, 2008). Building on the concept of eudaimonia, we considered here both the constructs of work value orientation and work motivation.

Work value orientation concerns how people value work for a wide range of reasons (Berg et al., 2010), whether a calling orientation (i.e. work is one of the most important aspects of life), job orientation (i.e. income-focus and to support lives outside of work), or career orientation (i.e. work is used as a ladder to move to better, higher-level positions). The first category, also called occupational calling, can be recognised when an individual feels drawn to pursue a specific occupation, believes it to be meaningful and/or intrinsically enjoyable, and views that occupation as a central part of their identity (Berg et al., 2010). A calling orientation is associated with intrinsic motivation, whereby an individual takes up an activity because they find it interesting and enjoyable. The second type of motivation is extrinsic motivation and refers to engaging in an activity for instrumental reasons, such as monetary and non-monetary rewards and avoiding punishments or criticism (Ryan & Deci, 2000). Efforts aimed at helping others is termed prosocial motivation; it focuses on others, both in values and in goals, intending to produce beneficial outcomes (Grant, 2008) and is therefore distinguishable from intrinsic motivation. The fulfilment of psychological needs for autonomy, competence and relatedness (i.e. feelings of belonging to a social group) positively influences an individual's

motivation and engagement for certain activities, which in turn may enhance that person's performance, persistence, and creativity (Ryan & Deci, 2000).

Despite recent studies on the significant professional risks (e.g. Moreto, 2016; Spira et al., 2018), few sources in the conservation literature have examined the importance of resilience in its professionals and, to the best of our knowledge, no empirical studies on this topic exist to date (Moreto, 2016). Past studies on resilience in professionals mainly concern health care providers (Beresin et al., 2016; Jackson et al., 2007; Zwack & Schweitzer, 2013). The current study addresses this knowledge gap in the conservation sector and explores strategies of resilience that are deemed salient to conservation professionals (referred to here as 'conservationists'). We defined a conservation professional as an individual who is paid or receives compensation in exchange for work, and works towards nature conservation goals.

Firstly, we categorised factors associated with job events, i.e. everyday occurrences in professional life; divided into positive job events, characterised by positive psychological states, e.g. energy, job satisfaction, fulfilment, motivation, and negative job events, characterised by negative psychological states, e.g. stress, frustration, burnout. Secondly, we explored which strategies professionals employed to overcome workplace adversity; considered as indicators of resilience. Finally, we generated recommendations following our analysis to help conservation professionals and organisations understand how to build and maintain a healthy, motivated and productive conservation workforce.

4.3. Materials and methods

4.3.1. Participants and interview guide

Due to the limited empirical evidence associated with this field of enquiry, qualitative data collection and analysis are best suited to enable the identification and development of propositions to guide future research (Newing, 2011). We chose convenience sampling (Newing, 2011) and participants were recruited from three sources: i) the University of Kent, UK, ii) attendees at an international conference of conservation professionals hosted by the University of Pune, India, 18-21 March 2017, and iii) through the authors' professional networks, with all three sources drawing people from a range of ages, job positions, and settings. All twenty-two respondents had professional experience working in high-biodiversity countries where capacity and access to resources are limited, i.e. countries that are in Africa, Latin America and the developing parts of Asia, and were interviewed by the first author (Table 4-1). The sample size was deemed adequate to identify meta-themes across different sites and reach saturation, i.e. when new information results in little to no change to the codebook (Hagaman & Wutich, 2017). Prior to the interview, respondents were informed by email of the research aims, assured anonymity and confidentiality, and that they were free to withdraw from the study at any time. Interviews were conducted between March and June 2017 at a location convenient to the interviewee, i.e. place of work or work activity, with no non-participants present, with the exception of one interview where the interviewee's colleague was present (but was not involved). The semi-structured interviews lasted an average of 74 minutes (range = 30-130 minutes). Questions were based on the research question (see Table S4-1 for the interview guide).

4.3.2. Analysis

Interviews were audio recorded, transcribed verbatim, and coded in NVivo 12 (QSR International Pty Ltd., 2018) by the first author using keywords underpinning positive and negative perceptions with conceptual links to identify patterns and themes. We followed Braun and Clarke's (2006) Thematic Analysis, using both the inductive development of codes as well as a deductive approach to identify factors that were said to influence positive and negative job events (Bradley et al., 2007). For the deductive approach, we used various start lists based on previous research on resilience from other sectors, e.g. Zwack & Schweitzer (2013). Themes were identified, refined and/or expanded through the comparison of data to identify theoretical saturation (Hagaman & Wutich, 2017). During transcription, participants were assigned pseudonyms (used hereafter).

4.4. Results

4.4.1. Characteristics of the participants

Half of the sample were professionals in conservation roles at the time of the interview (n = 11). University-based participants included two Senior Lecturers, two Lecturers, one Post-Doctoral Researcher, one Doctoral student and five Master of Science students (Table 4-1). All interviewees had recent experience of professionally paid work in conservation (X= 8.5 years; SD= 5.47) within the 6 months prior to the interview. Respondents' nationalities comprised 9 biodiversity-rich countries with limited access to financial, informational and human resources, i.e. Bangladesh, Brazil, India, Indonesia, Mozambique, Seychelles, South Africa, Uganda, and Yemen, in addition to other countries, namely Singapore, UK and US. Respondents from the latter three countries drew on work experiences when being based in biodiversity-rich countries with limited resources, including but not

limited to Costa Rica, Guyana, Liberia, Madagascar, Malaysia, Micronesia, Mexico, Peru, Polynesia, and Tanzania, and are therefore referred to as 'non-nationals'.

Table 4-1 Demographic characteristics of twenty-two conservation professionals, across twelve different nationalities, participating in semi-structured interviews in 2017.

Characteristics	Total Sample (n = 22)	Female Professionals (n = 12)	Male Professionals (n = 10)
Demographics			
Average professional experience in years (±1SD)	17.5 (±9.8)	16.1 (±10.1)	19.1 (±9.8)
Average age in years*(±1SD)	41.3 (±9.9)	38.9 (±10.5)	43.3 (±9.5)
Country nationals**	12	7	5
Non nationals	10	5	5
Employer			
University	5	1	4
Students	6	4	2
Non-Governmental Organisation (NGO)	4	3	1
Government	1	0	1
Charitable organisation or trust	2	2	0
Non-Profit corporation	2	2	0
Not-for profit company	2	0	2

*Average age based on 8 female and 10 male professionals (n = 18), ** Country nationals here refer to those interviewees who are nationals of countries with high biodiversity and limited access to informational, financial and human resources.

4.4.2. Factors influencing positive job events

In this section, comments focus on respondents' reference to positive psychological states (e.g. energy, job satisfaction, fulfilment, meaning, motivation) in the workplace. All interviewees shared experiences covering at least one identified theme; 59% (n=13/22) of respondents reported experiences in two or more of these themes. We identified five factors linked to positive psychological states that >1 participant experienced in this study. The three major themes are discussed below and supportive

quotes can be found in Table 4-2. An overview of major (>25% respondents) and minor (≤25% respondents) themes is presented in Figure 4-1.

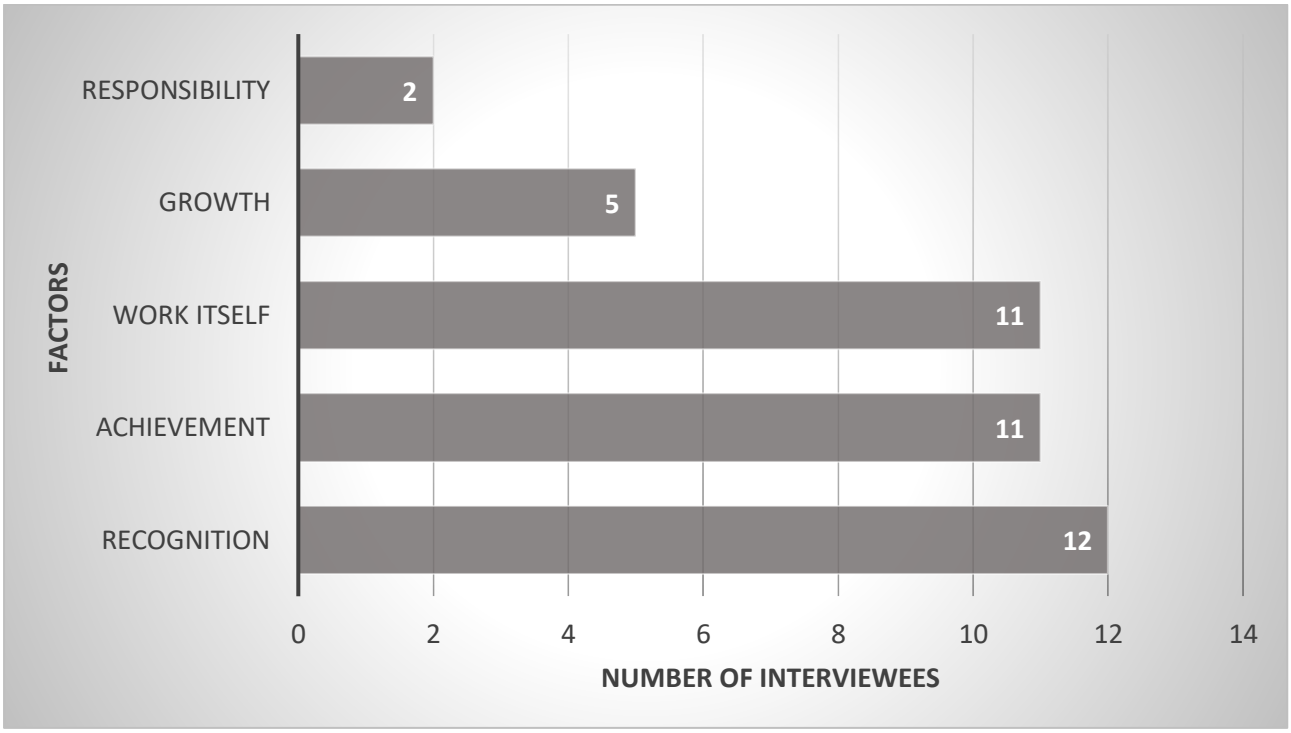

Figure 4-1. Main factors associated with positive psychological states identified from interviews with 22 conservation professionals.

4.4.2.1. Recognition, rewards and appreciation

Most respondents referred to recognition, rewards and appreciation as sources of energy and job satisfaction (Table 4-2). The source of appreciation or recognition was important and included beneficiaries, superiors and through self-appreciation. Charles provided a management perspective: "I think my own experience in running an environmental NGO was that people came and wanted to contribute, but everyone had different levels of commitment, different abilities and different amounts of time they had available. Everyone had a different contribution to make and the important thing was to make them feel needed and a part of the group".

4.4.2.2. Achievement

Work success or achievement was a source of motivation and/or energy according to half of the respondents (Table 4-2). Ruth provided one example: "In the community we are trying to change behaviours and as communities get more motivated, [..] they talk about how they want to protect the wildlife and all of that and they show it and you see it [..] and they are very appreciative of how you are helping them; you move together. [..] So maybe what inspires us is when we see some improvements, some positive changes, which are really long-term behaviour change".

4.4.2.3. Work itself

All 22 interviewees reported interest in and/or enjoyment of their work, indicating intrinsic motivation. Eighteen interviewees (82%) described conservation work as an occupational calling. These respondents felt drawn to conservation work using words such as "passion" and "love", felt intrinsic joy and meaning when performing such work, and saw it as central to their identity. Toby illustrated the latter: "I knew when I was six years old what I was going to do. It's not even conceivable for me to be doing something that's not conservation". Of these 18 respondents, 11 also referred to pursuing their occupational calling as a source of energy and gratification in their work (Table 4-2), indicating that activities aligned with one's work value orientation can increase meaningfulness of work and job satisfaction. The majority of the interviewees (n=12/22) indicated prosocial motivation as an additional drive in their work, illustrating the desire to help others.

Table 4-2 Factors associated with positive psychological states in the workplace illustrated by quotes from interviews with conservation professionals (n = 22), during March – June 2017.

Major theme	Illustrative quote
Recognition, rewards and appreciation	"It's those little things that really change the way you motivate yourself. [..] Being recognised for bigger things [..] and people seeing your value actually." (Lisa)
Achievement and work success	"What is really motivating me, personally, if I see some success." (Edward)
Work itself	"Also the most important thing, I feel love and passion for nature; it gives you motivation. [..] That's why if something happened at least you have your belief in the cause." (Jeffrey)

4.4.3. Factors influencing negative job events

In this section, comments are included where respondents referred to sources that caused them to experience negative psychological states, such as disappointment, frustration, and dissatisfaction at work. With the exception of one interviewee due to the interview being cut short, all interviewees shared experiences covering at least one identified theme; 68% (15/22) of respondents reported experiences in two or more of these themes. We identified seven factors linked to negative psychological states that >1 participant experienced in this study. The four major themes are discussed below and supportive quotes can be found in Table 4-3. An overview of major (>25% respondents) and minor (≤25% respondents) themes is presented in Figure 4-2.

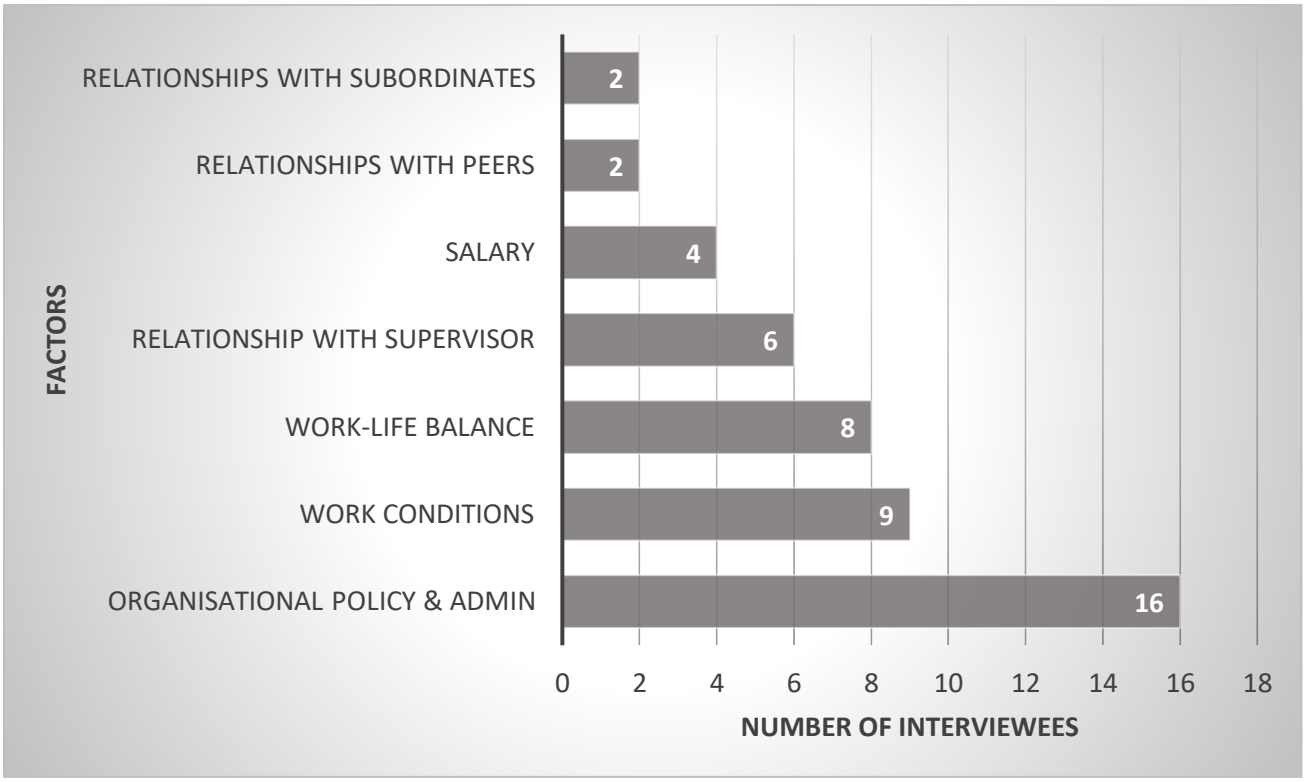

Figure 4-2 Main factors associated with negative psychological states identified from interviews with 22 conservation professionals.

4.4.3.1. Organisational policy and administration

This major theme includes interviewees' perceptions of organisational policies and procedures, including views on the distribution of resources, recruitment policies, promotion and professional development opportunities, in relation to job dissatisfaction and negative psychological states. Resource inadequacies emerged as a sub-theme and includes quotes concerning financial, human or informational resources. Financial resource inadequacies were underlined by Dorothy's frustration: "How many times I take money from my pocket! [..] Sometimes we can give money for conservation from our pockets, but how many times?". This sub-theme also included living situations that, due to insufficient salary or resources, led to energy and/or health impairment (Table 4-3). Interviewees

described that poorly defined work responsibilities and work scope can result in low quality performance appraisals and a perceived unfairness on the side of the employee. The credibility and trustworthiness of the person running performance appraisals also led to perceived unfairness and dissatisfaction in participants (Table 4-3). Dissatisfaction also occurred in situations where interviewees felt excluded from job opportunities, professional development opportunities and/or decision-making opportunities. This exclusion could be formal or informal (third sub-theme). Some interviewees reported a formal exclusion of socially perceived subordinate groups (including women) in the provision of job opportunities (Table 4-3). Across these three sub-themes, perceived unfairness emerged as a prominent theme.

4.4.3.2. Work conditions

Experiences regarding work conditions were divided into three sub-themes (Table 4-3): 1) cognitive demands, including workload and time pressure, 2) emotional demands, such as complexity (e.g. stakeholders with conflicting interests, power dynamics), and 3) physical demands related to unsafe work conditions, e.g. "The area where I work [..] have many tropical diseases and every time armed force militants create disturbance to you, you cannot work" (Paul).

4.4.3.3. Work-life balance

The work-life balance theme includes experiences leading to negative psychological states, such as emotional exhaustion (Table 4-3). Some respondents illustrated how experiencing an occupational calling could intensify work stress: "Your passion for what you do [..] drives you to perform better.

You are willing to work harder and longer hours but you can also then get to a point where you start burning out and then it kind of just reverses and you don't perform as well [..] The harder you work, the more people expect of you [..] I got to a point [..] thinking I need to find another job" (Katharine).

4.4.3.4. Relationship with supervisors

This last main theme comprises interviewees' experiences with their supervisors, line managers or organisational leaders with feelings of dissatisfaction at work. Grace reported that overcontrolling leaders left her feeling dissatisfied at work after which she resigned from her job (Table 4-3). For people with an occupational calling in particular, it seems important that the work is perceived meaningful and aligns with their personal beliefs and values. If cultural factors, such as leadership, impede the meaning of work, job dissatisfaction can occur.

Table 4-3 Factors associated with negative psychological states in the workplace, illustrated by quotes from interviews with conservation professionals (n = 22), during March – June 2017.

Major and sub-theme(s)	Illustrative quote from interviews
1. Organisational policy and administration	
Division of monetary and non-monetary resources	"I was supposed to have been given enough money to have rented a room somewhere [..] I was in the little backroom in a house, which was airless, next to a smoky generator full of rats." (Melissa)
Performance appraisal procedures and feedback	"The supervisor will give feedback on your performance [..]. This can be biased; [..]. If he doesn't like you, even if you work well, you don't get a satisfactory [assessment]." (Christopher)
Formal and informal exclusion (e.g. job opportunities)	"You're working with rural people, but members of those rural communities don't have the paper qualifications to get a job with your NGO. So even if there might be other things that are actually much more important, […] a good understanding of the social context." (Toby)
2. Work conditions	
Cognitive demands	"The companies they really want to see results, like each 3 months [..] [do you] know you are going to save the golden-lion tamarin? [..] A lot of pressure for results." (Michelle)
Emotional demands	"Personally you get affected because you are put into a situation where, if you want to start a family, it's kind of hard because your job specification does not allow you to have your wife and kids where you are working." (Christopher)
Physical demands	"[The] site was inappropriate, there was way too much contact with the [*wildlife*]; they were completely over-habituated. [..] We had no choice in the matter. [..] Myself and somebody else got badly bitten. [..] I was a bit traumatised by the whole thing. After that I just thought I don't want to be here anymore." (Melissa)
3. Work-life balance	
	"I need time to get a break because for the last 4 years I worked really hard. At [employer] it's like constantly working, all the time [..] there is no balance." (Patricia)
4. Relationship with supervisor	
	"They [bosses] are very controlling. And that can limit your development and the contribution that you can make to the project. That is one of the reasons why I resigned [..]. I loved what I was doing, but I couldn't see how I was ever going to make more of a contribution." (Grace)

4.4.4. Resilience strategies to thrive at work

This section examines how conservation professionals keep themselves motivated when facing the myriad of challenges in their profession including practices and strategies that help them cope with or prevent work-related stress, whilst remaining productive and engaged. With the exception of one interviewee, everyone shared experiences covering at least one identified theme; 68% (15/22) of respondents reported experiences in two or more of these themes. We identified six resilience strategies which had been experienced by more than one participant, for maintaining motivation at work. All six strategies that were considered major themes (>25% respondents) are discussed below with quotes in Table 4-4. An overview of major themes is presented in Figure 4-3.

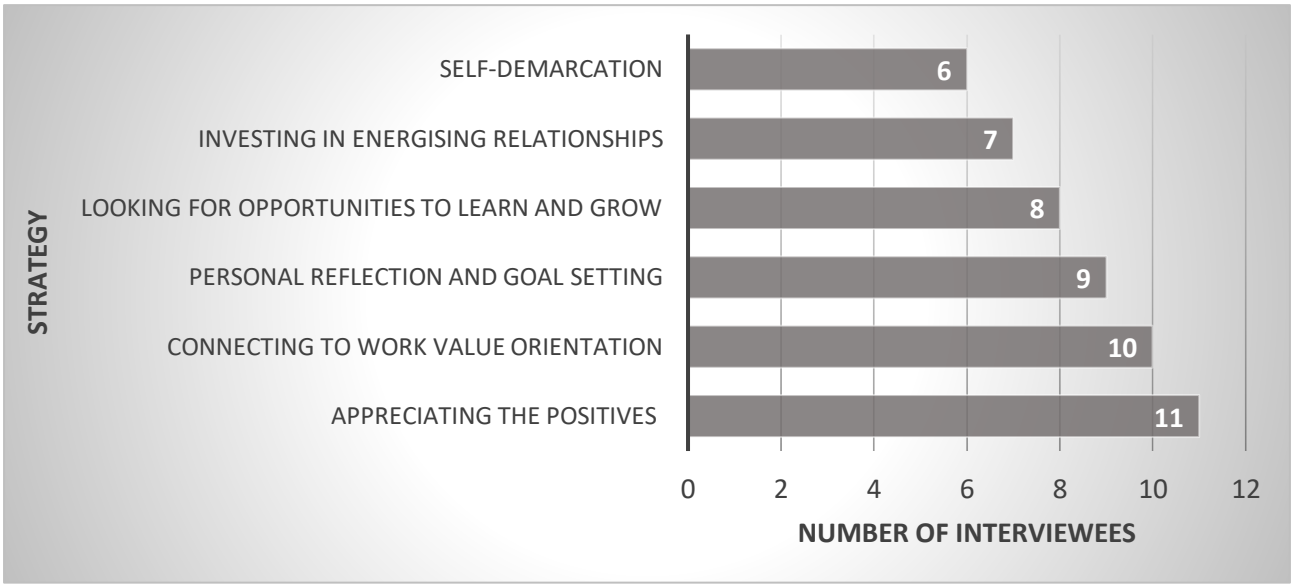

Figure 4-3 Resilience strategies identified from interviews with 22 conservation professionals

4.4.4.1. Appreciate the positives and maintain optimistic

The first strategy includes comments drawing upon positives and appreciating what was good, both linked to freeing up energy and maintaining motivation (Table 4-4). Accepting personal boundaries

was linked to maintaining optimism: "I think that the biggest issue for me is to think about what is feasible and manageable for yourself. Because when you start taking on the whole world..[..] The more important thing is to really do well at the scale that works for you. And then connect that to other people who are working on that scale and collectively you can have a bigger impact" (Joan).

4.4.4.2. Connect to your work value orientation

Respondents who described (re-)connecting with their work value orientation, i.e. the reason(s) why they value their work, linked this to feelings of energy, motivation and job satisfaction (Table 4-4). Laura provided an example of motivation impediment when she was not able to implement this strategy: "I think that for a long time [..] I was able to keep myself well-motivated because I was able to go to the field fairly regularly and since I haven't been as mobile over the past 5 years, I think that is another thing that has become a handicap in terms of keeping up my motivation" (Laura).

4.4.4.3. Reflect and set goals

Interviewees described the creation of time to reflect on personal situations and evaluating (life) goals, which was said to help restore health, regain motivation, and provide a sense of direction for one's career: "When I do appraisals of my senior managers [..] we realised that we worked a lot but we haven't got that sense of satisfaction and achievements. So we make that the practice, we say every year, there should be one thing that each of us does, which makes us feel proud when we look back [..] and that is also what motivates you" (Mary).

4.4.4.4. Look for opportunities to learn and grow

Work motivation was said to be enhanced through professional growth. Respondents described different types of professional development, such as pursuing formal degrees, individual inquiry-research (e.g. reading), study trips to other conservation sites, and professional networks or learning communities (Table 4-4). Professional growth could be pursued independently (e.g. self-study), though the majority of examples referred to activities that involved connecting with other professionals.

4.4.4.5. Invest in relationships that energise you

This strategy addresses the importance of contact with colleagues in the profession to enhance professional knowledge, and inspire and re-energise (Table 4-4). A feeling of relatedness was prominent in this strategy and overcoming feelings of isolation was regarded as an essential goal: "Sending your staff away to a conference is about empowering your staff. Certainly if you're in small portfolio offices in a big country, you often feel that it is sort of isolated doing this thing called conservation. But it's about [..] communities of practices, realising [and] really witnessing how many people come together for a common theme" (William).

4.4.4.6. Self-demarcation (set professional boundaries)

Defining and maintaining boundaries at work helped safeguard energy sources (Table 4-4) and aided off-work recovery: "I was starting to burn out and I had to make some decisions. [..] I need to try and be efficient but then leave between 5 and 6 [..] Then that started changing things again slowly where

I actually started to look forward to getting to work again. [..] It helped that my boss [..] understood [..] He was very supportive of that" (Katharine).

Table 4-4 Resilience strategies related to maintaining motivation at work illustrated by quotes from interviews with conservation professionals (n = 22), during March – June 2017.

Major theme and example activities	Illustrative quote from interviews
1. Appreciate the positives and maintain optimistic	
Actively look for positive stories; learn from work challenges	"I think you need to be optimistic, you need to make sure that you expose yourself to success stories, as well as lessons learned.[..] It might be difficult to maintain motivation knowing that you're only going to be a tiny cog in that huge engine of conservation but that's an important cog." (George)
2. Connect to your work value orientation	
Connect to your work value orientation, e.g. visit field sites/nature	"[I] definitely have a passion for conservation, and I have passion for being in the field. [..] Being in the field is very motivating [..] When I track gorillas I get highly motivated, just being there with them that's what it is all about." (Ruth)
3. Reflect and set goals	
Create time to evaluate and reflect on (life) goals	"It's good practice to reflect [..] What do I want in 5 or 10 years? [..] You should have a goal in your life [..], it could change but it's good practice to keep you motivated on one side but also [to] keep focussed." (Patricia)
4. Look for opportunities to learn and grow	
Research; formal education; study trips; networks	"I get myself motivated by reading a lot. [..] To get ideas. When I took on my new job I realised there was so much I was lacking [..] and then gradually I got sucked into this kind of learning mode." (Raymond)
5. Invest in relationships that energise you	
Participate in professional communities	"I was working in a silo. [..] But for me to be able to fit what I do into this network and to share that knowledge [..] I feel like it really has allowed me personally to grow, it allows me to feel more motivated in my work, it allows me to be more open to change." (Linda)
6. Self-demarcation (set professional boundaries)	
Prioritise tasks; select which projects to engage in; limit working hours	"We wanted to support some litigation and it started getting so [..] negative. So we said we will provide you with all the inputs [..] but we are not going to be closely associated because all the lies [..] it drains me." (Terry)

4.4.5. Behemoth battle and the role of self-efficacy

Joan's account sums up the experiences among respondents in which they experienced a loss of self-efficacy: "I have noticed that people leave the field of conservation because they are disaffected and may get tired, they feel like they are constantly trying to push against this behemoth. The people in the conservation arena [..] lack agency and power to make the difference that needs to be made to change [..] the threats. [..] I feel that some of it is disappointment with how things are going and how slow things are moving. Going to a place and trying to conserve and going back in a couple of years and finding it completely gone, it's hard on the heart, it's hard on the soul" (Joan).

4.5. Discussion

The study was designed to contribute to the literature on positive and negative job events, and resilience strategies in the nature conservation profession. Resilience strategies among the conservationists we interviewed matched those of physicians (Zwack & Schweitzer, 2013). Additionally, our interviewees reported they undertake reflection and/or activities to connect with their work value orientation to increase and/or maintain their motivation. This can be encouraged by managers if they know staff's work value orientation (Spira et al., 2018).

Our results indicate that undertaking work in line with one's work value orientation, and especially the calling orientation, may free up energy and motivation, which can lead to job satisfaction, work engagement and wellbeing. This finding is in line with previous research demonstrating that people who see their work as a calling reported higher job satisfaction than those

with a job or career orientation, and reported missing fewer days of work, which may indicate better health and/or motivation (Wrzesniewski et al., 1997). Additionally, ≥50% of our respondents experienced positive psychological states associated with work success and being recognised in this success, which corresponds to earlier studies across the primary, secondary and tertiary sector, including agriculture, manufacturing and health care (Herzberg, 1968). A study of job satisfaction among law enforcement rangers in Uganda showed similarities to our study whereby conducting work in line with one's values (e.g. protecting wildlife for future generations/as part of natural heritage), work success (i.e. not finding illegal activities or suspects during patrols), and personal growth contributed to job satisfaction (Moreto et al., 2016). Staff involved in a marine conservation project in Papua New Guinea reported that time for reflection, monitoring and evaluation, and thus growth was not prioritised as part of their everyday work and, at some levels of the organisation, actively discouraged by management, leading to emphasis being placed on project success rather than honest and complete overviews of project achievements (Benson-Wahlen, 2014).

Sufficient and fairly distributed opportunities to learn and grow as well as supportive leaders who foster a learning culture were identified as two key components of effective professional development among conservationists (Loffeld et al. 2020). Two resilience strategies identified in the current study are directly linked to professional learning and growth: 1) Personal reflection and goal setting and 2) looking for opportunities to learn and grow. We recommend for future research to test the relationship between learning opportunities, including time for regular reflection, and a learning climate supported by organisational leaders on the one hand, and outcomes including work performance and resilience on the other hand.

We identified workplace factors that were associated with negative job events, which resemble previous findings among African law enforcement rangers in terms of human resource inadequacies, lack of informational resources (i.e. communication) and tools/equipment needed, lack of basic needs (e.g. sanitary facilities, food, water) and unsafe working conditions, resulting in physical injuries and sickness (Moreto, 2016; Spira et al., 2018). Among Ugandan rangers, high workloads, pressure for results, poor supervisory and peer relationships and perceived unfairness were reported as additional sources of stress (Moreto, 2016), similarly reported by our respondents. Our study highlights that the groups at risk are not only law enforcement rangers but all those conservation professionals who face a high workload, experience limited control at work, work in isolation, little recognition and rewards, perceive unfairness in their workplace, or experience work value conflicts in the workplace (Maslach & Leiter, 2008).

Patterns of negative psychological states, e.g. exhaustion, cynicism, could develop into burnout over time, especially with limited off-work recovery (Sonnentag et al., 2010). Fairness (or its lack) has been reported to be a tipping point in this process, e.g. when staff feel angry about job inequities and lack faith in organisation policies to bring justice (Maslach & Leiter, 2008). It is therefore advisable for organisations to consider perceived fairness of rewards, e.g. promotion opportunities and salary, to prevent negative psychological states among employees. We would also like to highlight that exposure to unsafe working conditions, e.g. threats from wildlife, humans, and disease pressures, are not restricted to the ranger conservation cadre. In fact, none of the interviewees have worked as a law enforcement ranger, yet a few explicitly stated enduring psychological and physical trauma due to unsafe working conditions. Working conditions that impede social relationships, e.g.

with family, friends, were highlighted in this study and previous research for rangers and forest guards (Spira et al., 2018; Belhekar et al. 2020). We recommend that conservation organisations evaluate and mitigate working conditions that may impede employees' safety and personal relationships. Such initiatives would promote an organisational culture of care and enhance social support, leading to higher levels of resilience (Hobfoll, 2002) and positively influence well-being, work engagement, and productivity (Kašpárková et al., 2018).

Similar to previous findings (Herzberg, 1968; Moreto, 2016), factors identified in the current study were not mutually exclusive, although factors that related to positive psychological states were generally different to those factors that contributed to negative psychological states. Negative factors, also named 'dissatisfiers', relate to the context of the job and include basic human needs, such as safety, salary and benefits, personal life, and if not addressed, may cause negative psychological states (Herzberg, 1968). Positive psychological states are associated with a different group of factors, i.e. 'motivators', that relate to the work itself and actualising one's potential. Both motivators and dissatisfiers are linked to eudaimonic and hedonic perspectives of well-being (Deci & Ryan, 2008), respectively. Factors related to the positive dimensions of work-related well-being may vary across socio-economic and cultural contexts. For example, the link between intrinsic job characteristics (motivators) and job satisfaction was found to be stronger in countries where survival issues are less prominent (i.e. richer countries, countries with governmental social welfare programmes), whereas the positive relationship between extrinsic job characteristics (dissatisfiers) and job satisfaction was consistent across 49 countries (Huang & van der Vliert, 2013). Our study's sample size was modest and findings cannot be generalised to all conservation professionals. Nevertheless, our findings

included the views of professionals across 10 countries, and support previous research from other sectors. In addition, theoretical saturation was believed to have been reached in this qualitative study, since the data allowed us to identify areas of consensus and answer our research questions, and the data up to a certain point resulted in little new information (Newing, 2011). Based on our study results, we recommend considering both motivators and dissatisfiers (see also Henson et al. 2016 for examples) when organisations aim to support employees in the identification and implementation of resilience strategies and to be considered in future research. We furthermore have included practical recommendations below that can be of value across different contexts.

4.6. Implications for conservation

Conservationists face multiple challenges that are complex, relentless and often outside their control (Bruyere, 2015). We recommend the conservation sector to take action at multiple levels in response to these findings in order to foster strong personal resilience in conservation work. Firstly, individual conservation professionals should be empowered to assess their own situation. We can encourage resilience building among conservationists by supporting individuals in this process of gathering sufficient means to safeguard their energy, positively adapt to adversity, and focus on growth and development (Hobfoll, 2002). Some conservation organisations including The Nature Conservancy and Fauna & Flora International are investing such support for their employees (M. Carter, pers. comm). Support includes access to 'mindfulness' tools, guidance and mentoring with the aim of helping staff to adopt strategies to lead thoughtfully, manage workloads and reduce stress, and enabling them to feel more resilient and self-compassionate in their actions. Supervisors have an important role to play at the individual level, noting employees will each have different requirements

to fulfil their needs which only the employee can identify, i.e. they can be situational and dispositional in origin. It is therefore advisable for supervisors to adopt a coaching approach (e.g. asking reflective questions) versus a mentoring approach (e.g. sharing what worked in the past as the 'right' approach).

At an institutional level, organisations should look to their cultures, norms and values to help facilitate the supportive environment required to foster and embrace personal resilience. One promising approach for organisations to promote employee health and well-being is to actively support employees in identifying, using and developing their unique strengths at work (Meyers et al., 2018). Though socio-economic and cultural factors influence dimensions of work related-wellbeing (Huang & van der Vliert, 2003), the perceived organisational support for strengths use (POSSU) approach has demonstrated to increase work engagement and satisfaction and decrease burnout across different contexts (Meyers et al,. 2018). Providing employees with sufficient job autonomy is key here as well as a strong and trusting feedback culture that values employee strengths and voices and uses this to foster the growth of individuals, teams, and the organisation (Belhekar et al. 2020; Meyers et al., 2018). Brief strengths interventions can help employees apply their strengths at work, and are found to be effective especially for those employees with lower levels of self-efficacy (van Woerkom & Meyers, 2018). Other people-centred initiatives such as those focusing on equality, diversity and inclusion, and workplace safety (e.g. first aid training, counselling; Belhekar et al. 2020), improved flexible working practices, sufficient off-work recovery and streamlined institutional systems, can all help reduce individual's negative psychological states. Additionally, finding means

to better resource conservation activity with adequate personnel, equipment and funds, will reduce stresses and better enable positive conservation outcomes.

At a sectoral level, we recommend wider dialogue and lesson sharing on this topic, including integrating learning from other sectors. We should equip current and emerging leaders with the knowledge and tools to value and help support personal resilience. In light of our findings and recent research highlighting professional risks (Belhekar et al. 2020; Moreto, 2016; Spira et al., 2018), we recommend that greater attention is given to the importance and significance of self-care in conservation graduate programmes and the career development of conservation professionals. We hope our study will encourage dialogues on the importance of developing resilience strategies early on in one's career, preferably during one's education, and on pragmatic approaches to prevent and alleviate workplace adversity.

If enabling strategies are supported, and personal resilience levels for conservationists are better nurtured; resulting motivation, energy and optimism in individuals should translate to more effective and timely action for the protection of the planet.

4.7. Acknowledgements

We would like to thank the respondents of this study for their willingness and openness in sharing their experiences.

4.8. Ethical standards

This research was supported by a Vice Chancellor's Research Scholarship of the University of Kent, Canterbury, UK, and has been approved by the Research Ethics Advisory Group of the School of Anthropology and Conservation, University of Kent (Ref no 0401617). All authors have abided by the Oryx guidelines by following the British Sociological Association Statement of Ethical Practice 2017.

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4.10. Supplementary information

Table S4-1 Interview guide. More questions were asked during the interview and only the part related to the current study is included here.

Number	Question
1.	When did you start working in conservation?
	1.1. Which organisation/programme? 1.2. Main role 1.3. Where/country or countries of work 1.4. Duration/for how long?
2.	Why did you enter the field of conservation?
	2.1. What were your reasons to start working in the conservation sector? 2.2. Would you be able to give your main reasons for working in conservation now? Why do you do what you do? Why is that important to you?
3.	According to your experience as a conservation professional, which factors influence work performance in conservation in general?
	3.1. What could be promoters of work performance? 3.2. What could be barriers to good work performance?
4.	What is your individual approach to stay motivated in the complex field of conservation?
	4.1. How do you maintain your motivation when working in the field of conservation? 4.2. Can you use any (real-life) examples? 4.3. What would you give as a recommendation to stay motivated when working as a conservation professional, especially in countries with high biodiversity and limited informational, human and financial resources?

Chapter 5 From burnout to resilience: increasing the wellbeing and performance of conservationists

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5.1. Abstract

The purpose of this study was to explore the relationships between job characteristics on the one hand and multiple dimensions of work performance on the other hand, as mediated by burnout and work engagement, in conservation professionals. An online survey was conducted among a sample of conservation professionals (n = 561) based in 98 countries and the Job Demands-Resources model was tested using structural equation modelling. Participants reported that the more frequent they had access to job resources (e.g. opportunity to determine own work method, social support at work, and availability of useful information), the greater their experienced work engagement. Analyses revealed that the more engaged, i.e. experiences of vigour, dedication and absorption, professionals were, the more frequently they displayed task performance (e.g. working efficiently, apt time management) and contextual performance behaviours (e.g. taking initiative, updating knowledge and skills, creative problem-solving). We found no direct relationship between job demands and burnout; however, where burnout increased, task performance decreased. Furthermore, burnout mediated (i.e. is the mechanism to explain) the relationship between poor job resources and task performance, meaning that high levels of job resources were associated with lower levels of burnout, which in turn was linked to higher task performance. Our results highlighted why it is important for individual professionals and conservation organisations to maximise job resources and work engagement since there is a positive relationship with several indicators of work performance, such as working efficiently, taking initiative, creative problem-solving. Our results may help to inform individuals and organisations in nature conservation to consider which perceived job characteristics will have an enhancing influence on work performance, either directly or indirectly, by either increasing work engagement or decreasing burnout. Furthermore, where organisations notice a downturn in multiple

indicators of work performance, they should be alerted to the necessity to increase support for their staff in issues relating to wellbeing and motivation at work. This is the first study to quantitatively test correlations between job characteristics and multiple dimensions of work performance, mediated by stress and motivational processes, among a global sample of conservation professionals. The study demonstrates the value of using the Job Demands-Resources (JD-R) theoretical framework derived from organisational psychology in the context of exploring how we can improve work performance in nature conservation.

Keywords: work performance, burnout, work engagement, resilience, professional learning, conservation professionals

5.2. Introduction

The capacity of conservation professionals plays a vital role in the conservation of our wildlife and natural resources. It is argued that capacity is more than just an individual's knowledge and skills; it is the combination and interaction of capacity on an individual, organisational and sector level that influence work performance (Müller et al., 2015). Capacity development is the intentional process where capacity is created, strengthened and maintained over time, whether on an individual or organisational level (Simister & Smith, 2010). The majority of work related to capacity for conservation to date focussed on creating and/or strengthening capacity (e.g. Mistry et al., 2011; Blickley et al., 2013; Andrade et al., 2014; Barlow et al., 2016; Parsons & MacPherson, 2016; Lucas et al., 2017; Elliott et al., 2018; Robinson et al., 2018; Englefield et al., 2019), yet not how capacity can be maintained over time. Furthermore, little attention has been given to exploring the mechanisms and predictors of performance in their work environment (Ojha & Gairola, 2014). The current study focussed on maintaining capacity over time by looking at which factors, on an individual and organisational level, influenced the work performance of conservation professionals globally. Additionally, we explored how engagement and burnout each relate to work performance in a conservation context.

Feeling energetic, motivated and engaged at work is an important aspiration for individual professionals and organisations as a whole (Christian et al., 2011; Bailey et al., 2017). Engaged professionals, namely those defined as having a positive state of mind characterised by feelings of vigour, dedication and absorption (Schaufeli et al., 2002), are known to experience fewer health issues (see Bakker et al., 2011 for an overview) and higher work performance (Christian et al., 2011; Reijseger

et al., 2017). Working in nature conservation differs across roles and positions and includes work that can be cognitively complex (e.g. understanding complex ecological processes, socio-economic and political interactions; Sanders et al., 2021; requiring technical dexterity; Black et al., 2011), emotionally demanding (e.g. applying law enforcement in communities that staff are part of; Moreto, 2016) and may result in physical strains (e.g. physical trauma due to unsafe work conditions; Singh et al., 2020). These job demands, i.e. aspects of the job that "require sustained behavioural, physical, cognitive and/or emotional effort" (de Jonge & Dormann, 2003: 49), can negatively affect staff members' energy levels and mental states (Demerouti et al., 2001) which in turn can decrease work performance (Bakker et al., 2004). This negative process, also called stress process, is often characterised by increased levels of emotional exhaustion, cynicism and decreased sense of professional achievements, and has been well-described in the field of organisation psychology (Schaufeli et al., 1996; Maslach & Leiter, 2008). On the other hand, job resources are considered as the foundations of energy that are required when responding to the environment (de Jonge & Dormann, 2003), and positively influence individuals' energy levels and mental states (Schaufeli et al., 2009), thereby increasing work performance (Christian et al., 2011). Typical job resources include cognitive resources (e.g. having adequate access to relevant information and tools), social resources (e.g. receiving social support from co-workers when faced with a challenging work situation) and physical resources (e.g. the opportunity to take a break when work gets physically strenuous). The above processes are well described in the job demands-resources (JD-R) model, developed by work psychologists Demerouti, Bakker, Nachreiner, and Schaufeli (2001). Schaufeli (2015) described the basic concept of the JD-R model as the proposition that high job demands lead, via burnout, to negative outcomes (the stress process), whereas job resources are able to lead, via work engagement, to positive outcomes (the motivational process). In the present study, we focused specifically on work performance, and on the

yet unanswered question: how do the stress and motivational processes apply to conservation professionals? The current study aimed to fill this gap. Specifically, we sought to identify those job demands and job resources that are salient to the conservation profession and explored their impact on work performance. We hereby used the theoretical perspective of the JD-R model, including the stress process and motivation process.

5.2.1. JD-R model

Within psychology, researchers have increasingly explored the impact of people's resources on their stress resistance and well-being, also in relation to outcomes such as work performance. The JD-R model one of the prevalent models used in the field of occupational (health) psychology (Bailey et al., 2017). This model has been tested across cultures and is widely used by government agencies who inform policies on workplace health and safety (Bakker & Demerouti, 2016). It helps to understand how work conditions relate to work engagement and stress processes. A general hypothesis in the JD-R model (Fig. 5-1) is that, when job demands are high and job resources are low, this may lead to job stress and unfavourable health outcomes, such as exhaustion and burn-out (i.e. the stress process). This model also postulates that, if job demands are low and job resources are high, this may lead to work engagement and favourable outcomes for health and work performance (i.e. the motivation process). Although these relationships have been researched in many other contexts and across cultures, an understanding of these relationships in the context of conservation professionals will provide a baseline for developing interventions to improve staff wellbeing and performance which is critical to global conservation efforts.

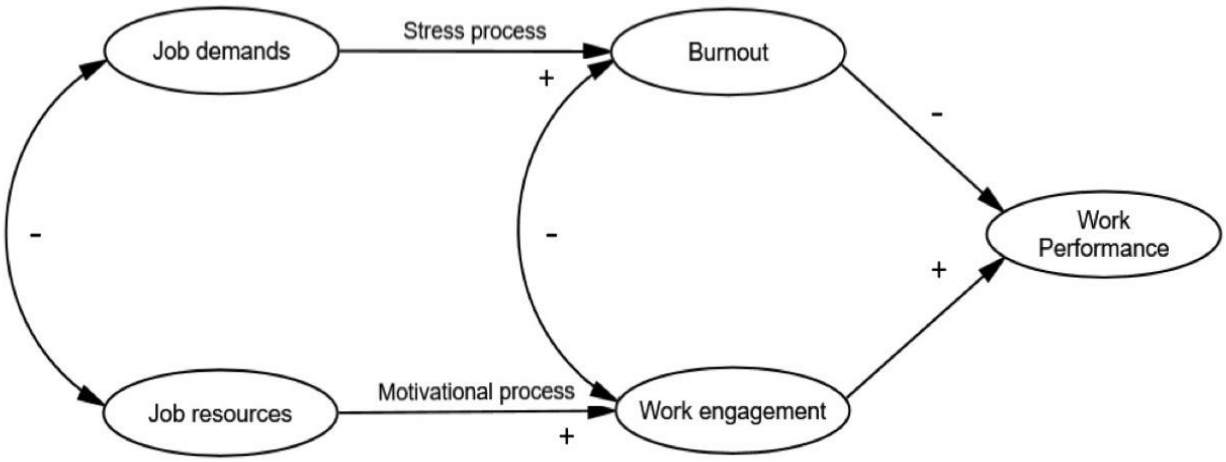

Figure 5-1. The hypothesized job demands-resources model

5.2.2. Burnout

Maslach et al. (2001) described how burnout can be seen as a prolonged cognitive-emotional reaction to chronic stressors on the job. They conceptualised burnout by the three dimensions of exhaustion, cynicism (depersonalisation) and inefficacy (reduced personal accomplishment). Exhaustion reflects the stress dimension of burnout and prompts people to distance themselves emotionally and cognitively from their work, resulting in cynicism or depersonalisation (Maslach et al., 2001). Reduced personal accomplishment occurs in some cases as a result of exhaustion or cynicism, or a combination of the two, whereas in other cases it occurs in parallel (Maslach et al., 2001). Decades of psychology research has revealed several predictors of burnout. Job demands can contribute to the stress process, including the quantitative work demands, e.g. time pressure and workload (Demerouti et al., 2004) and emotional demands (de Jonge et al., 2012). Job resources, such as a lack of autonomy (freedom in carrying out one's work) and a lack of social support are also associated with burnout (Bakker et al., 2004). Those previous research studies on burnout and stress prompt us

to consider the following hypotheses, namely: (H1) job demands are positively related to burnout; and (H2) job resources are negatively related to burnout.

Few studies have explored job characteristics of conservation professionals (hereafter also termed "conservationists"). Previous research illustrated how several job demands negatively impacted professionals' stress levels, job satisfaction and conservation success, including work overload and lack of staff (Moreto, 2016; Spira et al., 2018; Sanders et al., 2021) and cognitive demands including complexity, i.e. the extent to which a job is multifaceted and difficult to perform (Sanders et al., 2021). In some cases, occupational responsibilities have led to tense relationships with local communities (Spira et al., 2018; Belhekar et al., 2020), for example the emotional demands faced by rangers having responsibility to enforce wildlife protection laws while being unable to respond adequately to local people's legitimate concerns with problem species, such as crop foraging elephants (Moreto, 2016). Conservation work has also been described as physically demanding in some situations where a lack of vehicle transportation and road infrastructure requires days of walking (Spira et al., 2018; Belhekar et al., 2020), and where safety is compromised due to exposure to dangerous wildlife, poachers and militia (Moreto et al., 2016; Loffeld et al., 2020; Singh et al., 2020) or because of direct harassment and gender-based violence (Jones & Solomon, 2019; WildAct, 2020).

5.2.2. Work engagement

When staff feel engaged at work, they are typically full of energy (i.e. vigour), fully immersed in the activity, and enthusiastic about the work (Bakker, 2017). Positive associations have been found

between engagement and cognitive resources, such as autonomy, and social support, for example among teachers in the Netherlands (Bakker & Xanthopoulou, 2013; Bailey et al., 2017). Organisational resources were also positively related to engagement and included access to information, fairness, and rewards (i.e. recognition associated with time invested in the work setting) for nurses in Canada (Laschinger, 2010), and effective and efficient communication for employees of a large telecoms firm in the Netherlands (Brummelhuis et al., 2012). A psychosocial safety climate, characterised by management prioritising and communicating about occupational health and safety, was positively related to job resources, which in turn, positively related to engagement in a study among public and private employees in Malaysia (Idris & Dollard, 2011). The range of previous studies prompts our third hypothesis (H3): Job resources are positively related to work engagement. Furthermore, studies across sectors have revealed that engagement can be negatively related to physical demands, i.e. engagement is reduced by the amount of physical effort necessary for a job, or hazardous work conditions such as health hazards, temperature, and noise (Christian et al., 2011), or emotional demands (van den Broeck et al., 2011). Such studies prompt the hypothesis that: (H4) job demands are negatively related to work engagement.

In conservation work, job resources, such as the availability of useful information, tools and equipment, were reported to be limited and impeded effective conservation work in the face of urgent biodiversity threats (Moreto, 2016; Spira et al., 2018; Sanders et al., 2021; Belhekar et al., 2020; Singh et al., 2020;). Support of superiors and peers, including connecting staff with wider networks, expressing confidence in one's abilities and appreciating their work was reported to mitigate gender-related challenges in the conservation workplace for women conservation leaders (Jones & Solomon,

2019). Social support was said to be limited where conservationists worked in remote, socially isolated areas (Singh et al., 2020). Similarly social support was eroded in cases of contentious relationships with co-workers characterised by jealousy and anger (Moreto, 2016). This lack of social and emotional support was exacerbated in situations where work responsibilities prevented conservationists from spending time with family on a regular basis (Spira et al., 2018; Belhekar et al. 2020; Loffeld et al., 2020;). Safety issues encountered during conservation work have been reported in more recent studies (Moreto, 2016; Spira et al., 2018; Jones & Solomon, 2019; Belhekar et al., 2020; Loffeld et al., 2020; Singh et al., 2020), though very few report structured discussion of safety concerns within organisations, or clear organisational procedures for reporting safety issues. In a study representing 114 conservation professionals in Vietnam, 82.5% had experienced sexual harassment in the previous two years and the majority (59.8%) expressed a lack of awareness of any procedure in place within their organisation to address this harassment (WildAct, 2020). Other researchers surveyed 1,742 rangers across 293 conservation sites in Africa, Asia and Latin America and found that a majority (68.1%) of rangers did not feel they were provided with the necessary job resources, i.e. proper equipment and amenities, to ensure safety and fulfil their job requirements (Singh et al., 2020).

Moreto (2016) found that perceptions of workplace fairness (i.e. organisational justice; Greenberg, 1990) concerning the distribution of promotions were characterised by favouritism, nepotism and tribalism among rangers in Uganda and contributed to rangers' negative psychological states (e.g. discontent, stress). A lack of promotion was also mentioned to cause job dissatisfaction in rangers in the Democratic Republic of Congo (Spira et al., 2018) and one of the reasons why rangers

across Africa, Asia and Latin America did not wish their children to become rangers (Singh et al., 2020). Negative perceptions of organisational justice were also found in studies outside the ranger profession, i.e. in a study on women conservation leaders in the US (Jones & Solomon, 2019) and in conservation professionals who worked in biodiversity-rich countries where access to resources was limited (Loffeld et al., 2020). In particular, salary inequality, and formal and informal exclusion from opportunities to advance were reported to lead to job dissatisfaction and impede professionals' career development (Jones & Solomon, 2019; Loffeld et al., 2020). Recognition and appreciation were reported to be associated with positive psychological states, e.g. energy, motivation (Loffeld et al., 2020). Based on the notion that job demands would be positively related to burnout and job resources would have a positive relationship with engagement, we added the following fifth hypothesis: (H5) hypothesis: job demands and job resources are negatively related.

5.2.3. Outcomes

Burnout can lead to professionals withdrawing from their job, and is positively associated with absenteeism (Schaufeli et al., 2009). People who continue working while experiencing burnout are known to experience lower productivity and effectiveness (Bakker et al., 2004), which may lead to decreased job satisfaction, reduced commitment to their organisation and higher intention to leave (Alarcon, 2011). In contrast, engagement has been associated with lower turnover (i.e. greater staff retention) rates (Wright & Bonett, 2007), and higher work performance (Christian et al., 2011; Reijseger et al., 2017). Engagement is found to be an indicator of an individual's propensity to invest energy and focus on their work tasks, i.e. task performance, and of an employee's willingness to invest energy in going beyond their tasks and stepping outside their job role to facilitate the

organisation at large and the people within, i.e. contextual performance (Rich et al., 2010). Therefore, hypotheses 6, 7, and 8 are as follows: work engagement and burnout are negatively related (H6), burnout is negatively related to work performance (H7), and work engagement is positively related to work performance (H8).

In a study comprising employees from several sectors, including health care, education, private sector, Bakker et al. (2004) found that when demands are high, in particular workload, emotional demands, and work-home conflicts, then individuals' efficiency is reduced as they have to invest more energy and effort in focusing their attention to their work, which in turn, negatively affects task performance. On the other hand, a lack of resources, i.e. lack of autonomy, social support, or professional development opportunities, predicted disengagement (cynicism), which, in turn, was negatively related to contextual performance (Bakker et al., 2004). In a similar vein, research has found that engagement mediates (i.e. is the mechanism which explains) the causal relationship between the 'predictors', namely job demands and job resources on the one hand, and organisational outcomes on the other hand (Bailey et al., 2017). This led us to develop hypotheses 9 and 10:

H9: Burnout is the mechanism which explains (mediates) the relationships between high job demands (9a) and poor job resources (9b) on the one hand, and the work performance outcomes on the other hand.

H10: Work engagement is the mechanism which explains (mediates) the relationship between high job resources (10a) and low job demand (10b) on the one hand, and the work performance outcomes on the other hand.

5.2.4. Work performance

When it comes to the conservation work environment, the literature to date focuses solely on a single cadre, such as the law enforcement ranger profession (Ojha & Gairola, 2014; Moreto, 2016; Moreto et al., 2016; Spira et al., 2018; Belhekar et al., 2020; Singh et al., 2020), or on a single country (WildAct, 2020) or on gender (Jones & Solomon, 2019). These studies explored how certain job characteristics influenced conservationists' perceptions of occupational stress (Moreto, 2016), work motivation (Singh et al., 2020), psychological well-being (Belhekar et al., 2020), job satisfaction (Moreto et al., 2016; Spira et al., 2018; Belhekar et al., 2020), career development (Jones & Solomon, 2019) or barriers to conservation success (Sanders et al., 2021). With the exception of Ojha & Gairola (2014) who quantitatively presented an account of work performance of forest guards in India, none of these studies included self-reported measures of work performance directly. Building on Ojha & Gairola (2014), we used an updated measure of work performance suitable across sectors and job positions (Koopmans et al., 2011, 2012) and different cultures (Koopmans et al., 2016). Contrary to earlier research (Vroom, 1964), job satisfaction did not predict work performance in later studies (Wright & Cropanzano, 2000; Kašpárková et al., 2018) and is therefore not included in the current study.

Research on work performance have identified different types of performance with most studies referring to in-role performance and extra-role performance. In-role performance, which we refer to as task performance can be seen as the competence with which an individual performs the core or technical tasks central to their job (Campbell et al., 1990), and includes measures of goal and priority setting, efficiency and time management (Koopmans, 2014). Extra-role performance, here referred to as contextual performance, indicates levels of competence relevant to support the

psychological, social and organisational environment (Motowidlo & Van Scotter, 1994), including measures of showing initiative, active participation, and taking on extra responsibilities (Koopmans, 2014). Koopmans (2014) identified another dimension of work performance that is relevant to this study, named adaptive performance. Adaptive performance is the ability to adapt to changes in work roles or work environment (Griffin et al., 2007). Although often overlooked in previous studies, adaptive performance is important to conservation professionals because of their exposure to uncertainty, adversity and fast-changing environments in their work (Spira et al., 2018; Loffeld et al., 2020). A scale to quantify adaptive performance was developed by Koopmans (2014) and includes measures of professional learning (e.g. keeping job-related knowledge and skills up-to-date; Killion, 2013), resilience (i.e. adapting positively to adversity; Jackson et al., 2007), and creative and innovative problem-solving (Anderson et al., 2014).

5.3. Materials and methods

5.3.1. Participants and procedure

In order to test the hypotheses, an online survey study was conducted using convenience sampling (Newing, 2011) to gather the perceptions of conservation professionals. Data were collected using the online survey software Qualtrics (Qualtrics, Provo, USA) and distributed via the authors professional conservation networks through emails and social media platforms. Data were collected between 19 May 2019 and 20 January 2020. The survey included a participant information sheet emphasising the anonymity and confidentiality of the data. The questionnaire was designed in English and piloted with 20 individuals comprising both non-native English speakers and native English speakers. Based

on the pilot results, minor wording adjustments were made to ensure applicability to the conservation profession.

5.3.2. Measures

The questionnaire contained a total of 151 items, including questions on demographic characteristics. However, only those items related to the current study's research questions are included herein and an overview can be found in Table S5-1 (Supplementary information). In this study, we focused on a selection of job demands and resources as predictors of work performance, while acknowledging that there may be other factors that have an impact on the performance of conservation professionals. The selection of factors was based on those highlighted as relevant in the literature across other sectors. The items in the questionnaire were based on existing and validated scale items. Items for job demands and job resources originate from existing scales, such as the Demand-Induced Strain Compensation (DISC) questionnaire (de Jonge & Dormann, 2003; de Jonge et al., 2009) and the Questionnaire on the Experience and Evaluation of Work (QEEW; Veldhoven, de Jonge, Broersen, Kompier, & Meijman, 2002). Both questionnaires have been widely applied in the fields of organizational psychology and occupational health research.

The work engagement and burnout items were selected from the Utrecht Work Engagement Scale (UWES-3; Schaufeli et al., 2017), and modified from the Maslach Burnout Inventory General Survey (MBI-GS; Maslach et al., 1996; Schaufeli et al., 1996), respectively. Previous studies showed that MBI's inefficacy dimension highly correlates with the UWES' vigour dimension and could be

considered redundant (Cole et al., 2012; Byrne, 2016; Goering et al., 2017). The inefficacy dimension was therefore not included in the current study, meaning we only used the exhaustion and cynicism dimensions of burnout. Outcomes were measured using the International Work Performance scale, including measures of task, contextual and adaptive performance (IWP; Koopmans, 2014).

Some items were self-formulated, based on previous interview data (Loffeld et al., 2020) because some items were not applicable to the conservation profession, i.e. DISC items for physical demands and resources were based on the nursing profession. All job demands, job resources and work performance items were scored on a five-point Likert scale that either ranged from "never" (1) to "always" or from "strongly disagree" (1) to "strongly agree" (5), in addition to a "Not applicable/NA" option where needed (e.g. in case of organisation resources if professionals were independent contractors and would have no access to such resources). Work engagement and burnout items were assessed on a 7-point scale from "never" (1) to "every day" (7), based on the existing scales used.

5.3.3. Analysis

The JD-R model was tested through structural equation modelling (SEM; Jöreskog & Sörbom, 1993). The 12 working conditions were classified into two latent factors, one representing job demands and the other job resources, and treated as exogenous (independent) variables in the model. In addition, the burnout, engagement, and the work performance variables were defined as endogenous (dependent) variables. The latent factors were allowed to correlate, following the rationale that

working conditions also covary in reality, e.g. performance feedback with supervisor support (Demerouti et al., 2001).

Analyses were conducted in four stages; 1) testing assumptions of SEM, 2) Model identification, 3) Model fitting, and 4) Model evaluation and modification. Preliminary analyses were performed in SPSS and Excel (stage 1). First, multivariate analyses of variance (MANOVAs) were conducted, using age, gender, country of residence and years of work experience as independent variables and burnout, work engagement, and the three dimensions of work performance as the dependent variables. No significant differences were found in levels of burnout, work engagement, and work performance for any of these demographic variables and they were therefore excluded from further analyses.

Hereafter, multivariate normality was tested by means of the squared Mahalanobis distance test (Byrne, 2016). We identified 51 outliers when using a conservative probability estimate of $p \leq 0.001$ (Tabachnick & Fidell, 2019), which, after removal, resulted in a remaining sample size of 561 respondents to continue our analyses. Second, the variance inflation factor (VIF) was computed to detect problems of multicollinearity, i.e. when two or more variables are highly correlated and both may represent the same underlying construct (Byrne, 2016). This separate analysis provided us with VIFs of acceptable levels, i.e. Tolerance > 0.2; Variance Inflation Factor < 5 (Field, 2018) and we concluded that none of the study variables were that highly correlated that they both may represent the same underlying construct. Both assumptions of linearity and homoscedasticity were confirmed in a third step by means of a scatterplot which confirmed that there was no systematic relationship

between the predicted values and the errors in the model (Field, 2018). Lastly, to test the assumption that the variance of one variable was relatively similar to all levels of another variable, the assumption of homogeneity of variance was confirmed by creating a variance chart in SPSS in which no outliers were found, i.e. the difference between all of the observed variables variance ranged from 0.72-4.55 and was not greater than ten (Field, 2018).

Based on recommendations for organisational research, we adopted Conway and Lance's (2010) suggestions to address common method variance. Therefore, in the second stage of our analyses, three Confirmatory Factor Analyses (CFA) were conducted for indicator variables derived from each of the multidimensional constructs, these were 3 job demands (9 items), 6 job resources (20 items), and 3 outcomes (16 items), respectively. In each case, the assumed factor structure as displayed in Table S5-2 (Supplementary information) was pitted against a one-factor solution. When the fit of the assumed factor model was superior to that of the one-factor model, the fit of the former was optimised by using information from the modification Indices, which suggests allowing particular errors to correlate. In the third stage of analyses, structural equation modelling methods as implemented in AMOS 26.0 (Arbuckle, 2016) were used to test the research model displayed in Figure 1. Maximum likelihood estimation was employed and the goodness-of-fit of the tested models was evaluated using the chi-square ($\chi 2$) test statistic, the Normed Fit Index (NFI), the Tucker–Lewis index (TLI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). Values larger than 0.90 for NFI, TLI and CFI and 0.08 or lower for RMSEA indicate acceptable model fit (Byrne, 2016). For RMSEA, values greater than 0.10 should lead to model rejection (Browne & Cudeck, 1993). Statistical significant was set at $p < 0.05$.

5.4. Results

5.4.1. Characteristics of the participants

We used a total of 561 responses, after removing questionnaire responses that were incomplete for the data needed for the purpose of this study and after removing outliers based on the previously described Mahalanobis distance test (Byrne, 2016). Most of the participants were employees who worked in conservation NGOs (56.33%), at a university or research institute (17.11%) and at the government (13.55%). The sample included 257 men (45.81 %) and 304 women (54.19%), the mean age was 39 years (SD = 10.58), and respondents were based in 98 different countries (Table S5-3, Supplementary information). The majority of the sample held a university degree (96.9 %) or completed higher vocational training (2%).

Reliability of the items was assessed through internal consistencies for all variables which exceeded the value of 0.70 (Nunnally & Bernstein, 1994) and can be found in Table S5-1 (Supplementary information). The means, standard deviation, and correlations for all study variables are presented in Table 1. An average score of all items per scale representing one variable are presented in percentages in this section and denoted with the average symbol (μ).

5.4.2. Descriptive analysis

Job demands consisted of work, social and physical demands. Respondents scored higher (M = 4.94, SD = 0.79) on work demands, entailing both work overload and cognitive demands scales, compared to the social (M = 3.68, SD = 1.06) and physical demands (M = 3.61, SD = 1.35). In particular, the majority of respondents replied that they often or always experienced a work overload (μ = 68.33%)

and cognitive demands (μ = 75.28%), including complexity, concentration and precision and time pressure (Table S2). In contrast, a majority of participants reported to never, rarely or occasionally encounter emotional demands (μ = 70.47%), such as dealing with unrealistic expectations, anger and problems of others that affect respondents emotionally. Similarly, on average 80.04% of the respondents reported never, rarely or occasionally encounter physical demands; however, a notable 30.48% responded to often or always be exposed to physical safety issues due to external factors, e.g. disease exposure, dangerous wildlife, political instability (Table S2).

Job resources comprised organisational (M = 3.58, SD = 1.28) and work resources (M = 4.94, SD = 0.84), with respondents scoring higher on the latter. Work resources included items concerned with cognitive, emotional and physical resources. Under cognitive resources, respondents stated to never, rarely or occasionally have access to useful information (20.68%; from computers, books, co-workers) and the tools (35.47%; incl. equipment, devices, software) needed to do their jobs properly. Additionally, respondents stated to never, rarely or occasionally have the opportunity to vary complex with simple tasks (37.43%) and take a mental break when tasks require a lot of concentration (42.60%). Under emotional resources, the majority of respondents (60.25%) reported having co-workers who are (often or always) willing to provide a listening ear when they face a challenging situation. Nevertheless, half of the respondents reported to never, rarely or occasionally receiving emotional support in such situations (48.84%) or having the opportunity to express emotions without having to face negative consequences from co-workers (49.02%). Under physical resources, more than a third of the respondents never, rarely or occasionally reported the ability to take a break when work gets physically strenuous (35.29%), or being encouraged by others to discuss any safety concern they

may have (39.39%) and having the opportunity to participate in activities that ensure the safest possible working conditions (36.90%). Organisational resources included items concerned with communication, organisational justice, and recognition and appreciation. The majority of respondents replied that they felt sufficiently informed about important developments within their organisation (58.82%) and that it was clear whom to approach concerning different types of problems in the workplace (67.74%). However, less than half (47.42%) stated to be clear on how decisions were made in their organisation. Under organisational justice, less than half reported that the rewards they received for their work felt fair (43.49%), although the majority reported the rules and procedures were applied in a fair manner (53.83%) and felt fairly treated by their primary supervisor (70.94%). The majority of respondents also felt respected at work (60.25%), valued for their work skills (76.65%) and recognised and appreciated by their supervisor for their work (75.58%).

Mediators: The majority of our respondents ($\mu = 78.55\%$) regularly felt energetic and engaged at work ($M = 5.26$, $SD = 1.04$); however, a noteworthy percentage (25-52%) of the respondents frequently (i.e. once a week to every day) felt burned out ($M = 3.58$, $SD = 1.28$), i.e. mentally exhausted (52.41%) and emotionally drained (40.82%) because of their work, and cynical about whether their work contributes anything (25.31%).

Outcomes: The scores for task performance were high ($M = 5.16$, $SD = 0.87$); 65-89% of respondents indicated often or always in the self-assessment of their task performance, namely: being able to finish work on time, goal and priority setting, efficiency and apt time management. On the other hand, approximately 30% of respondents reported never, rarely or occasionally finishing their work on time (34.22%), managing their time well (33.69%) or feeling that they worked efficiently

(29.59%). In terms of adaptive performance (M = 5.12, SD = 0.83), the majority of respondents (μ = 68.18%) said to often or always keep their knowledge and skills up-to-date and frequently exercised creativity in their work, i.e. creative problem-solving and generating novel ideas (μ = 65.33%). The resilience items under adaptive performance showed that the majority of respondents (μ = 70.32%) was able to cope well with and recover fast after difficult situations and setbacks at work. Updating skills and knowledge rarely happened for about a third of respondents (μ = 31.82%). Creative problem-solving and coming up with creative (i.e. novel and feasible) ideas occurred rarely for an average of 34.67% of responding conservation professionals. Lastly, about a third of respondents (μ = 29.68%) shared that they never, rarely or occasionally coped well with and recover fast after difficult situations and setbacks at work. In terms of contextual performance (M = 5.17, SD = 0.78), the vast majority of respondents (μ = 78.12%) answered to often or always show initiative, active participation, and taking on challenging tasks and extra responsibilities.

5.4.3. Correlations

An overview of the correlations between the higher order variables (i.e. job demands, job resources, burnout, engagement, contextual performance, task performance and resilience) are presented in Table 5-1. This section describes the correlations between the lower order independent variables (i.e. work, emotional and psychical demands, and organisational and work resources) and the dependent variables (i.e. burnout, engagement, contextual performance, task performance and resilience).

In our sample, a significant and positive correlation was found between job demands and burnout ($r = 0.22$, $p < 0.001$), specifically between burnout on the one hand and work demands ($r = 0.19$, $p < 0.001$) and emotional demands ($r = 0.32$, $p < 0.001$) on the other hand. No significant correlation was found between physical demands and burnout ($r = 0.14$, ns). A significant and positive correlation was also found between job demands and engagement ($r = 0.14$, $p < 0.01$), specifically between engagement on the one hand and work demands ($r = 0.11$, $p < 0.01$) and physical demands ($r = 0.17$, $p < 0.001$) on the other hand. No significant correlation was found between emotional demands and engagement ($r = —0.06$, ns). Contextual performance was significantly and positively associated with work demands ($r = 0.14$, $p < 0.01$) and physical demands ($r = 0.14$, $p < 0.01$). No significant correlations were found between contextual performance and emotional demands ($r = —0.06$, ns). Task performance was also significantly and negatively correlated with work demands ($r = —0.11$, $p < 0.05$) and emotional demands ($r = —0.19$, $p < 0.001$). However, there was no significant correlation between physical demands and task performance ($r = —0.06$, ns). Resilience was significantly and negatively associated with emotional demands ($r = —0.12$, $p < 0.01$), though no significant associations were found between resilience on the one hand and work demands ($r = 0.05$, ns) and physical demands ($r = 0.01$, ns) on the other hand.

In our sample, a significant and negative correlation was found between job resources and burnout ($r = —0.51$, $p < 0.001$), specifically between burnout on the one hand and organisational resources ($r = —0.51$, $p < 0.001$) and work resources ($r = —0.37$, $p < 0.001$) on the other hand. Job resources significantly positively correlated to engagement ($r = 0.35$, $p < 0.001$), in specific between engagement on the one hand and organisational resources ($r = 0.34$, $p < 0.001$) and work resources (r

= 0.22, p < 0.001) on the other hand. Contextual performance was significantly and positively associated with work resources (r = 0.15, p < 0.001) and organisational resources (r = 0.13, p < 0.001). Task performance was significantly positively associated with work resources (r = 0.38, p < 0.001) and organisational resources (r = 0.35, p < 0.001). Resilience was significantly and positively associated with both organisational resources (r = 0.29, p < 0.001) and work resources (r = 0.32, p < 0.001).

Table 5-1: Means (M), standard deviations (SD), correlations (Pearson's r) between all variables. N = 561.

				r						
	Variables	**M**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1	Job Demands	4.38	0.67	—						
2	Job Resources	5.08	0.90	−0.31**	—					
3	Burnout	3.58	1.28	0.22**	−0.51**	—				
4	Engagement	5.26	1.04	0.14 *	0.35**	−0.46**	—			
5	Contextual performance	5.02	0.94	0.19**	0.18**	−0.23**	0.39**	—		
6	Task performance	5.16	0.87	−0.12 *	0.42**	−0.41**	0.36**	0.43*	—	
7	Resilience	4.98	0.94	0.02	0.36**	−0.35**	0.39**	0.45*	0.45**	—

* p < 0.01, ** p < 0.001.

5.4.4. Model identification

In the second stage, unidimensionality was ensured by setting the regression weight of the item with the largest loading value to 1. Next, confirmatory factor analysis (CFA) were conducted. Based on previous research in the organisational psychology field (Schaufeli, 2015), it was expected that job demands clustered into work demands, emotional demands, and physical demands; whereas job

resources into work resources, social resources, and organisational resources. Finally, the work performance outcomes were expected to cluster in task, contextual and adaptive performance (Koopmans, 2014).

The Kaiser-Meyer-Olkin (KMO) measure was used to test whether our sample size of 561 was sufficient to carry out a confirmatory factor analysis. A KMO score of 0.89 confirmed an adequate sample for all measured items based on the requirement that KMO values should exceed 0.5 (Field, 2018). The fit of the three CFA models could be improved significantly by allowing pairs of errors to correlate based on the Modification Indices. More specifically, for job demands, job resources and outcomes, three, fifteen and thirteen pairs of errors were allowed to correlate, respectively (Table S5-2). These correlated errors represent common variance that is not explained by the latent construct and is most likely caused by overlapping items (Schaufeli, 2015).

Following the CFAs, an examination of convergent and discriminant validity was performed. Convergent validity, i.e. how well the items load onto the latent variable, was tested for each of the latent variables. Following Fornell & Larcker (1981), the average variance extracted (AVE) and composite reliability of each construct were calculated in Excel using the item factor loadings derived from AMOS. Composite reliability values of each variable met the threshold value of >0.70; however, the average variance extracted (AVE) values only met the criteria of >0.5 for five of the eleven variables and thus for the remaining six variables (i.e. work demands, emotional demands, work resources, organisational resources, contextual performance and adaptive performance) convergent validity was not established. Next, discriminant validity was determined to ensure that each

construct measured different characteristics. For each of the pairwise constructs, the squared correlations derived from AMOS were compared with the AVE scores, in which the AVE scores need to be greater than the squared correlations. Discriminant validity was established for all of the pairwise constructs, except for social resources with work resources, and adaptive performance with contextual performance.

5.4.5. Model fitting

In this third stage, adjustments to the model (i.e. model fitting) were made based on the outcomes of convergent validity and discriminant validity examination. The following items were deleted based on the low factor loading value (i.e. standardised regression weights) and corresponding AVE values: Work overload item 3 (0.42) from work demands; organisational justice item 1 (0.45) from organisational resources, and cognitive demand item 3 (0.30) and 4 (0.41) from work resources (Comrey & Lee, 1992). Based on the discriminant validity outcome and in line with research by Schaufeli (2015) and Koopmans et al. (2012; 2016), social resources was merged under work resources and adaptive performance under contextual performance, respectively, with the exception of two outcome items relating to resilience (AP1-2) which were based on Koopmans (2014) and kept as the third dimension of work performance. These changes to the model resulting in a model (M2 modified) that better fitted our data and based on the fit indices in Table 5-2 it is relatively accurate in examining the causal effects between the constructs and can be applied to a much larger sample size.

Table 5-2: Test of research model

	Model	χ^2	df	NFI	TLI	CFI	RMSEA
M1	Hypothesized model	3110.63	1379	0.82	0.88	0.89	0.05
M2	Final model (modified)	2382.80	1174	0.85	0.91	0.92	0.04

5.4.6. Model evaluation and modification

In the final stage, the model was evaluated and modified. Results for model testing are shown in Table 5-3. The hypothesised model (M1) did not meet its criterion for all four goodness-of-fit indices. This problem was solved in the modified hypothesized model (Final model; M2) by adding the following changes to the model based on the Modification Indices: by allowing the pair of errors to correlation between burnout and engagement. The resulting modified model (M2) showed a reasonable fit with the data; only the value for NFI at 0.85 was just below the threshold of ≥0.9 (Byrne, 2016). It appeared that M2 has a demonstrably better fit to the data than the hypothesized model M1 ($\Delta\chi2 = 727.83$, $\Delta df = 204$) as measured by these four criteria. We concluded that the final model fits the data well based on the goodness-of-fit index (Byrne, 2016) on the basis that (a) the RMSEA point estimate was <0.05 (i.e. 0.04); (b) the upper bound of the 90% interval is .05, which is less than the value suggested by Browne & Cudeck (1993) and less than the cut-off value of 0.06 proposed by Hu & Bentler (1999); and (c) the probability value associated with this test of close fit is >.50 (p=1.00).

5.4.7. Model testing

On evaluation of the standardised path-coefficients and corresponding p-values, we found that the majority of proposed relationships in the JD-R were significant and in the expected direction. Evaluating the stress process, the coefficient of the path from job demands to burnout was initially significant and positive ($\gamma = 0.22$, $p < 0.001$); however, when we added our hypothesised path from job resources to burnout, the path from job demands to burnout was no longer significant ($\gamma = -0.02$, ns). We therefore cannot confirm hypothesis 1 that job demands were positively related to burnout. The coefficient of the path from job resources to burnout was highly significant and negative ($\gamma = -0.55$, $p < 0.001$), confirming hypothesis 2. Contrary to our expectations, we found a significant and positive path-coefficient from job demands to engagement ($\gamma = 0.24$, $p < 0.001$), rejecting hypothesis 4 that job demands negatively influence work engagement. Regarding outcomes, the path coefficient from burnout to task performance was significant and negative ($\beta = -0.17$, $p < 0.001$). Two path-coefficients from burnout were non-significant, namely, those path-coefficients that linked burnout with contextual performance ($\beta = -0.04$) and burnout with resilience ($\beta = -0.11$). Since our discriminant validity results drove us to merge adaptive performance with contextual performance, we partially confirm hypothesis 7 since burnout negatively influenced task performance only, yet no support was found that burnout negatively influenced contextual performance.

Concerning the motivational process, all path-coefficients were significant and positive; i.e. job resources with engagement ($\gamma = 0.62$, $p < 0.001$), engagement with task performance ($\beta = 0.33$, $p < 0.001$), engagement with contextual performance ($\beta = 0.51$, $p < 0.001$), and lastly, engagement with resilience ($\beta = 0.47$, $p < 0.001$), confirming our hypotheses that job resources are positively related to

engagement (hypothesis 3), and, in turn, engagement is positively related to work performance (hypothesis 8).

The final JD-R model (M2) is displayed in Figure 5-2 and explains 46% percent of the variance in burnout and 58% percent of the variance in work engagement, derived from the respective Average variance extracted (AVE) values. The explained variance of the outcomes ranges from 41% for contextual performance to 54% for task performance. Significant negative covariations were found between job demands and job resources ($\beta = -0.40$, $p < 0.001$) and between burnout and work engagement ($\beta = -0.39$, $p < 0.001$), herewith confirming our hypotheses 5 and 6, respectively. Additionally, we found positive covariations between the different outcomes, namely, task and contextual performance ($\beta = 0.21$, $p < 0.001$), task performance and resilience ($\beta = 0.22$, $p < 0.001$), and contextual performance and resilience ($\beta = 0.27$, $p < 0.001$).

Following Schaufeli (2015), significant results were obtained for separate tests (Sobel, 1982) for the mediating roles of engagement and burnout, mediating the relationship between job resources and job demands on the one hand (as inputs) and both work performance outcomes on the other hand (the output). Upon exploration of the stress process of the JD-R model, no significant relationships were obtained in the final model (M2) for the mediating role of burnout in the relationship between job demands and work performance outcomes, thus rejecting hypothesis 9a. However, in the final model (M2) burnout did mediate the relationship between job resources and task performance (Sobel = 3.24; $p < 0.01$). This means that high levels of job resources relate to lower

levels of burnout, which in turn is linked to higher task performance, partially confirming H9b since there was no such relationship for contextual performance.

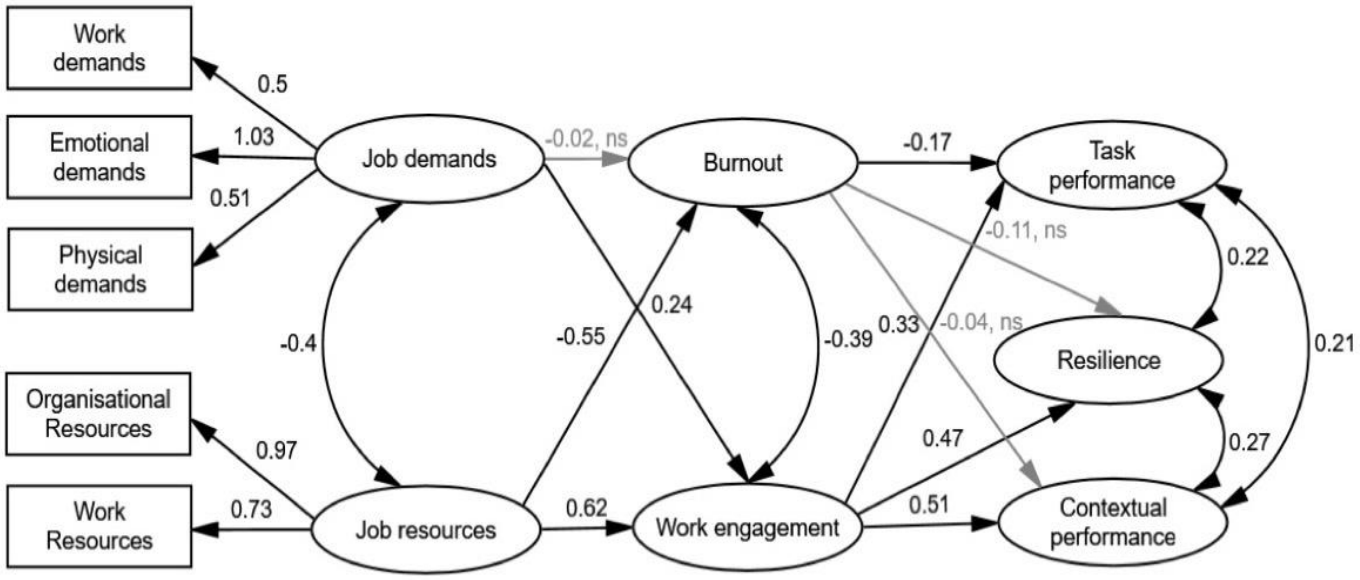

Figure 5-2: Structural equation modelling results of the final research model (M2). Lightgrey arrows represent non-significant (ns) pathways. Significant path coefficients (i.e. standardised regression weights) are represented along the black single arrows pathways and significant covariations are given next to the black double arrows ($p < 0.05$).

Consistent with the motivation process of the JD-R model, engagement mediated the relationship between job resources and task performance (Sobel = 4.50; $p < 0.001$) and the relationship between job resources and contextual performance (Sobel = 7.20; $p < 0.001$), accepting hypothesis 10a. Engagement also mediated the relationship between job demands and task performance (Sobel = 3.34; $p < 0.01$) and contextual performance (Sobel = 3.82; $p < 0.001$), confirming hypothesis 10b. Additionally, we found that engagement mediated the relationship between job resources and

resilience (Sobel = 6.64; $p < 0.001$) and the relationship between job demands and resilience (Sobel = 3.73; $p < 0.001$).

5.5. Discussion

5.5.1. Burnout in conservationists

Our study is the first to quantitatively test correlations between the predictors of psychological states of burnout and motivation and outcomes of work performance categories for conservation professionals in various positions. We offer the first empirical model to describe influences on work performance for professionals in conservation. Reported burnout scores for conservationists from this study (M = 3.58, SD = 1.28) were higher than those reported for dentists in Finland (M = 1.70, SD = 1.18; Hakanen & Schaufeli, 2012) and for employees in various sectors (such as healthcare, education, private sector) in the Netherlands (M = 2.13, SD = 0.47; Bakker et al., 2004). Our results only partially confirm the stress process; we found a non-significant pathway from job demands to burnout where other studies using the JD-R model across sectors found significant positive relationships (see e.g. Crawford et al., 2010 for an overview). The nonsignificant pathway may be attributable to the specific job demands included in this study in combination with the type of conservation job positions of the respondents. For example, due to the limitations of our survey being available online only, we may not have reached those professionals who were conducting fieldwork during data collection. Yet those individuals may have experienced higher physical demands than those in desk-based positions and who were able to respond.

The pathway from burnout was only significantly negatively correlated with task performance, indicating that higher levels of burnout result in lower levels of task performance, which is in line with previous research (Bakker et al., 2004). We only found support for burnout mediating the path from job resources to task performance (partially supporting H9b). In their study on employees in various sectors, Bakker et al. (2004) found a negative relationship between the exhaustion dimension of burnout and task performance (in-role performance), whereas the cynicism (disengagement) dimension of burnout was negatively associated with contextual performance (extra-role performance). Our findings resemble Bakker et al., (2004) in that higher levels of job resources were linked to lower levels of burnout, which, in turn, was linked to higher task performance.

5.5.2. Work engagement in conservationists

We found significant pathways from job resources and engagement, which, in turn positively influenced task and contextual performance, which is in line with empirical evidence across sectors (Christian et al., 2011). Reported engagement scores for conservationists from this study (M = 5.26, SD = 1.04) were higher than those reported for nurses in Canada (M = 3.90, SD = 0.89; Laschinger, 2010) and dentists in Finland (M = 4.46, SD = 1.07; Hakanen & Schaufeli, 2012). Consistent with the motivational process of the JD-R model and previous studies, work engagement mediated the relationship between job resources and the work performance outcomes (H10a) (Bailey et al., 2017). Surprisingly, we found a positive and significant path-coefficient from job demands to engagement. We furthermore found that engagement mediated the relationship between job demands on the one hand, and task and contextual performance on the other (10b). Podsakoff et al. (2007) found that job

demands can be divided into challenge and hindrance stressors. Challenge job demands (e.g. high workload, time pressure, responsibility) cost an individual effort and at the same time have the potential to promote personal growth and achievement for that individual, and correlate positively to both work engagement and burnout under certain conditions (Crawford et al., 2010; Goering et al., 2017). Hindrance job demands, e.g. role conflict, role ambiguity and role overload, place a strain on the individual limiting their achievement of valued (work) goals and are generally positively correlated to burnout and somewhat negatively correlated to engagement (Crawford et al., 2010; Goering et al., 2017). The work demands in this study, including job complexity, level of attention required for tasks, time urgency and subjective workload, have the potential under certain conditions to be regarded as challenge stressors, which is reflected in the significant positive correlations with burnout and with engagement and corresponds to empirical evidence found in other sectors. For example, in a study among hospital staff, Hornung et al. (2010) found complexity to be positively associated with engagement, and its potential to motivate has been argued previously (Hackman & Oldham, 1976; Christian et al., 2011). Although challenge demands are positively associated with both burnout and engagement, it is important to note that, any positive impact which challenge demands may have on engagement, could be lost as soon as the individual begins to become exhausted (Goering et al., 2017).

5.5.3. Job demands predicting burnout and engagement

Emotional demands had the strongest (positive) significant correlation with burnout; however, we also found a non-significant negative relationship with engagement ($r = -0.06$, ns), which may indicate it being a hindrance job demand. Emotional demands may however be difficult to classify

across our sample, and similar to the other demands, could be context specific. For example, emotional demands were more frequently classified as challenging than hindering in a sample of nurses and work pressure as more hindering than challenging (Bakker & Sanz-Vergel, 2013), whereas in another study with employees of three different service organisations (e.g. healthcare, recreation), emotional demands and a lack of detachment (i.e. off-job recovery) were found to be predictors of emotional exhaustion (de Jonge et al., 2012). In the current study, the items in the emotional demands' scale did not include the possible emotional toll conservation work may take when observing threats to nature; only the emotional demands placed on conservationists by other people were included in the present study. For example, feelings of a "losing battle" were reported as a factor of influence on levels of energy, motivation and satisfaction in conservation professionals (Loffeld et al., 2020: 11).

Findings in the current study show that emotional demands are positively related to burnout and a notable 40-50% of the respondents reported to frequently (i.e. once a week to every day) feel mentally exhausted and emotionally drained because of their work, supporting the notion that emotional demands are important to consider in conservation work. We recommend future research to specify and include non-people elements of emotional demands (e.g. witnessing habitat degradation or species extinction) when exploring job characteristics and their relation to burnout and other personal outcomes experienced by professionals.

In the current study, physical demands were not correlated with burnout, and surprisingly we found a significant positive relationship with engagement. In one study, rangers appraised physical demands as both a challenge and a hindrance in a ranger study; physically strenuous tasks

were assessed by some rangers as a means to keep physically fit, thereby promoting engagement (i.e. a challenge) and physical safety issues were highlighted as hindrances that prevented rangers from performing their jobs to the best of their abilities (Moreto, 2016; Moreto et al., 2016). Physical demands will vary across job roles in conservation and so will subsequent consequences. For example, physical demands, a lack of off-job recovery, and lack of resources were found to be predictors of physical health complaints in staff working in healthcare and recreation (de Jonge et al., 2012). Future studies should consider separating the physical demands used in the current study into physically strenuous demands and physical safety issues when exploring the conditions under which job demands act as hindrances versus challenges for other cadres of conservation professionals than law enforcement rangers.

5.5.4. Job resources predicting burnout and engagement

We found job resources to be the strongest predictor in our model, with a significant positive path to engagement and a significant negative path to burnout. Under organisational resources, we included communication, organisational justice (also "fairness") and recognition and appreciation as organisational resources. Previous research revealed the significant role of perceived fairness of organisational policies and administration, e.g. funding and career development opportunities, on conservation professionals' positive and negative psychological states (Moreto, 2016; Jones & Solomon, 2019; Loffeld et al., 2020). This insight from the conservation profession mirrors findings in other sectors. For example, a lack of perceived fairness was a strong predictor of burnout among professional services staff at a university (Maslach & Leiter, 2008), low organisational justice was found to pose a risk to the health of hospital employees (Elovainio et al., 2002) and the presence of

fairness was positively associated with engagement for nurses (Laschinger, 2010). Organisational communication, including transparency about important developments in organisations, decision-making procedures and where to find support in case of problems, as well as feeling recognised, respected and appreciated for one's work are closely linked to the notion of fairness and can create empowering work conditions that engage staff (Laschinger, 2010; Jones & Solomon, 2019). These organisational resources (communication, organisational justice, and recognition and appreciation) are therefore often grouped together in the JD-R model (Schaufeli, 2015). Today, when new ways of working are explored, e.g. choosing where and when to work, effective and efficient communication is especially relevant to optimise work engagement (Brummelhuis et al., 2012).

Work resources significantly correlated with burnout (i.e. negative) and engagement (i.e. positive). In this study, work resources are specifically related to cognitive resources that support the work itself, such as access to information resources and tools (including equipment, software) and autonomy, social support and physical resources, e.g. ability to take a break from physically strenuous work, ability to participate in safety measures. In terms of cognitive resources, the vast majority of this study's respondents reported to not always have access to the information, tools and equipment needed to perform well in their jobs nor have the opportunity to take a mental break when tasks require high concentration. Ranger studies drew attention to the importance of access to sufficient tools and "perishable" equipment such as boots, rain jackets, mosquito nets and tents, as well as weapons and ammunition, and even basic amenities including sufficient clean drinking water and suitable foods, to ensure the wellbeing of staff and for field operations to be conducted effectively (Moreto, 2016; Spira et al., 2018; Singh et al., 2020).

Social support has been reported to mitigate challenges in the conservation workplace (Jones & Solomon, 2019) and such support is especially important in work situations with high interpersonal conflicts (Moreto, 2016) and conditions that limit spending time with friends and family outside of work to promote off-work recovery (Spira et al., 2018; Belhekar et al., 2020; Loffeld et al., 2020; Singh et al., 2020). Previous conservation studies draw attention to the consequences of absent job resources on staff's safety and performance, which ranged from dangerous situations (e.g. sexual harassment, increased risk of retaliation by communities) to decreased work performance (e.g. ineffective decision-making, ineffective law enforcement) where employees were not supported, recognised and respected by superiors (Benson Wahlén, 2014; Moreto, 2016; Spira et al., 2018; Jones & Solomon, 2019; WildAct, 2020), and highlight the need for adequate and sufficient organisational and work resources for conservationists.

5.5.5. Resilience

Despite the significant negative correlation from burnout to resilience ($r = -0.35$, $p < 0.001$), we found no evidence that burnout reduced resilience, since the path-coefficient from burnout to resilience in our final model (M2) was nonsignificant. Job resources were significantly and positively related to resilience and so was the path-coefficient from work engagement to resilience ($\beta = 0.41$). Kašpárková et al. (2018) found that resilient workers in helping professions (i.e. health care, education, social work) were more satisfied and engaged at work and performed better than their less resilient peers. They found that work engagement partially mediated the relationship between resilience and work performance. Our study showed significant and positive covariations between resilience and both task and contextual performance, though cause-effect directionality was not confirmed. Like we

recommended with the stress and motivational processes, further research to explore the reciprocity of these relationships is needed.

There is an increasing need for conservation professionals to develop effective resilience strategies to counteract challenges (Loffeld et al., 2020), and to enable them to continue to thrive in their roles. Descriptive results illustrated that approximately 30% of respondents reported not often coping well with difficult situations or recovering promptly after setbacks at work. Our findings are promising in that motivational strategies to increase work engagement, i.e. by increasing job resources, could be beneficial to resilience building, concurring with research among health care professionals (Matheson et al., 2016). For example, interventions such as short-term coaching has been reported to increase resilience and workplace wellbeing, and reduce stress and depression and may be worth considering as a practical solution (Grant et al., 2009).

5.6. Conclusions

In conclusion, work performance of conservation professionals was most strongly predicted by job resources, both through the stress process (for task performance only) and the motivational process, in our sample of 561 conservationists across 98 countries. Whether job demands act as hindrances or challenges is not the same across occupations and individuals (Bakker & Sanz-Vergel, 2013), nor is it likely to be the same across conservation professionals given the diversity of roles and responsibilities in conservation. Moreover, it may not always be clear when a job characteristic is a job demand or job resource. Generally speaking, job demands require an individual to spend energy, whereas job

resources stimulate intrinsic motivation for action to achieve one's goals. Job demands and job resources represent two distinct categories of job characteristics, because the absence of a job demand does not motivate nor does the absence of a job resource translate to a job demand (Bakker & Demerouti, 2016). As our study supports, both type of job characteristics (i.e. job demands and job resources) serve as predictors of the stress and motivational processes which, in turn, were found to influence two types of work performance and resilience. For this reason, both categories of job characteristics are important to consider for individuals and organisations alike. We recommend for conservation organisations to become more familiar with the job demands and job resources under their influence to help enable their professionals to deliver higher performance.

The stress and motivation processes were present in our sample of conservation professionals; with burnout negatively impacting task performance, and engagement positively influencing task and contextual performance, as well as resilience. These processes should be considered distinct from one another, and strategies to reduce burnout are not necessarily the same as those that increase engagement (Schaufeli & Bakker, 2004). One cannot prevent burnout by providing an abundance of job resources only when employees are exposed to chronic stress due to cognitively, emotionally or physically demanding work. Both burnout and engagement strategies require conservation organisations' attention. We recommend these strategies to include interventions at a team-level because of reported crossover of both burnout and engagement between teams and individuals (Bakker et al., 2006).

Organisations and their employees should identify the challenge and hindrance demands relevant in their work and work environment. Organisations can reduce the stress process by eliminating hindrance demands, e.g. interpersonal conflicts, whilst ensuring that challenge demands contribute to engagement rather than employee exhaustion by monitoring employees' stress levels (Goering et al., 2017). Organisations and individuals can furthermore stimulate the motivational process at work by increasing job resources through job re-design, e.g. increasing available information and tools, increasing autonomy in choosing the way and when one works on certain tasks, as well as by increasing social and organisational support, e.g. recognising and rewarding people for their work and when they help others, clear communication and transparency about how rewards and opportunities are distributed.

5.7. Applicability of JD-R model and study limitations

Despite the ambiguity whether a specific job characteristic represents a challenge or hindrance demand, or a job resource in the JD-R model (Bakker & Demerouti, 2016), we found this heuristic framework to be a useful tool in creating further insights into the burnout and motivation processes among the conservation workforce in general. The JD-R model makes the stress and engagement processes accessible to management intervention (Bakker et al., 2004); if management is capable of reducing (hindrance) demands, for instance by assigning them a suitable workload, employees' task performance should increase through the motivational process (i.e. increased engagement). Researchers should obtain sufficient knowledge on the role of each job characteristic in the context of conservation work and work environment to consider the limitations of using the JD-R model. We furthermore recommend future research to include other organisational resources that were found to

be important in conservationists' motivational and stress processes such as relationship with line managers and opportunities for growth and development (Loffeld et al., 2020). Our main study limitations concern the cross-sectional design of our research and that the measures of all variables were based on self-reports. We could not confirm causal relations because of the cross-sectional design and longitudinal studies are needed the further validate the findings. For example, a longitudinal study on the stress process of staff at an employment agency showed that work pressure, work-home interference and exhaustion each predicted each other over time and therefore none of these could be considered only a predictor or only an outcome (Demerouti et al., 2004). Therefore, it would be of interest to explore job characteristics with models that could include reciprocal relationships. Furthermore, self-reports on all variables may have resulted in a positive bias in the associations among the study concepts (Podsakoff et al., 2003). Nevertheless, studies that explored the correlations between job characteristics and included other-rated work performance scores, e.g. by colleagues or managers, showed similar relations and in the same direction (Bakker et al., 2004; Schaufeli, 2015). Although no significant differences were found in levels of work engagement, burnout, and work performance across demographic variables (i.e. age, gender, country of residence and years of work experience), the limitations of our survey being available in English and online only means that the sample of this study is not completely representative of the overall population of conservation professionals globally and the influence of certain demographics cannot be excluded. Whilst this is a weakness of the study, the results can still give a useful indication of the situation among conservation professionals.

5.8. Implications for conservation

There is a significant overlap in countries with high biodiversity and those countries with limited financial and human capacity for conservation (Waldron et al., 2013; Sanders et al., 2021). Yet, conservation professionals' role is ever-changing due global trends such as demographic shifts, rapid urbanisation, shifts in global political and economic power and technological developments. Organisational effectiveness is highly dependent on individual performance (Covey, 1989; Deming, 1994; Mager & Pipe, 1997; Senge, 2006) it is therefore vital to increase our understanding of the work and work environment and its influence on work performance (Loffeld et al., 2020). Thus far, attempts to link performance to conservation impacts (e.g. habitat recovery) are pointing to different predictors (e.g. staff capacity; Geldmann et al., 2018; contextual influences; Schleicher et al., 2019) and very few studies have explored the role of job characteristics in relation to conservationists' work performance. Previous studies focused solely on law enforcement rangers (Moreto, 2016; Moreto et al., 2016; Spira et al., 2018; Singh et al., 2020) and forest guards (Ojha & Gairola, 2014; Belhekar et al., 2020) when exploring staff's positive and negative associations with their work and work environment and their impact on work performance outcomes and job satisfaction. Our study explored predictors of burnout, engagement and work performance for conservation professionals across positions. We expect our study to provide managers and organisational leaders with the knowledge and tools to increase productivity while at the same time to be of interest to individual professionals and organisations alike as all would benefit from well-being at work. Building on previous recommendations in the conservation literature (e.g. Black et al., 2011; Belhekar et al., 2020; Singh et al., 2020) and supported by findings in other sectors, our study provides evidence that providing conservationists' with sufficient resources, e.g. access to information and tools, and opportunities to

have autonomy in their work and participate in decision-making processes, can optimise their psychological wellbeing, i.e. by reducing burnout and increasing engagement, and herewith increase their work performance.

5.9. Acknowledgements

We would like to thank the respondents of this study for their willingness and openness in sharing their experiences. Sincere thanks to Linda Koopmans and Jan de Jonge for allowing us to use their questionnaire measures, and Ben Davies and Carola Leicht for their help with survey design and structural equation modelling.

5.10. Ethical standards

This research was supported by a Vice Chancellor's Research Scholarship of the University of Kent, Canterbury, UK, and scholarships by the Hendrik Muller Fund, the Netherlands, and the Headley Pitt Charitable Trust, UK. This research has been approved by the Research Ethics Advisory Group of the School of Anthropology and Conservation, University of Kent (Ref no 0401617).

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5.12. Supplementary information

Table S5-1: questionnaire items.

Construct		No	α	Example item	Source
Job demands		**12**			
	Work demands			*Cognitive demands*	
1	Cognitive demands and work overload	6	0.74	I have to solve work-related problems within a limited time frame	DISC-S 2.1 (de Jonge et al. 2009)
	Emotional demands			*Emotional demands*	
2	Emotional demands	3	0.72	I have to deal with people (e.g. beneficiaries, colleagues or supervisors) whose problems touch me emotionally	DISC-S 2.1 (de Jonge et al. 2009)
	Physical demands			*Physical demands, incl. safety culture*	
3	Physical demands	3	0.82	In my work I am exposed to physical safety issues due to external factors (e.g. disease pressure, dangerous wildlife, political instability)	1 item from DISC-S 2.1 (de Jonge et al. 2009) and 2 items self-developed based on Loffeld et al. (2020)
Job resources		**20**			
	Work resources				
1	Cognitive Resources	5	0.71	I have the opportunity to determine my own work method.	DISC-S 2.1 (de Jonge et al. 2009) and 1 item from Schaufeli (2015)
2	Physical Resources	3	0.78	In my work, I have the opportunity to actively engage in meaningful safety related activities	1 item DISC-S 2.1 (de Jonge et al. 2009), 2 items self-developed based on Loffeld et al. (2020)
	Social resources				
1	Emotional Resources	3	0.88	I get emotional support from others (e.g. colleagues, supervisors or beneficiaries) when a challenging situation at work occurs.	DISC-S 2.1 (de Jonge et al. 2009)
	Organisational resources				
1	Communication	3	0.87	I am sufficiently informed about important developments within my organisation	QEEW (Veldhoven et al. 2002)

2	Organisational justice	3	0.73	In my opinion, the rules and procedures at work are applied in a fair manner	Jordan and Turner (2008)
3	Recognition and Appreciation	3	0.80	Working with members of this team, my unique skills and talents are valued	1 item from DISC-S 2.1 (de Jonge et al. 2009), 1 item from Edmondson (1999), 1 item modified from QEEW (Veldhoven et al. 2002)
Employee wellbeing		**9**			
	Burnout				
1		3	0.91	I feel mentally exhausted because of my work	MBI – GE (Schaufeli et al., 1996)
2	Cynicism	3	0.90	I have become more cynical about whether my work contributes anything	MBI – GE (Schaufeli et al., 1996)
	Work engagement				
1	Vigour Dedication Absorption	3	0.79	I am bursting with energy and vigour at work	UWES-3 (Schaufeli et al. 2017)
Outcomes		**16**			
	Work performance				
1	In-task performance	5	0.85	I was able to plan my work so that I finished it on time	IWP (Koopmans, 2014)
2	Contextual performance	4	0.77	I took on extra responsibilities	IWP (Koopmans, 2014)
3	Adaptive performance	7	0.85	I worked on keeping my job-related knowledge up-to-date	IWP (Koopmans, 2014)

Table S5-2: CFA goodness-of-fit outcomes for the independent variables (i.e. job demands and job resources) and dependent variables (i.e. work performance) evaluated using the chi-square ($\chi 2$) test statistic, the Normed Fit Index (NFI), the Tucker–Lewis index (TLI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA).

Model	χ^2	df	NFI[1]	TLI[1]	CFI[1]	RMSEA[1]
Job demands						
1-factor	891.28	54	0.53	0.44	0.54	0.17
3-factor	137.52	51	0.93	0.94	0.95	0.06
3-factor (modified)	95.31	48	0.95	0.97	0.97	0.04
Job resources						
1-factor	2106.61	170	0.61	0.59	0.63	0.14
2-factor	1423.87	169	0.74	0.73	0.76	0.12
2-factor (modified)	287.59	149	0.95	0.97	0.97	0.04
Outcomes						
1-factor	2055.08	104	0.54	0.48	0.55	0.18
3-factor	1048.19	101	0.77	0.74	0.78	0.12
3-factor (modified)	249.41	92	0.95	0.95	0.96	0.05
Note: n = 561						

[1]Values larger than 0.90 for NFI, TLI and CFI and 0.08 or lower for RMSEA indicate acceptable model fit (Byrne, 2016). For RMSEA, values greater than 0.10 should lead to model rejection (Browne & Cudeck, 1993).

Table S5-3: Percentage of respondents (n = 561) per country of residence. Half of the respondents were based in biodiversity-rich countries with limited access to resources.

	Country of residence	Percentage of respondents (%)
1	Albania	0.2
2	Argentina	0.9
3	Australia	2.4
4	Austria	0.3
5	Bahamas	0.2
6	Bangladesh	0.5
7	Belarus	0.3
8	Belgium	0.2
9	Belize	0.2
10	Benin	0.5
11	Bolivia	0.9
12	Bosnia and Herzegovina	0.2
13	Brazil	2.7
14	Burkina Faso	0.2
15	Cambodia	0.5
16	Cameroon	0.9
17	Canada	2.9
18	Central African Republic	0.2
19	Chile	0.2
20	China	0.3
21	Colombia	1.2
22	Congo, Republic of the...	0.2
23	Costa Rica	0.3
24	Côte d'Ivoire	0.3
25	Croatia	2.4
26	Czech Republic	0.2
27	Democratic Republic of the Congo	0.3
28	Denmark	0.2
29	Dominican Republic	0.2
30	Ecuador	0.3
31	El Salvador	0.5
32	Ethiopia	0.3
33	Fiji	0.2
34	Finland	0.2
35	France	1.2
36	Germany	0.7
37	Ghana	0.5
38	Greece	0.5

39	Guatemala	0.7
40	Guinea	0.2
41	Guyana	0.2
42	Honduras	0.2
43	Hungary	0.2
44	India	3.2
45	Indonesia	3.9
46	Ireland	0.2
47	Italy	0.3
48	Jordan	0.5
49	Kenya	2.0
50	Lao People's Democratic Republic	0.3
51	Liberia	0.5
52	Luxembourg	0.2
53	Madagascar	0.9
54	Malawi	1.0
55	Malaysia	3.9
56	Malta	0.2
57	Mauritius	0.9
58	Mexico	0.9
59	Mongolia	0.2
60	Morocco	0.3
61	Mozambique	0.2
62	Myanmar	0.3
63	Namibia	0.5
64	Nepal	0.7
65	Netherlands	0.7
66	New Zealand	0.5
67	Nigeria	1.4
68	Norway	0.3
69	Pakistan	0.3
70	Peru	0.5
71	Philippines	0.2
72	Portugal	2.7
73	Russian Federation	0.2
74	Rwanda	1.2
75	Saint Kitts and Nevis	0.2
76	Saint Lucia	0.2
77	Samoa	0.5
78	Seychelles	0.7
79	Singapore	1.7
80	Slovakia	0.2
81	South Africa	4.1

82	Spain	0.3
83	Sri Lanka	0.3
84	Suriname	0.2
85	Sweden	0.2
86	Thailand	1.4
87	Uganda	1.0
88	Ukraine	0.2
89	United Arab Emirates	0.2
90	United Kingdom of Great Britain and Northern Ireland	18.5
91	United Republic of Tanzania	0.9
92	United States of America	12.2
93	Venezuela, Bolivarian Republic of...	0.3
94	Viet Nam	0.7
95	Zambia	0.7
96	Zimbabwe	0.2
97	Falkland Islands	0.2
98	Saint Helena, Ascension and Tristan da Cunha	0.5
	Total	100

Chapter 6 Discussion

6.1. Introduction

This thesis aimed to understand which role capacity development can have in optimising the work performance of conservation professionals, especially in those countries that have high biodiversity and are limited in informational, human and financial resources. More than half of this research's respondents (12/22 interviewees, 12/15 focus group participants, and 280/561 questionnaire respondents), were based in biodiversity-rich countries with limited access to informational, human and financial resources and no significant differences were found when comparing results across demographic variables (i.e. age, gender, country of residence and years of work experience). Therefore, the main points in this discussion are applicable to those working in such countries. The literature review (Chapter 1) revealed that capacity does not equal an individual's knowledge and skills, nor is it static. Rather, capacity changes over time, and can be seen as an interaction between the individual and their environment, including factors within the organisations in which a person works, the general setting within the conservation sector and wider societal contexts (e.g. social, economic and legal factors). Capacity development refers to the intentional process in which capacity is built and maintained over time and includes many levels (Simister & Smith, 2010). The term capacity development is generally used to indicate organisational development and individual capacity development (Lusthaus et al., 1999); however, it could also be the development of the workforce in a given sector or the wider society. Whilst acknowledging the influence of organisational characteristics and societal factors on capacity development processes, in this research we decided to focus solely on the individual level, i.e. the perspective of the individual conservation professional regarding the capacity development processes that are in place to support them in performing their

jobs to the best of their abilities. Work performance concerns behaviour (Coppin & Barratt, 2002). An individual's beliefs (e.g. attitudes, values and norms) and perception of their abilities largely influences whether they intend to perform certain behaviours (Ajzen, 1985). Overall, we found that the availability of resources (e.g. time and money for staff development) and opportunities (e.g. professional development opportunities) to perform certain behaviours (e.g. implementing new skills in work practices) are also important to consider when striving towards optimised work performance. Therefore, future research should consider including the organisations' perspective on the availability of such resources and opportunities. Insights from conservation professionals' perspectives on processes of capacity development have allowed us to identify and include recommendations for organisations on how to support staff in optimising their capacity and work performance.

Instead of adopting one capacity development framework or theory, we chose to adopt an inductive explorative research approach with evolving research questions. Initially, therefore, Chapters 2-4 focused on explorative cases, consisting of 22 in-depth interviews and two focus group discussions; these participants helped identify predictors of work motivation, effective professional development, and high work performance that were deemed most salient to conservation professionals. These qualitative data results made it clear that our provisional conceptual model (Chapter 2) for capacity development was not suitable, because it did not consider the interaction between job characteristics and individual characteristics. Furthermore, Chapter 2 revealed that other processes within the individual capacity development process are crucial to consider, including those of work motivation, work engagement, burnout, professional development and resilience building,

because these define capacity beyond adequately performing one's core tasks. Chapter 2 therefore provided an overview of predictors of the important processes within capacity development. Each of the subsequent results' chapters explored the different processes in-depth; professional development was discussed in Chapter 3, resilience building in Chapter 4, and processes related to burnout (stress process) and work engagement (motivational process) in Chapter 5.

6.2. Job characteristics and their influence on individual capacity

One of the main research questions we answered in this thesis are: which factors influence the work performance of conservation professionals? This study's results show that job resources, especially those provided by the organisation, are crucial for individual capacity development processes and optimising work performance. We thematically analysed the data from interviews and focus groups and found that two organisational resources were linked to positive psychological states (e.g. experiences of energy, work engagement); namely, recognition and appreciation, and opportunities for growth and development. Organisational resources that were associated with negative psychological states (e.g. experiences of frustration, burnout) included perceptions of workplace fairness (i.e. organisational justice) and received salary. Using the same data analysis method, we also found two work resources that were associated with positive psychological states, i.e. autonomy (i.e. freedom in one's work) and task significance (i.e. meaningful work). Strenuous relationships with colleagues or a lack of social support highlighted the absence of certain work resources and participants linked these to negative psychological states.

In the current study, job demands were mostly related to negative psychological states by our interviewees, in particular cognitive demands (e.g. time pressure), emotional demands (e.g. extensive time away from family), and physical demands (e.g. physical trauma due to attacks of wildlife). However, one job demand, i.e. responsibility, was identified as a minor theme that was connected to positive psychological states (chapter 4). The results of this study indicate that negative psychological states are influenced by factors that relate to the work context and are different from the factors that contributed to our respondents' motivation, which were mostly associated with the work itself. This dichotomy in factors associated with certain psychological states corroborates Herzberg et al.'s (1959) Motivation – Hygiene Theory, which posits that the factors in the workplace that cause job satisfaction (i.e. motivators) are different from the factors that cause job dissatisfaction (i.e. hygiene factors). Thus, satisfaction and dissatisfaction are not on a continuum. Herzberg therefore reasoned that it is important to address both type of factors. To increase satisfaction, managers need to focus on the nature of the work, such as an increase recognition, responsibility, and advancement, whereas to reduce dissatisfaction in the workplace other actions are needed, e.g. ensuring the safest possible working conditions and fairness in the workplace (Herzberg, 1968).

In his hierarchy of needs theory, Maslow (1954) argued that one can only reach one's full potential (i.e. self-actualisation) when lower order needs, such as physiological needs, safety, belonging and self-esteem, are satisfied. Herzberg's theory seems to build on Maslow's work by adding the two-factor dimension of motivating and hygiene factors. The Job-Demands Resource (JD-R) theory (Demerouti et al., 2001) also hypothesises that characteristics of work and the work environment can be divided into two categories, i.e. job demands and job resources; each category

has their distinct influence on stress and motivational processes. This study's quantitative data results (Chapter 5) confirmed that both stress and motivational processes were present in the experiences of our sample of conservationists, which supports and complements our study's qualitative data results in earlier results' chapters. The quantitative data, gathered using an online questionnaire, allowed the testing, by means of structural equation modelling, of unidirectional relationships between job characteristics on the one hand and outcomes (e.g. work performance) on the other hand, mediated by psychological states. Specifically, we found that job resources mitigated the stress process and decreased experiences of burnout, which, in turn positively influenced task performance. We furthermore found that job resources strengthened the motivational process and increased experiences of work engagement. Work engagement, in turn, positively influenced task performance and contextual performance, in addition to resilience. Though we did not find a significant relationship between job demands and burnout, our quantitative data findings are generally in line with the JD-R theory (e.g. Demerouti et al., 2001; Bakker et al., 2005; Bakker & Demerouti, 2016). As far as we know, this was the first time the JD-R model has been used in the conservation context.

Results from our quantitative data analyses underline the importance of available job resources in relation to work performance outcomes. We found strong positive correlations between organisational resources and work engagement, and strong negative correlations between organisational resources and burnout (Chapter 5). The organisational resources we included in Chapter 5 were communication, recognition and appreciation, and organisational justice, i.e. fairness. Psychologists Maslach & Leiter (2008) reported that a lack of perceived fairness was found to be pivotal in the burnout process among professional services staff, such as in the case of staff

experiencing anger about the distribution of rewards or lacking faith in organisational policies. The theme of fairness was identified in all processes of each chapter of this thesis (i.e. professional development, resilience, and stress and motivational processes), and was mainly connected to perceptions of unfairness regarding the distribution of project funding, promotion and professional development opportunities, and exemplified when describing the relationships with supervisors or managers. Some debate has been ongoing about how to make conservation more inclusive and people-centred. Most of the debate thus far has been on how to involve and consider communities in conservation work and outcomes (e.g. Acranaz, Dabel and O'Neil, 2007; Virtanen et al. 2020), yet for conservation to become truly inclusive and people-centred, conservation needs to become more inclusive 'inside-out', i.e. from within the organisations and institutions to the 'outside' actors, e.g. land right-holders and communities (Rudd et al., 2021). Organisational policies and capacity development processes should reflect the principles of equality, diversity, inclusion and justice. Centering this argument around our respondents country of residence, it highlights the salience of the topic fairness, especially in those countries with high biodiversity and limited information, human and financial resources.

The quantitative data results provided support for our previous qualitative data results, in that some job demands can be positively related to desired psychological states (e.g. work engagement, work motivation). For example, the job demands responsibility (Chapter 4) and complexity (Chapter 5). These findings are in line with previous research in organisational psychology which recommends distinguishing hindrance job demands from challenge job demands (Podsakoff et al., 2007). Past studies showed that hindrance demands are positively associated with

burnout yet negatively associated with work engagement, whereas challenge demands are positively related to both burnout and work engagement (Crawford et al., 2010; Goering et al., 2017).

In the context of the conservation literature, our finding that the presence of job resources is related to positive psychological states, and the absence of job resources to negative psychological states is in line with prior research that explored the job characteristics of law enforcement rangers (Moreto et al., 2016, 2019; Spira et al., 2018; Singh et al., 2020). Similar to our study, work by Jones & Solomon (2019) and Moreto (2016) linked the presence or absence of job resources to a positive or negative impact on outcomes such as work performance, career development, and job satisfaction. Secondly, Spira et al. (2018), Singh et al. (2020) and Moreto (2016)'s studies of rangers also revealed that job demands (e.g. physical demands, emotional demands) were predominantly associated with negative psychological states. Previous research found that job demands can be experienced both positively and negatively in some contexts. For example, an ethnographic study on law enforcement among rangers in Queen Elizabeth National Park, Uganda, illustrated how the physical demands, e.g. foot patrols, appealed to them because it gave them physical fitness (Moreto et al., 2016) and at the same time physical demands were highlighted as the main occupational stressors due to the encounters with dangerous wildlife, poachers and rebels during these patrols (Moreto, 2016). It is therefore important to note that job demands are not inherently experienced as negative elements of the work or work environment; the perception of demands vary among individuals (Bakker & Sanz-Vergel, 2013), and thus researchers must explore whether job demands are considered high in the perception of the individual conservation professional and if they can be buffered by the presence of sufficient job resources (Bakker et al., 2005).

One key outcome of this doctoral research is the usefulness of dividing predictors of work performance into job characteristics and psychological states. Additionally, distinguishing between the two types of job characteristics, i.e. job demands and job resources, can clarify which actions can be taken by individual professionals and organisations to promote motivational processes and mitigate stress processes. We therefore found the Job Demands – Resource (JD-R) model a useful heuristic framework that provides a holistic overview of the different processes (i.e. positive and negative), predictors, mediators and outcomes.

6.3. Professional development process

Our qualitative data results (Chapter 2) illustrated that professional development can be seen as an intentional and continuous process that crosses the divide between job resources (e.g. formal learning opportunities, organisational support), personal resources (e.g. readiness to change, existing knowledge and skills), behaviour (e.g. participation in learning opportunities) and outcomes (e.g. acquisition of new skills and knowledge, improved performance, career development) and spans across a professionals' entire career. Our findings correspond to previous definitions of professional development that are mainly used in human resource development and education (e.g. Chalofsky & Lincoln, 1983; Guskey, 2000). Our definition therefore extends definitions that are upheld by, for example, the Royal Society of Biology that only indicate lifelong professional competence as a goal of continuous professional development (RSB, 2016). Furthermore, our findings deepen our understanding of the process as it concerns an interaction between an individual, the organisation and the sector.

Based on our interviews, professional development was mainly the responsibility of the individual conservation professional, yet this seems counterproductive in that the individual is highly depended on the opportunities that are presented in their environment (i.e. on organisational, sector or societal levels). Education scholar Guskey (2000) argued that professional development ought to be systemic, in that there needs to be clarity on which support is required from the organisation to ensure professional development is effective. One of our interviewees gave an example where such support was not given by the organisation, resulting in employees being unable to capitalise on the professional development opportunity they were given; their organisation did not provide the opportunity for them to apply what they had learned, herewith limiting individual and organisational capacity development. Based on the exploration of the qualitative data in Chapters 2 and 3, we finally arrived at a definition, adapted from the education sector (Campbell et al., 2017), in which professional development was seen as the wide range of approaches and activities that are involved in conservation professionals' development, as well as the context and the resources to support this process.

In our first data chapter (2), we explored job characteristics, personal resources, behaviour and outcomes that were associated with professional development. This was followed by presenting an effectiveness framework in Chapter 3 based on the results of our thematic analysis focusing on the question: what makes professional development effective? By analysing our interview data, we found that characteristics of effective professional development resembled findings of the education (Campbell et al., 2017; Kainer et al., 2019), health care (Payler et al., 2008; Schostak et al., 2010) and

international development sectors (Aring & Corbitt, 1996; Aring & DePietro-Jurand, 2012). This is important, since although clearly the context of conservation is quite particular to the sector (Black et al., 2011), such that those in the sector might consider it a special case, in essence the requirements for professional development already known from other sectors can be successfully adapted and applied. In particular, we identified the following effectiveness framework: for professional development to be effective, it ought to 1) have a learner-centred approach, 2) be evidence-informed and data driven, 3) have a focus on both technical and contextual skills, 4) provide a balance between employee voice and organisational goals, 5) have sufficient and equally distributed resources and opportunities, 6) be supported by leaders who are engaged in learning themselves, and 7) be strategic and aligned with other individual and organisational capacity development efforts.

Management scholar van Woerkom (2003) argued that professional learning has an intrinsic value for the individual, in that the experience of growth and development can be energising in itself, and also has instrumental value in that it can enhance competence development and employability. The value of professional learning to an organisation is mainly instrumental in that the aim is to improve efficiency and effectiveness, and to promote organisational development (van Woerkom, 2003). Results from our thematic analysis underline this difference in priorities and we identified a tension between an individual professional' goals for participating in professional development and the organisation's goal in providing professional development opportunities. Drawing on motivation theories (e.g. Herzberg et al., 1959; Deci & Ryan, 1985), as well as empirical evidence from other sectors that highlight that motivation to learn is essential in the professional development process (Brekelmans et al., 2013), we concluded that conservation professionals should have the autonomy to

self-direct their professional development. However, they should be supported in this process by employers and leading societies at a sector level (e.g. Society for Conservation Biology) who can provide the best practices and the resources to increase effectiveness and sustainability of such professional development.

Secondly, we concluded that to answer the question "which skills do conservationists need?", we need to rephrase the question and connect it to a goal or outcome. For example, the knowledge, skills, abilities and other characteristics (KSAOs) that conservation professionals require in their work to perform well, depend on the interaction between job demands and their individual characteristics (e.g. the KSAOs they already have and to which level of proficiency). However, the KSAOs that conservation professionals need to advance in their career or be a competent all-round conservation professional, could be different from those that they need to do their current job to a high standard. During the course of this four-year research, we found that the needs assessments that are predominantly adopted in the conservation sector are those without a goal or outcome and, as one of our interviewees expressed, often result in a long list of superficial "wants", instead of requirements. As a consequence, efforts are often described as arbitrary and inappropriate to staff's needs in the few reports on individual capacity development of conservation professionals that are published on this topic (Nielsen, 2012; Spira et al., 2018; Singh et al., 2020). Guidance from the education sector highlight the importance of specifying in the needs assessment the goal of the intended professional development efforts, for example to provide professionals with those KSAOs needed to advance in their career (Guskey, 2000). However, competence frameworks are absent for the vast majority of conservation positions and professionals may not have clarity on which KSAOs are necessary to get

the position they aspire to reach in the future (Tang & Crouch, 2017). Thus, we recommend for individual capacity needs assessments to include a clear goal or outcome, though being mindful of the different components (i.e. job characteristics, personal resources, and psychological states) that influence the process of professional development and the organisational support that is required to achieving desired outcomes.

6.4. Resilience building process

Parallel to the professional development process, when exploring resilience building, we first examined job characteristics, personal resources, psychological states and outcomes to identify promoters of this process. Previous health care studies (Zwack & Schweitzer, 2013; Beresin et al., 2016) illustrate that resilience is a process that is linked to skills to help protect against adversity (i.e. preventative function) and to handle traumatic situations effectively (i.e. coping function). Similar to scholars in other disciplines, we identified self-efficacy, i.e. the perception of one's abilities to master challenges and achieve desirable outcomes, as a personal resource that has been associated with resilience (e.g. Bandura, 2000; Zwack & Schweitzer, 2013; Hunter & Warren, 2014).

Results presented in Chapter 4 showed that positive psychological states were mainly linked to experiences of professional efficacy and relational efficacy and herewith resemble a study on resilience among physicians (Zwack & Schweitzer, 2013). In Chapter 4, interview respondents provided examples in which they experienced professional efficacy, e.g. when seeing work successes such as desired behaviour change in communities who lived adjacent to areas with wildlife.

Relational efficacy reinforced professional efficacy. For example, some interviewees felt appreciated by the communities and shared that they worked well together. Our findings in Chapters 2-5 suggest that if job demands (e.g. pressing funding deadlines, work overload, demanding stakeholders) are met with a diverse pool of job resources (e.g. social support from colleagues, fairness in the workplace, supervisory coaching), together with apt personal resources (e.g. adequate knowledge and skills needed for the job, open-mindedness to other people's perspectives), professionals are likely to experience positive psychological states (e.g. energy, motivation, engagement) which will in turn positively influence their work performance and increase the likelihood of reaching individual and organisational goals. Such a sequence will increase professionals' experiences of efficacy and positive coping when faced with stressors, as well as the prevention of chronic negative psychological states, such as burnout. In essence, it helps build resilience.

Cyclic reciprocal relationships among constructs that positively build on each other over time in an amplifying loop is also referred to as a positive gain spiral (Salanova et al., 2011). To understand positive gain or loss spirals is important to understand the sequences of psychosocial experiences in the workplace that explain these relationships, rather than considering these as one-directional causal relationships (Salanova et al., 2011). Our qualitative data were invaluable in this respect. An example of a negative cycle came from one interviewee who expressed that they felt mentally and emotionally exhausted by their work at one point, which led them to withdraw, stop working and separate themselves from conservation entirely for a while. Although this strategy was meant as a way to recharge, it resulted in a lack of resources to free up new energy, and the interviewee shared that it ultimately led to symptoms of depression. They returned to participate in conservation work by

actively seeking out those situations that left them feeling energised. In their case, positive conservation stories and working with individuals who inspired them helped them re-energise.

Even when experiencing symptoms of burnout, our study's results and those of previous research (Maslach et al., 2001) show it is key for individuals to remain active in doing those activities that energise them, instead of withdrawing (e.g. socially, physically) which is a strategy often adopted when experiencing mental and emotional exhaustion. For example, another interviewee who expressed feeling exhausted by her high workload, described that she activated her personal resource of self-efficacy and the job resource supervisory support. She adopted the resilience strategy of limiting her working hours and asked her supervisor to support this action. By committing to leaving work at a regular time (i.e. the resilience strategy of self-demarcation), she had more time for personal activities and dedicated this time to regular physical exercise and maintaining social relationships. Although it initially costed her energy to implement this resilience strategy, this interviewee increased her off-work recovery time and regained her work-life balance, which freed up new energy, led her to recuperate and activate the motivational process resulting in her feeling renewed motivation to go to work and engagement in her tasks when at work.

Quantitative results illustrated that approximately 170 out of the 561 surveyed conservation professionals, i.e. 30%, reported they never, rarely or occasionally coped well with difficult situations and recovered fast after setbacks at work. Resilience building is a vital process to enable professionals to continue to thrive in their roles, both in professional and personal capacity. Conservation organisations can help reduce hindrance stressors that result in staff's energy loss and negatively

influence work engagement. Additional job resources can support resilience building processes, such as coaching (Grant et al., 2009). Our thesis represents the first data on measures of resilience among conservation professionals in various positions. We recommend for future studies to look into positive gain spirals by obtaining longitudinal data of specific job resources and personal resources, measures of engagement, and desirable behaviours (e.g. work performance, acquisition of knowledge and skills). Testing the reciprocal relationships in positive gain spirals could be done by assessing if the mean levels of the variables increase over time with at least three points of measurement (Salanova et al., 2011).

Building on previous research (Sawrey et al., 2019) and the current study's findings, future work on professional development and resilience building processes could focus more deeply on the role played by the personal resource of self-efficacy. Interventions focused on self-efficacy have shown promising results in other sectors and were based on exercises to identify, develop and use strengths as a way of directly increasing self-efficacy, and indirectly increasing motivation to learn (van Woerkom & Meyers, 2018). Additionally, it would be useful to quantitatively test the influence of job resources that are related to professional development (e.g. opportunities for growth and development, and organisational culture or climate) on relevant behaviours (e.g. participation in learning opportunities, applying newly learned KSAOs in practice) and outcomes (e.g. competence development, career advancement).

6.5. Work performance in a global conservation sector

One of the key findings of this doctoral research is that job resources were the strongest predictor of work performance in a sample of 561 conservation professionals across 98 countries. Building upon the qualitative data results, we realised that we needed to explore outcomes beyond the performance of core tasks. Results of the thematic analysis presented in Chapters 3 and 4 illustrate the importance of contextual competences (e.g. communication, interpersonal skills, initiative taking) and adaptive competences (e.g. updating work-related knowledge and skills, resilience) in the conservation profession. For this reason, we adopted the three-dimensional work performance framework developed by organisational psychology researcher Koopmans (2014) to test the strength of relationships in our structural equation model in Chapter 5. This framework was found suitable across sectors (Koopmans et al., 2011, 2012), and in cross-cultural contexts (Koopmans et al., 2016) and provides guidance on which aspects of work performance to assess when job roles and positions are not standardised, which is typically the case in conservation sector.

The first dimension, task performance (Campbell et al., 1990), measured the competence with which the professional performed the core or technical tasks central to their job, characterised by efficiency, time management and priority-setting. The second dimension, contextual performance, measured competencies relevant to support the psychological, social and organisational environment (Motowidlo & Van Scotter, 1994), for example showing initiative and taking extra responsibilities. Lastly, the adaptive performance dimension measured the ability to adapt to changes in work roles or work environment (Griffin et al., 2007), such as resilience, keeping work-related knowledge and skills up-to-date and creative problem-solving. We found that all three dimensions of work

performance are important to consider, especially in situations that involve uncertainty and where work roles may not be formalised. Based on our results, we believe this framework to be suitable for measuring work performance in conservation, since it includes professional developmental behaviour and allows for comparison of individual capabilities across a variety of roles and situations.

Although there was no effect of demographics on our results, we would like to note the importance of considering contextual differences when exploring predictors and processes that positively influence task, contextual and adaptive performance. Previous research has identified that predictors of positive work-related well-being, such as work engagement, can vary across cultural and socio-economic contexts, especially in countries where survival issues (such as shortages of food and money) are more prominent (Huang & Van De Vliert, 2003).

6.6. Conclusions

Based on our main findings, we may conclude that it can be useful to distinguish between two types of job characteristics: 1) job resources which can elicit motivation to actively work towards valued goals and 2) job demands whose presence generally result in a loss of energy and may elicit negative psychological states such as feelings of exhaustion and reduced professional achievement. Our results furthermore highlighted the importance of action on job resources as a point of intervention to improve staff performance, in particular organisational resources (e.g. fairness in workplace, professional development opportunities), as well as personal resources (e.g. resilience, self-efficacy).

Our study provided accounts of formal and informal exclusion of (socially perceived) minority groups, those with caretaking responsibilities and those early in their career in terms of opportunities for jobs, professional development and career advancement, as well as participation in decision-making, adding to the small body of evidence from previous studies with a focus on conservation professionals (Benson Wahlén, 2014; Spira et al., 2018; Jones & Solomon, 2019; Jones et al., 2020; Singh et al., 2020). Awareness of, and suitable action applied to mitigate such diversity, equity and inclusion issues could increase experiences of fairness in the workplace and herewith the effectiveness of professionals and organisations in reaching their conservation goals (Jones et al., 2020). By identifying and distinguishing between challenge and hindrance demands with the aim to reduce the latter, whilst maximising job resources, organisations can aid individual capacity development and positive outcomes in the workplace. Work (e.g. autonomy, feedback) and organisational resources (e.g. Equality, Diversity and Inclusion action plans) can offer simple and cost-efficient ways of enhancing work engagement (Crawford et al., 2014), also in those countries with limited financial resources.

It is furthermore important to reiterate that job demands do not negatively influence desired (work performance) behaviours in all cases, and some even positively influence work engagement as we found in the current study. This is often context-specific and therefore qualitative research can be useful to explore under which circumstances a job demand contributes to positive outcomes (e.g. physical demands leading to desired physical fitness) and when to negative outcomes (e.g. unsafe conditions leading to stress and exhaustion). The richness of the qualitative data also helped us to

understand that predictors of the motivational process alone do not necessarily lead to desired outcomes. Some interviews illustrated that by solely providing job resources, such as professional development opportunities or recognition, desired outcomes of engagement, learning and work performance may not be enhanced in situations where physiological needs and physical and psychological safety are compromised. These findings are in line with ranger studies that highlighted how limited access to appropriate food and water, and exposure to dangerous situations, led to reduced motivation, job dissatisfaction and work performance (Moreto, 2016; Spira et al., 2018; Singh et al., 2020). Our study results draw attention to the need to consider factors that motivate, as well as those that may cause stress or dissatisfaction (Herzberg, 1959). In general, we may conclude that paying equal attention to the predictors and key processes promoting the different types of work performance (i.e. task, contextual and adaptive) can be beneficial to building and maintaining an efficient and effective workforce of conservation professionals who can thrive in situations with high levels of uncertainty, adversity, and change. We therefore recommend that task, contextual and adaptive competences should be included in any competence register or professional development initiative to guide future workforce development for current and future conservation professionals.

Our research provides empirical evidence that work performance is influenced by the interaction of the capacity on an individual, organisational and sector level, and herewith confirms earlier best practices (Müller et al., 2015). This research also took a first step in recording working conditions of conservation professionals worldwide. By creating awareness on issues related to diversity, equity and inclusion, represented in our study by the prominent theme 'fairness', we hope to draw attention to a lack of human basic needs in some cases and the ethical dilemmas around what

is asked of conservation professionals in certain positions. In contrast with other professions where staff may regularly face life-threating conditions (e.g. the army, fire brigades), conservationists are not often able to mitigate such high risks because of the absence of suitable equipment, training and safeguarding policies (e.g. occupational health and safety standards). Certain job demands may be specific, though perhaps not unique to, the conservation profession, such as emotional demands, especially when professionals work from a calling orientation and experience little work success in the context of overwhelming on-going threats to biodiversity. However, the conservation sector and its professionals could benefit from best practices applied in other professions, which have similar demands and challenges. This body of research has emphasised and adapted some of these best practices to suit conservation and we hope that future research can continue this effort to ensure a safe, engaging, productive and sustainable work environment that develops and enhances people's contributions and retains the services and commitment of current and future conservation professionals.

6.7. Summary of findings

In summary, the following recommendations have resulted from this work and are intended to inform organisations and individuals about the role of capacity development in optimising the work performance of conservation professionals:

- Results indicated that several processes within the individual capacity development are crucial to consider for conservation organisations, including those of work motivation, work

engagement, burnout, professional development and resilience building, because these define capacity beyond adequately performing one's core tasks.

- We recommend organisations to identify and distinguish between two types of job characteristics, i.e. job demands and job resources, to clarify which action can be taken to enhance motivational processes and reduce stress processes. Additionally, it is useful for organisations to identify and distinguish between hindrance job demands from challenge job demands because past studies showed that hindrance demands are positively associated with burnout yet negatively associated with work engagement, whereas challenge demands are positively related to both burnout and work engagement. Whether job demands negatively or positively influence desired behaviours (e.g. work performance) is often context-depended and therefore we recommend organisations to include qualitative data in their assessments

- Organisations can support their staff in their capacity development and aid positive outcomes in the workplace (e.g. optimised work engagement and work performance, resilience) by 1) reducing hindrance demands that result in staff's energy loss and negatively influence work engagement, e.g. by keeping the rules and regulations simple, providing freedom in making important decisions quickly to respond to changes in the work, 2) ensuring that job demands (e.g. pressing funding deadlines, work overload, demanding stakeholders) are met with a diverse pool of job resources (e.g. recognition and appreciation, fairness in the workplace, coaching), and 3) ensuring that employees are met in their basic needs (e.g. sufficient salary for the area they are asked to live for their work, work-life balance, psychological and physical safety in the workplace). These are ways in which organisations can reduce negative outcomes for individual staff members and the organisation at large.

- Organisations can furthermore support their managers and organisational leaders in the development of such leadership styles that can be perceived empowering to team members, and increase work motivation and engagement. For example, by encouraging managers to consult team members on decisions that may affect them and herewith foster participation in decision making and allow autonomy in work planning and work methods. Another example of empowering leadership is managers who enhance the meaningfulness of work (i.e. task significance) by helping staff understand how their work objectives relate to that of the organisation and thus highlight the importance of their tasks to the organisation's overall effectiveness.

- Individual professionals can enhance their personal resources (e.g. adequate knowledge and skills needed for the job, open-mindedness to other people's perspectives), which can increase their experiences of efficacy and positive coping when faced with stressors, as well as the prevention of chronic negative psychological states, such as burnout.

- Organisations can furthermore positively contribute towards work motivation and professional development processes by providing opportunities for growth and development in a systemic, transparent, and fairly perceived manner. When conducting a needs assessment it is important for organisations or other providers at a sector level to specify the goal of the intended professional development effort. We recommend for organisations conducting needs assessments for staff members to include a clear goal or outcome of the intended professional development efforts, and to assess the different components (i.e. job characteristics, personal resources, and psychological states) that influence this process and the organisational support that is required to achieving desired learning outcomes. Conservation organisations may use the professional development effectiveness

framework presented in Chapter 3 to cross-check whether they have such support and processes already in place.

- Lastly, we recommend for conservation organisations to pay equal attention to the predictors and key processes promoting the different types of work performance (i.e. task, contextual and adaptive), because of their benefit to building, strengthening and maintaining the capacity of an conservation professionals, also in situations with high levels of uncertainty, adversity, and change.

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