

Nurturing Resilience in Pre-Service Teachers
From Understanding Protective Factors to Implementing Adaptive Support
Strategies

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Abstract

Resilience is a key factor in managing professional challenges, sustaining well-being, and ensuring long-term career retention in the teaching profession. However, research on how to effectively foster resilience in teacher education remains limited, particularly in German-speaking countries, despite the unique challenges faced by pre-service teachers balancing their dual roles as students and practitioners. This dissertation investigates the development and promotion of resilience, as well as the strategies and processes teachers use to navigate professional challenges, through four interconnected studies.

The first study provides an overview of research on the health and resilience of pre-service teachers in Switzerland, emphasizing the importance of resilience in managing their dual responsibilities. The second study examines how teachers employ strategies to address professional challenges embedded in a resilience process, with relational problem-solving emerging as a significant strategy. The third study explores the dynamics of coping strategies among secondary school teachers, identifying five key strategies—self-help, approach, accommodation, avoidance, and self-punishment—and how these vary depending on professional expertise. The fourth study evaluates the implementation of the "FoResT" online learning platform, which was designed using media-didactic principles to support pre-service teachers in developing resilience strategies.

Together, the findings highlight the importance of tailored interventions and innovative digital tools in fostering resilience among pre-service teachers. This progression from understanding the resilience processes of experienced teachers to supporting pre-service teachers aims to offer insights into advancing both theoretical and practical approaches in teacher education.

Keywords: resilience, strategies, teacher education, (pre-service) teachers, well-being

Zusammenfassung

Resilienz ist ein zentraler Faktor für den Umgang mit beruflichen Herausforderungen, die Erhaltung des Wohlbefindens und die langfristige Bindung an den Lehrberuf. Dennoch bleibt die Forschung zur systematischen Förderung von Resilienz an Pädagogischen Hochschulen – insbesondere in deutschsprachigen Ländern – begrenzt, obwohl angehende Lehrpersonen mit einzigartigen Herausforderungen konfrontiert sind: Sie müssen ihre Doppelrolle als Studierende und Praktiker:innen in einem anspruchsvollen Kontext ausbalancieren.

Diese Dissertation untersucht die Entwicklung und Förderung von Resilienz sowie die Strategien, die Lehrpersonen nutzen, um berufliche Herausforderungen zu bewältigen. Die erste Studie gibt einen Überblick über die Forschung zu Gesundheit und Resilienz angehender Lehrpersonen in der Schweiz und betont deren Bedeutung für das Bewältigen doppelter Verantwortungen. Die zweite Studie analysiert die beruflichen Herausforderungen und Strategien im Resilienzprozess, wobei relationale Problemlösung als zentrale Strategie hervorgehoben wird. Die dritte Studie untersucht die Dynamik von Bewältigungsstrategien bei Sekundarlehrpersonen und identifiziert fünf zentrale Ansätze: Selbsthilfe, Annäherung, Anpassung, Vermeidung und Selbstbestrafung, deren Einsatz je nach beruflicher Erfahrung variiert.

Basierend auf diesen Erkenntnissen wurde eine Online-Lernplattform im Rahmen eines Design-Based-Research-Ansatzes entwickelt, die mediendidaktische Prinzipien integriert. Das Feedback der Nutzer:innen wurde analysiert und diente als Grundlage für Optimierungen. Die Ergebnisse unterstreichen die Bedeutung massgeschneiderter Interventionen und digitaler Werkzeuge zur Förderung von Resilienz bei angehenden Lehrpersonen. Diese Verbindung – von der Analyse der Resilienzprozesse erfahrener Lehrpersonen bis hin zur Unterstützung von Studierenden – liefert Impulse für die Weiterentwicklung theoretischer und praktischer Ansätze in der Lehrpersonenausbildung.

Schlüsselwörter: Resilienz, Strategien, Lehrpersonenausbildung, (angehende) Lehrpersonen, Wohlbefinden

List of Publications

Publication I	Hascher, T., & Krummenacher, I. (2024). Gesundheit von Studierenden des Lehrberufs im Fokus: Diskussion und Perspektiven im deutschsprachigen Raum. <i>BzL-Beiträge zur Lehrerinnen-und Lehrerbildung</i> , 42(1), 6-19.
Publication II	Krummenacher, I., Hascher, T., Mansfield, C., Beltman, S., Mori, J., & Guidon, I. (2024). Navigating the paradox between professional challenges and teacher well-being: The role of strategies within the resilience process. <i>Frontline Learning Research</i> , 12(4), 85–112. https://doi.org/10.14786/flr.v12i4.1211
Publication III	Krummenacher, I., Mori, J., Hascher, T., Schnell, J. & Saxer, K. (2024). <i>Teacher well-being and coping strategies: a two-wave qualitative study with secondary school teachers in Switzerland</i> . [Manuscript submitted for publication]. Department of Research in School and Instruction, University of Bern.
Publication IV	Krummenacher, I., Guidon, I., & Hascher, T. (2024). Mediendidaktische Prinzipien in der Praxis: Entwicklung und Implementierung der Lernplattform FoResT zur Resilienzförderung bei Studierenden der Lehrer:innenbildung. <i>MedienPädagogik: Zeitschrift für Theorie Und Praxis Der Medienbildung</i> , 2024(Occasional Papers), 440–472. https://doi.org/10.21240/mpaed/00/2024.12.09.X

The inserted publications correspond to the accepted manuscript versions. Citations are designed according to the journals' specifications. For readability, the numbering of the chapters and the formatting have been adapted according to the dissertation. Details and links to the Versions of Record are given for each article on the first page.

Overview of the Dissertation

Publication I	Health and Resilience of Pre-Service Teachers: Insights into the current state of theory and research with a specific focus on teacher preparation programmes in Switzerland
Goal	To provide insights into the theoretical and research landscape on the health of pre-service teachers, with a specific focus on students in Switzerland. The article addresses the challenges faced by pre-service teachers in this dual role, with a particular emphasis on resilience, and discusses approaches to promoting resilience among this group.
Method	Literature review and analysis of theoretical and empirical studies on the health and resilience of pre-service teachers, with a focus on the Swiss context.
Results	Pre-service teachers face significant challenges in managing their dual roles as students and practicing teachers. Resilience plays a crucial role in addressing these challenges and maintaining well-being. Various strategies for fostering resilience are identified, including individual and institutional approaches.
Conclusion	Promoting resilience among pre-service teachers is essential to support their well-being and ability to cope with the dual demands of their role. Future efforts should focus on developing targeted interventions and integrating resilience training into teacher education programs.
Publication II	Navigating the paradox between professional challenges and teacher well-being: The role of strategies within the resilience process
Goal	To explore the paradox of teachers maintaining moderate to high levels of well-being despite the significant professional challenges they face, by investigating the strategies Swiss teachers use to support their well-being.
Method	Qualitative study analyzing the professional challenges faced by teachers and the strategies they employ, with a focus on the resilience process and its role in maintaining well-being.
Results	Relational problem-solving emerged as a commonly used strategy for addressing professional challenges. The study highlights the complex interplay between teachers' professional challenges and their well-being, embedded within a resilience process.
Conclusion	Supporting teachers' resilience processes is crucial for enhancing their well-being. The findings underscore the importance of developing targeted interventions and providing resources to help teachers navigate professional challenges effectively.
Publication III	Teacher Well-Being and Coping Strategies: A Two-Wave Qualitative Study With Secondary School Teachers in Switzerland
Goal	To explore the role of coping strategies in shaping teacher well-being within secondary school environments, considering varying levels of professional expertise.
Method	Qualitative study involving interviews with 23 secondary school teachers across two waves, analyzed using Zuckerman and Gagne's (2003) framework of coping strategies.
Results	Five key coping strategies were identified: self-help, approach, accommodation, avoidance, and self-punishment. Self-help was most frequently used, particularly among novice teachers, while experienced teachers favored approach strategies. Maladaptive strategies, such as avoidance and self-punishment, were reported less often but highlight ongoing professional challenges.
Conclusion	Fostering a supportive work environment is crucial to encourage effective coping strategies and enhance teacher well-being. Targeted interventions should address the specific needs of teachers, particularly those relying on maladaptive strategies.
Publication IV	Media Didactic Principles in Practice: Development and Implementation of the FoResT Learning Platform to Promote Resilience in Pre-Service Teachers
Goal	To address the research gap in promoting teacher resilience by developing a media-didactically designed online learning platform, fostering resilience strategies among pre-service teachers.
Method	Design-based research with three iterative phases: conception (design and content orientation), adaptation (formative feedback and revisions), and implementation (summative evaluation at the Bern University of Teacher Education).
Results	The iterative approach and media didactic foundation enabled the systematic development of the "FoResT" learning platform, creating a tailored environment for teaching resilience strategies to prospective teachers.
Conclusion	Integrating media-didactically designed online interventions into teacher education offers a promising approach for promoting resilience and preparing teachers for the challenges of the profession.

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“Teft, Windrunner, had *hope*.”

-

“I don’t know,” Kaladin whispered. “I’ve forgotten.” (...) “See that’s the wrong way of looking at it.” Tien held him tighter. “Since we all go to some place in the end, the moments we spent
With each other are the only things that *do* matter.
The times we helped each other.”

-

Tien said, “he’s simply dropped us off at a place we were going anyway. We shouldn’t hasten it, and it *is* sad. But see, he can’t take our moments, our Connection, Kaladin.
And those are things that really matter.”

B. Sanderson, from Rhythm of War, p.1116, p.1139, p.1140

Pour Elisabeth, Mémé, Nono et Nanie,

Je vous aime.

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Chapter 1: Introduction

Teaching has always been a challenging profession, yet recent societal and educational developments have increased the demands and complexities faced by educators (Gu, 2018; Heck & Ambrosetti, 2018; Mansfield et al., 2021). Recruiting and retaining qualified teachers, especially during the early stages of their careers, has become a global challenge (Mansfield et al., 2018). In this context, resilience is becoming increasingly important and plays a crucial role in how teachers not only manage occupational stress but also thrive amidst these challenges (Gu, 2018; Heck & Ambrosetti, 2018; Mansfield et al., 2021).

Recent research suggests that resilience is not a fixed trait but a dynamic process shaped by a combination of personal qualities, contextual factors, and effective coping strategies (Hascher et al., 2021; Mansfield, 2021; Mansfield et al., 2016; Ungar, 2018). This view requires a shift from identifying "resilient" individuals to proactively promoting resilience, particularly within teacher education programmes (Mansfield et al., 2021; Ungar, 2012). This shift towards more relevant, rigorous, and adaptable teacher training reflects the pressing need to foster resilience to prepare teachers for the demands of their profession (Mansfield et al., 2021).

It has long been recognized that the transition from student to teacher is a challenging one, with teachers often experiencing considerable occupational stress (Klusmann et al., 2012; Zimmermann & Klusmann, 2016). This stress arises from various sources, including intensive lesson preparation (Klusmann et al., 2012), challenging student behaviour (Floress et al., 2024, and often insufficient support at the start of their careers (Keller-Schneider, 2020). These factors contribute to high burnout rates among teachers, which in Europe currently range from 30 to 40% – significantly higher than in other professions (Münchhausen et al., 2021; Wesselborg & Bauknecht, 2022). A recent meta-analysis showed that teacher burnout rates rose to an average of 52% during the COVID-19 pandemic (Ozamiz-Etxebarria et al., 2023), similar to the rates observed among health care workers (Gharamanii et al., 2021). Increased teacher burnout during the pandemic has been attributed to additional challenges, such as the rapid shift to online

teaching, bimodal learning, and stringent hygiene protocols, all of which exacerbated psychological strain (Marshall et al., 2023; Ozamiz-Etxebarria et al., 2023).

The data highlight that teacher burnout rates were high both before and during the pandemic, surpassing other psychological issues such as anxiety (17%), depression (19%), and stress (30%), as reported in previous meta-analyses on educators (Ozamiz-Etxebarria et al., 2023). These findings underscore the significance of burnout as a critical factor in the teaching profession and the need for focused research on this topic (García-Arroyo et al., 2019; Zhou et al., 2024).

Given these concerning burnout rates, developing and promoting resilience among teachers is paramount. Teaching is becoming increasingly demanding, both physically and emotionally (Kyriacou, 2001; Thompson, 2007). Teachers must adapt to an ever-evolving work environment and be flexible in responding to new challenges (Rosehart et al., 2022; Suh et al., 2023). The growing complexity of the profession, influenced by economic, social, and technological changes, is often accompanied by a decline in teachers' social status (Bordás, 2023). Although about 82.5% of teachers under 55 remain in the profession (Bundesamt für Statistik [BFS], 2022), approximately 20% report feeling overwhelmed, and about 40% show significant burnout symptoms (Kunz Heim et al., 2014).

The primary stressors for teachers in Switzerland encompass various factors that impact both their working environment and their social and emotional demands. Key stressors include workload and role overload, discipline issues, classroom heterogeneity, and an unfavourable school climate (Sandmeier et al., 2022; Wettstein et al., 2023). In order to provide up-to-date evidence, comparable data from Germany are used to shed light on recent developments and challenges in the teaching profession (Münchhausen et al., 2021; Wesselborg & Bauknecht, 2022).

Reports from teachers reveal that nearly 90% of respondents feel heavily burdened by workload and time pressure. In addition, 83% find the lack of boundaries between work and leisure particularly stressful. Mid-career teachers (aged 36–50) report significant difficulties in

balancing work and personal life (Wesselborg & Bauknecht, 2022). This lack of balance is concerning, as the ability to separate oneself from work is considered a key resilience factor that can protect against stress (Wesselborg & Bauknecht, 2022).

While many teachers find working with students fulfilling, it is often accompanied by physical and emotional exhaustion (Sandmeier et al., 2022; Skaalvik & Skaalvik, 2017, Wettstein et al., 2023). Such strains on health are particularly pronounced among younger teachers, who notice the adverse effects on their physical health early in their careers (Köstner et al., 2022). These trends raise serious questions about the long-term health and retention of teachers, especially given the challenges of recruiting and retaining qualified professionals in education.

Recent years have seen a shift in the academic discourse; rather than focusing solely on the negative impacts of job-related stress, such as burnout, there is an increasing emphasis on resilience (Mansfield et al., 2016; Zadok-Gurman et al., 2021). This shift aligns closely with positive psychology, which moves away from a traditional deficit model and instead focuses on enhancing individual resources and protective factors (Seligman & Csikszentmihalyi, 2000). Rather than simply preventing and treating burnout, research is now increasingly exploring how teachers can develop and maintain psychological resilience to constructively face the challenges of their profession.

The aim of this resource-oriented approach is not only to protect teachers from the negative effects of occupational stress but also to proactively support them by fostering positive psychological resources that enable teachers to cope successfully with professional challenges and emerge stronger (Fredrickson, 2001). Resilience is central to this, as it helps teachers maintain their professional and personal integrity even in adverse conditions. This shift from a deficit-focused to a resource-focused perspective is increasingly reflected in educational strategies and programmes aimed at the long-term promotion of teachers' occupational health (Luthans et al., 2007; Reivich & Shatté, 2002).

While existing research has extensively documented teacher burnout and attrition rates, there remains limited understanding of how teachers actively develop and maintain their resilience in the face of these challenges. This dissertation explores the unique challenges and stresses teachers face and the strategies they develop to foster their own resilience. The aim is to use these insights to create a supportive framework for future teachers that sustainably promotes their health and resilience from the beginning of their training.

The dissertation begins with an overview of health issues and stressors specific to teacher trainees, as promoting resilience requires a deep understanding of these specific pressures. The first article, “Health and Resilience in Student Teachers: A Perspective on Swiss Teacher Education”, offers a detailed examination of the health and resilience profiles of this student group. The next chapter delves into the concept of resilience and its application in the context of prospective teachers.

Understanding teacher resilience requires an analysis of the daily professional challenges they face and the strategies they employ. The second article, “Navigating the Paradox Between Professional Challenges and Teacher Well-Being: The Role of Strategies Within the Resilience Process”, focuses on these aspects, highlighting the strategies teachers use to balance professional demands and well-being. The following chapter examines the coping strategies that (prospective) teachers use to remain resilient in their daily work. The third article, “Teacher Well-Being and Coping Strategies: A Two-Wave Qualitative Study with Secondary School Teachers in Switzerland”, provides a longitudinal analysis of the interplay between well-being and coping strategies, demonstrating the dynamic nature of resilience in teaching.

Based on these findings and the relevant literature, the “FoResT – Principles of Media Didactics in Practice: Developing and Implementing a Learning Platform for Resilience Promotion in Teacher Education” platform was developed. The article on the FoResT platform describes its design and implementation, which are aimed at actively strengthening the resilience of teacher trainees and preparing them for the challenges of professional life.

This dissertation concludes with a synthesis of the findings and an insight into future research approaches and practical applications aimed at ensuring sustainable support for promoting resilience among teachers. These conclusions not only summarize the key contributions of this research but also identify directions for future studies in teacher resilience promotion. Furthermore, the practical implications derived from this work provide concrete recommendations for implementing resilience-building strategies in teacher education programs.

Chapter 2: Health and Resilience in Teacher Education: Conceptual Foundations

In recent decades, the concept of health has evolved significantly from a simplistic, disease-centred view to a comprehensive model that includes biological, psychological, and social dimensions (Lippke & Renneberg, 2006). This multidimensional perspective acknowledges that health is not merely the absence of illness but a holistic state of physical, mental, and social well-being (Siegrist & Marmot, 2004; World Health Organization [WHO], 1948). This holistic perspective aligns with the WHO's influential definition, which, despite criticisms of its idealism, has shaped modern approaches to health promotion (Bickenbach, 2015; Larson, 1996).

Modern health promotion is built on a comprehensive view of health that prioritizes preventive care (Barry, 2021), overall well-being (Corbin et al., 2021; Van den Broucke, 2021), and building resilience (Stein et al., 2022). This perspective is particularly relevant for professions with high psychological demands, including teaching, where resilience serves as a critical protective factor against stress and burnout (Beltman et al., 2011; Gaebel & Falkai, 2022). By linking health and resilience, this chapter establishes a foundation for exploring how teacher education can address the complex challenges faced by teachers.

Salutogenesis and Health Promotion: The Foundation of Resilience

Aaron Antonovsky's concept of *salutogenesis* has significantly influenced contemporary health theories, shifting the focus from disease prevention to understanding the origins of health. Central to this model is the sense of coherence (SOC), defined as an individual's ability to perceive life as comprehensible, manageable, and meaningful (Antonovsky, 1979, 1996). Salutogenesis emphasizes the importance of resources – both internal and external – that enable individuals to cope effectively with stressors and maintain well-being.

The three components of the SOC – comprehensibility, manageability, and meaningfulness – are deeply intertwined with resilience. Comprehensibility involves making sense of the challenges teachers face, such as navigating diverse student needs and adapting to

shifting institutional demands. Pretorius and Padmanabhanunni (2022) demonstrated that comprehensibility mediated the relationship between fear of COVID-19 and psychological distress, enabling teachers to more effectively assess stressors and maintain life satisfaction.

Manageability refers to the availability of resources and support systems to help teachers cope with stressors. For example, professional development opportunities and mentoring relationships can provide essential tools for coping with challenges. Reinodt et al. (2022) illustrated how supportive environments in group-based interventions foster manageability by providing practical and emotional resources for participants.

Meaningfulness corresponds to a teacher's ability to connect their work to a larger sense of purpose, thereby fostering motivation and engagement. Van Wingerden and Poell (2019) found that meaningful work enhanced resilience among teachers through increased work engagement and job crafting, underscoring its importance in maintaining commitment and well-being. Salutogenesis has broad applicability across different fields, including public health and education. In the context of young people's well-being, it serves as a guiding framework for designing effective health promotion interventions by linking health behaviours with a coherent sense of purpose (García-Moya & Morgan, 2016). Similarly, in educational sciences, integrating salutogenic principles into curricula can transform traditional health education into a dynamic, lifelong concept of "healthy learning" that promotes both individual and community well-being (Lindström & Eriksson, 2011).

In practice, salutogenic principles have been integrated into teacher training programmes through initiatives such as structured reflection exercises and resilience workshops (de Oliveira Olney & Kiss, 2022; Fernandes et al., 2021; Silva et al., 2018). These interventions help pre-service teachers develop a SOC by providing them with opportunities to make sense of their professional challenges (comprehensibility; de Oliveira Olney & Kiss, 2022), build supportive peer and mentor relationships (manageability; Silva et al., 2018), and connect their teaching practices to a broader purpose (meaningfulness; Barni et al., 2019). Such programmes not only

improve individual well-being but also cultivate a collaborative and supportive professional culture (Fernandes et al., 2021; Meredith et al., 2023; Silva et al., 2018).

Despite its widespread use, research on salutogenesis often emphasizes specific diseases rather than fully operationalizing Antonovsky's ease/disease continuum. Mittelmark and Bull (2013) criticized this disease-focused approach, suggesting that future research should prioritize a more holistic understanding of well-being that goes beyond the absence of illness to encompass comprehensive health measures. This includes further developing theoretical constructs such as the SOC and applying salutogenesis in different contexts to develop innovative interventions (Bauer et al., 2020). Garista et al. (2019), for example, highlighted the potential of using drawing as a tool to integrate salutogenic perspectives into academic learning, thereby bridging the cognitive, emotional, and relational dimensions of health promotion.

Emerging research has highlighted the potential of digital platforms for the operationalization of salutogenic principles in teacher training. For instance, interactive online modules that promote mindfulness and emotional regulation have been shown to enhance teachers' SOC by providing accessible resources for stress management (Reinodt et al., 2022). Similarly, post-pandemic studies have emphasized the role of community-focused interventions in rebuilding meaningfulness and manageability in educational systems disrupted by COVID-19 (Pretorius & Padmanabhanunni, 2022). Beyond individual factors, organizational practices are critical in promoting manageability and meaningfulness. Interventions that create psychological safety, like encouraging stressor reappraisal and collaborative problem-solving, support teachers' SOC dimensions and empower them to navigate their professional environment (Pretorius & Padmanabhanunni, 2022).

Recent research findings have emphasized the crucial role of resilience in promoting health and well-being, particularly in an educational context. Resilience is increasingly seen as a dynamic process rather than a fixed trait, as it is influenced by personal, relational, and organizational factors (Gu & Day, 2013). For teachers, resilience is a protective factor that

supports psychological health, job satisfaction, and long-term retention (Brouskeli et al., 2018; Padmanabhanunni et al., 2023). Resilience falls within Antonovsky's ease/dis-ease continuum, enabling teachers to feel healthy even under adverse conditions. By using internal strengths, such as emotion regulation, and external resources, such as collegial support, resilience functions as a dynamic process, consistent with the salutogenic focus on resource activation.

Studies suggest that pre-service and early-career teachers face unique challenges that can undermine their resilience and well-being. For instance, Irish pre-service teachers were found to have lower levels of resilience and well-being compared to population norms, highlighting the need for targeted interventions during teacher training (O'Brien et al., 2020). Similarly, Squires et al. (2022) observed a decline in well-being and resilience among pre-service teachers as they approached the end of their training programmes, suggesting that these periods are particularly critical in terms of support. Fluctuations in resilience are shaped by several factors, including the level of education, years of experience, age, and school characteristics (Brouskeli et al., 2018; Wiegerová et al., 2024). Older and more experienced teachers tend to show greater resilience, as do those who work in schools with supportive cultures.

Relationships also play a key role in fostering resilience. Le Cornu (2009) emphasized that sustainable, mutually empowering relationships are fundamental to the development of resilience in early-career teachers. Such relationships, together with supportive school policies, create an environment in which teachers feel valued and equipped to manage challenges. Interventions rooted in salutogenic principles, such as resilience training programmes and mindfulness-based approaches (e.g. Birchinall et al., 2019), are in line with Antonovsky's (1996) emphasis on resource development. For example, structured peer mentoring programmes not only provide emotional support but also enhance teachers' manageability - their perception of having adequate resources to meet demands - by offering practical solutions to professional challenges.

The importance of fostering resilience is demonstrated not only in its impact on individual well-being but also in its broader implications for the teaching profession. As Doney (2013) argued, enhancing resilience in novice teachers is essential to addressing teacher attrition, a persistent issue in many education systems. By embedding resource-oriented strategies into teacher education programmes, institutions can improve both resilience and long-term professional retention. As health promotion continues to evolve, integrating salutogenic principles into teacher education offers a promising avenue for cultivating holistic health and resilience. This salutogenetic approach sets the stage for a deeper exploration of how stress and resilience interact in educational contexts, a topic that will be addressed in the following chapters.

Psychological and Social Dimensions of Health in Teacher Education

Health in the teaching profession is shaped by the interplay of psychological and social factors. Workplace stress, job satisfaction, and the availability of professional support networks are critical determinants of teachers' well-being (Werdecker & Esch, 2021). Teachers often face high levels of stress due to role overload, challenges with student behaviour, and administrative demands, which can lead to burnout if not addressed (Frick, 2021; Kunzler et al., 2018). In addition to administrative demands and student behaviour, teachers often face challenges such as implementing inclusive practices in diverse classrooms and adapting to rapidly changing technologies, both of which require significant emotional and cognitive investment.

Supportive school leadership and mentoring programmes have been shown to buffer the impact of workplace stress and foster a sense of belonging and shared purpose among educators (Werdecker & Esch, 2021). By addressing these social factors, schools can create an environment that promotes psychological health and reduces the likelihood of burnout. Informational support from peers and teacher educators is often cited as beneficial, yet its absence can become a significant burden for pre-service teachers (Wang et al., 2024). Creating systemic interventions that cultivate a supportive professional culture is therefore essential to ensure sustainable well-being in teacher preparation programmes.

Pre-service teacher education programmes offer a unique opportunity to address these challenges by fostering a deeper understanding of health and well-being among future educators. However, research indicates that student teachers often conceptualize health in narrow, physical terms, neglecting its emotional and social dimensions (Lipták & Tarkó, 2020). This conceptualization may stem from societal narratives that prioritize physical fitness as the primary marker of health, compounded by limited exposure to the psychological and social dimensions of well-being during early educational experiences. For example, early childhood educators in Hong Kong demonstrated a more holistic view of health, emphasizing psychosocial and emotional dimensions over physical aspects, in contrast to their counterparts in Western contexts (Paakkari et al., 2010).

Studies suggest that the psychological well-being of pre-service teachers often declines during their training, with Corcoran and O'Flaherty (2022) observing significant declines in dimensions such as environmental mastery and purpose in life over the course of teacher education. Interestingly, while the aforementioned dimensions declined, autonomy was observed to show a positive trajectory during teacher training. This contrasting pattern suggests that teacher preparation may foster certain aspects of self-determination, even as it introduces stressors that undermine other critical dimensions of well-being (Corcoran & O'Flaherty, 2022). By embedding health education in teacher training, institutions can shape professional cultures that prioritize well-being, creating a ripple effect that extends beyond individual teachers to entire school systems. However, sustaining these health-promoting behaviours after training remains a challenge, particularly in schools with high workloads and/or limited resources.

These findings underline the need for comprehensive health education programmes that integrate social-emotional learning (SEL) and interactive pedagogical approaches (Shi & Cheung, 2024; Väisänen et al., 2017). Programmes that incorporate mindfulness training and peer collaboration, such as those implemented in Finnish teacher education, have shown promise in promoting SEL and reducing stress among pre-service teachers (Väisänen et al., 2017).

Interactive digital learning platforms have shown similar promise in supporting pre-service teachers' mental health. By facilitating collaborative and reflective pedagogical design, these tools enhance well-being knowledge and promote holistic health education (Pretorius & Padmanabhanunni, 2022; Väisänen et al., 2017; Yager, 2011). For instance, reforms that prioritize reflective and collaborative learning have positively impacted pre-service teachers' understanding of health and their social connectedness (Byrne et al., 2012).

Holistic health education benefits not only individual teachers but also the professional cultures with which they engage. By modelling and integrating SEL practices, teachers can foster classroom environments that prioritize student and teacher well-being, promote resilience, and reduce stress for all participants (Betschart et al., 2022).

Models of Stress and Strain in the Teaching Profession

Stress, resulting from a combination of emotional, cognitive, and relational demands, is a multifaceted phenomenon that significantly influences teachers' professional and personal well-being (Kyriacou, 2001; Wettstein et al., 2023). Research has consistently highlighted teaching as one of the most stressful professions, with educators often facing challenges such as excessive workload, student misbehaviour, and administrative demands (Billehøj, 2007; Day, 2008). The teaching profession is further complicated by unique stressors (Wettstein et al., 2021), including the need to manage classroom diversity (McGrew et al., 2023), implement inclusive practices (Woodcock et al., 2022), and navigate rapidly changing educational technologies (Chow et al., 2024).

While stress is often associated with negative outcomes such as burnout, depression, and attrition (Billehøj, 2007; Brunetti, 2006), it also provides the context within which resilience can develop. Rutter (1987) and Masten (2001) argue that stress is a necessary precursor to resilience, as it creates the conditions that test and strengthen adaptive capacities. However, this interplay between stress and resilience remains underexplored in teaching-specific contexts, highlighting a critical gap in the literature.

Although research cannot fully unravel the complexities of stress, ongoing studies are deepening our understanding of its dynamics and its impact on the teaching profession. For example, Wettstein et al. (2023) found a significant correlation between perceived student behaviour and teacher stress, with positive teacher-student relationships acting as a buffer against psychological distress. Similarly, Gardner (2010) and Rönna-Böse (2021) emphasized that pre-service teachers face greater psychological challenges than the general population, with stress often exacerbated during teaching practicums and early-career transitions.

The urgent need to study stress in education also arises from its systemic effects. European studies, such as Billehøj's (2007), identified teaching as one of the most stressful occupations across 27 countries, with Swiss teachers reporting additional burdens due to poor school climate and unmanageable classroom behaviour. These findings underscore the need for a contextualized and comprehensive understanding of stress in education, as such stressors are not just individual experiences but a reflection of broader systemic and cultural challenges (Beltman, 2021; Beltman, 2021; Boon, 2021; Ungar, 2011).

This section examines theoretical models of stress and strain and compares their contributions to understanding teaching-specific stressors and their implications for resilience. By situating teacher stress within these frameworks, the aim is to illuminate pathways for fostering adaptive capacities and designing interventions that address the multifaceted nature of stress in education. These findings will guide further exploration of resilience and health promotion in subsequent chapters.

The Transactional Stress Model

The transactional stress model (Lazarus & Folkman, 1984) provides a foundational perspective on stress as a dynamic and interactive process between individuals and their environment. Central to this framework is the role of cognitive appraisals in determining stress outcomes. Teachers, for example, navigate challenges such as classroom disruptions, diverse student needs, and heavy workloads through two evaluative stages: primary appraisals, in which

they assess whether a situation poses a threat or an opportunity for growth, and secondary appraisals, in which they evaluate whether they have the resources to address the challenge effectively (Folkman & Moskowitz, 2004).

The model's emphasis on the subjective nature of stress aligns closely with findings in educational contexts. Wettstein et al. (2023) observed that teachers' perceptions of student behaviour significantly influenced their responses to stress, with negative appraisals correlating with emotional exhaustion and resignation, while positive appraisals mitigated psychological stress. Similarly, Tait (2008) suggested that resilient teachers are not only able to identify their stress levels but also proactively take steps to manage them. These findings underscore the critical role of primary and secondary appraisals in shaping stress outcomes.

In addition, the relational aspect of the teaching environment plays a pivotal role in influencing appraisals. Le Cornu (2009) and Luthar (2015) introduced the concept of "relational resilience", emphasizing the protective value of supportive networks, including positive relationships with students and colleagues. Teachers who cultivate such relationships often perceive stressors as manageable, which mitigates burnout and promotes professional satisfaction. Indeed, many teachers cite their students as the primary source of fulfilment and motivation in their role, reinforcing the importance of warm and trusting interactions (Brunetti, 2006).

While the transactional model focuses on the psychological mechanisms that trigger stress responses, external systemic factors also shape teachers' appraisals. Billehøj (2007) and Gardner (2010), for example, identified heavy workloads, an unsupportive school climate, and administrative demands as significant stressors. These factors influence secondary appraisals as teachers evaluate whether they have sufficient resources – such as time, support, and autonomy – to cope effectively. This interplay between internal perceptions and external demands demonstrates the versatility of the transactional model but also highlights its limitations in addressing broader systemic influences.

Despite these limitations, the transactional stress model offers important insights into the mechanisms through which stress manifests itself in the classroom. Interventions that enhance teacher resourcefulness, such as resilience-building programmes, directly target secondary appraisals to promote more adaptive stress responses. Cook et al. (2017) found that teachers who participated in resilience interventions, such as the achiever resilience curriculum (ARC), reported lower stress levels and greater job satisfaction, demonstrating the potential of targeted programmes to reshape stress outcomes through cognitive and emotional empowerment.

By conceptualizing stress as a dynamic and contextual process, the transactional model not only deepens the understanding of individual responses to professional demands but also provides a basis for designing interventions that address the cognitive and emotional needs of teachers. This framework remains essential for exploring the nuanced relationship between stress, appraisal, and resilience in educational contexts.

The Teacher Stress Model

The teacher stress model (Kyriacou & Sutcliffe, 1978) contextualizes stress within the unique demands of the teaching profession, emphasizing stressors such as workload, student misbehaviour, and institutional support deficits (Kyriacou, 2001). These stressors often vary across cultural and systemic contexts, but research consistently highlights their profound impact on teacher well-being.

A European study (Billehøj, 2007) found that teaching is one of the most stressful professions, with workload and disruptive student behaviour cited as the main stressors in 27 countries. In Switzerland, teachers also reported poor school climate as a significant contributor to stress, a finding echoed in Day's (2008) study. These stressors are compounded by systemic issues such as inadequate resources and low professional autonomy, consistent with the model's focus on institutional factors.

Furthermore, teacher-student relationships play a dual role in the experience of stress. While challenging behaviour is significantly correlated with increased stress and emotional

exhaustion (Wettstein et al., 2023), positive relationships can serve as "stress buffers" and increase resilience and well-being (La Marca et al., 2023). Relational resilience (Le Cornu, 2009), which is promoted by networks of trusting relationships, proves to be an important protective factor against stress.

Individual factors, particularly self-efficacy, also moderate stress outcomes. Klassen and Chiu (2010) demonstrated that teachers with high self-efficacy viewed stressors as opportunities for growth and thus reduced their emotional exhaustion. Conversely, teachers with low self-efficacy were more likely to experience burnout. These findings underscore the need for teacher education programmes to focus on developing reflective practices and self-efficacy (Ayoobiyan & Rashidi, 2021; Tait, 2008).

While the teacher stress model provides valuable insights into professional stressors and individual responses, it benefits from integration with broader systemic perspectives. Interventions such as the ARC have demonstrated the effectiveness of structured programmes in reducing stress and increasing self-efficacy and job satisfaction (Cook et al., 2017), suggesting that a comprehensive approach to addressing teacher stress is essential.

The Burden and Strain Framework

Rudow's (1994) framework provides a comprehensive lens for understanding teacher stress by integrating objective burdens, such as class size and administrative responsibilities, with subjective appraisals, emphasizing how individual perceptions mediate stress outcomes. A key insight of this model is its recognition of the dual potential of stress, which can lead to both growth and burnout, depending on the interaction between demands and available resources.

Research supports the validity of Rudow's (1994) dual-outcome perspective. Hakanen et al. (2006) found that teachers who perceived their burdens as "surmountable and meaningful" were more likely to experience professional growth, enhanced engagement, and job satisfaction. Conversely, when teachers viewed these burdens as insurmountable, their risk of burnout

increased. This pattern of divergent outcomes aligns with Rudow's (1994) assertion that subjective appraisals play a central role in determining stress outcomes.

Further support for the model is provided by the work of Ingersoll (2001) on teacher attrition in the United States. Excessive administrative demands and inadequate resources were found to correlate with higher turnover rates, emphasizing that unaddressed stress can lead to negative long-term outcomes for the profession. Similarly, Billehøj (2007) highlighted systemic stressors such as large class sizes, lack of autonomy, and poor school climate, which is consistent with Rudow's (1994) emphasis on the importance of external demands.

Positive Outcomes: Strain as Growth. Rudow's (1994) framework is unique in pointing out that strain is not inherently negative. For example, teachers in Hakanen et al.'s (2006) study who experienced manageable burdens often reported increased resilience and adaptive capacities. This finding is consistent with studies on relational resilience, where strong teacher-student relationships helped educators see challenges as opportunities for professional development (Le Cornu, 2009; Wettstein et al., 2023).

While Rudow's (1994) framework provides a nuanced understanding of the interplay between burdens and appraisals, it does not extensively explore organizational interventions aimed at mitigating stress. For example, systemic reforms, such as reduced administrative tasks or improved professional development opportunities, are not explicitly addressed. The JD-R model complements this gap by explicitly linking external demands and resources to stress and engagement and by offering actionable strategies for systemic change.

Rudow's (1994) emphasis on the duality of outcomes has important implications:

1. Tailored interventions: Recognizing that strain can lead to growth highlights the potential for designing interventions that channel stress constructively. For instance, mentoring programmes and collaborative professional networks can help teachers reframe burdens as surmountable challenges (e.g. Eisenschmidt et al., 2024; Meredith et al., 2023).

2. Cultural contexts: Cross-cultural studies (e.g. Billehøj, 2007; Katsantonis, 2020) show that systemic burdens vary significantly across regions. Research could explore how context-specific resources mitigate these burdens.
3. Resilience-building programmes: Programmes that foster self-efficacy and stress management skills, as proposed by Fernandes et al. (2020), Cook et al. (2017), and Silva et al. (2018), work with individual perspectives and personal assessments to achieve better results.

Rudow's (1994) burden and strain framework offers a valuable perspective on the complex dynamics of teacher stress by emphasizing both the objective and subjective dimensions of burden. Its recognition of the dual potential of stress – to foster growth and to cause burnout – distinguishes it as a nuanced model for understanding professional challenges. Integrating this framework with insights from the JD-R model and evidence-based interventions provides a more holistic approach to mitigating teacher stress while fostering resilience and professional growth.

The Job Demands-Resources (JD-R) Model

The job demands and resources (JD-R) model (Bakker & Demerouti, 2007) provides a comprehensive framework for understanding the interplay between workplace factors and teacher stress, burnout, and engagement. It categorizes workplace elements into job demands, such as emotional labour, time pressure, and classroom management challenges, and job resources, including social support, autonomy, and professional development opportunities. Central to the model are two processes: the health impairment process, where excessive demands lead to burnout and negative health outcomes, and the motivational process, in which resources foster engagement and resilience, enabling teachers to thrive in demanding environments.

Evidence strongly supports the applicability of the JD-R model to the teaching profession. For example, Skaalvik and Skaalvik (2017) found that teachers with access to resources such as professional development and supportive colleagues reported higher levels of engagement and lower levels of emotional exhaustion. Similarly, a longitudinal study by Hakanen et al. (2008)

demonstrated that mentoring programmes effectively mitigated the impact of high demands on burnout, highlighting the critical role of resources in maintaining teacher well-being. Further research in European contexts by Billehøj (2007) found that large class sizes and poor school climate were significant stressors for teachers, especially when resources like administrative support or mentoring programmes were lacking.

In Switzerland, the relevance of the JD-R model is also illustrated by studies that identify specific stressors, such as inappropriate student behaviour and a poor school climate, as key contributors to teacher burnout (Billehøj, 2007; Wettstein et al., 2023). These findings underscore the need for systemic interventions that address both demands and resources, especially in environments with high stress levels and limited support structures.

The JD-R model offers several advantages for understanding teacher stress and resilience. It provides a systemic perspective that links individual experiences of stress to organizational structures, making it particularly useful for designing school-wide policies and interventions. The flexibility of the model allows it to be adapted to different educational contexts, and its predictive focus on burnout and engagement provides clear evidence for evaluating the success of interventions. However, the model also has its limitations.

The model's focusing on organizational structures may oversimplify the dynamic and subjective nature of individual cognitive appraisals, which is a strength of the transactional stress model (Lazarus & Folkman, 1984). Teachers' perceptions of demands and resources are not static; they evolve based on factors such as self-efficacy, personal resilience, and relationship dynamics. In addition, the JD-R model does not explicitly address cultural or relational factors that influence teacher stress, areas that are better captured by frameworks like relational resilience (Le Cornu, 2009).

Despite these limitations, the JD-R model offers practical insights for supporting teachers in high-stress environments. Interventions such as mentoring programmes, peer collaboration networks, and professional development opportunities can enhance professional resources to

counteract the adverse effects of professional challenges. Promoting professional autonomy and implementing workload adjustments can further mitigate the process of health impairment while promoting motivation and engagement. In culturally diverse classrooms, interventions that focus on improving student-teacher relationships and classroom management can reduce stress and increase job satisfaction, as shown by research on relational resilience (Brunetti, 2006; Wettstein et al., 2023).

From a policy perspective, the JD-R model highlights the importance of systemic reforms aimed at improving school climate and administrative support. Creating an environment that prioritizes teacher well-being through balanced demands and ample resources can reduce burnout rates while promoting professional engagement and resilience. Together with insights from the aforementioned stress models the JD-R model offers a holistic approach to mitigating stress and enhancing resilience in educational settings. This integrative approach is crucial for promoting sustainable teacher well-being and effectiveness.

Theoretical models provide distinct yet complementary lenses for understanding the multifaceted nature of stress in teaching. These frameworks highlight the dynamic interplay between individual, professional, and systemic factors that influence how teachers experience and respond to stress. The following table synthesizes the key features of four prominent stress models by highlighting their unique contributions and limitations. This comparative analysis not only demonstrates the diversity of approaches to understanding stress but also emphasizes the common implications for future research and practice.

Table 1

Stress Models in the Teaching Profession

Model	Key focus	Unique contribution	Limitations
Transactional stress model (Lazarus & Folkman, 1984)	Individual cognitive appraisals of stressors and resources	Emphasizes the psychological processes shaping stress responses	Overlooks systemic and organizational influences

Model	Key focus	Unique contribution	Limitations
Teacher stress model (Kyriacou & Sutcliffe, 1978)	Profession-specific stressors, including workload, student misbehaviour, and institutional support deficits	Contextualizes stress within the teaching profession and highlights moderating factors like self-efficacy	Limited focus on external resources or interventions beyond individual characteristics
Burden and strain framework (Rudow, 1994)	Objective burdens and subjective appraisals influencing dual outcomes of growth and burnout	Bridges the gap between individual perceptions and objective workplace demands	Does not provide detailed mechanisms for organizational interventions
JD-R model (Bakker & Demerouti, 2007)	Balance between job demands (e.g. emotional labour) and resources (e.g. social support, autonomy)	Offers a systemic perspective on stress, linking individual and organizational factors	May oversimplify individual appraisal processes compared to the transactional model

Examining these models together reveals their shared insights and highlights gaps that warrant further exploration. Stress, as a complex and contextual phenomenon, demands nuanced investigation into its causes, mechanisms, and outcomes in different teaching contexts.

Firstly, contextual complexity emerges as a critical theme across the models. Stress cannot be disentangled from wider cultural, institutional, and systemic factors. Teachers' experiences of stress are deeply embedded in the policies, norms, and organizational cultures of their schools and education systems. Future research should examine how these macro-level factors interact with teachers' individual appraisals, particularly in culturally diverse educational settings.

Secondly, these models underscore the dynamic interplay between stress and resources over time. Stressors and coping mechanisms evolve through critical career phases such as pre-service training, early-career transitions, and professional maturity. Longitudinal studies are essential to capture how teachers' responses to stress and utilization of resources change over the course of their careers, offering insights into when and how interventions may be most impactful.

Finally, the intersection of stress and resilience is an essential area for investigation. While stress can lead to adverse outcomes, it also creates opportunities for growth and adaptation. Understanding the conditions under which stress fosters resilience is critical to designing effective interventions. Identifying protective factors – such as relational networks,

mentoring, and institutional support – can help transform stress from a purely detrimental force into a catalyst for professional and personal growth.

This chapter’s exploration of theoretical models lays the groundwork for deeper discussions on resilience and intervention strategies. The transactional stress model highlights the significance of cognitive and emotional appraisals, while the JD-R model situates these processes within broader systemic contexts. Together, these perspectives provide critical insights for designing interventions that target both individual and organizational factors.

In subsequent chapters, the focus shifts to resilience as a mediating factor that enables teachers to manage stress constructively. Resilience, which is understood as a dynamic process rather than a fixed characteristic, results from the interplay between stress and resources. Building on insights from the JD-R and teacher stress models, these chapters will explore systemic and individual strategies for fostering resilience in teaching. In addition, an understanding of stress dynamics provides a solid foundation for addressing pre-service teacher training. Equipping future educators with the tools to manage stress and build resilience is essential to preparing them to thrive in the complexities of the profession.

Health, stress, and resilience are deeply interconnected in the context of teacher education. This chapter has laid a foundation for understanding how health promotion and stress models inform resilience as a dynamic, multidimensional process. The article in the next chapter, “Health and Resilience of Pre-Service Teachers: Insights into the current state of theory and research with a specific focus on teacher preparation programmes in Switzerland”, provides an empirical lens on these issues by focusing on the lived experiences and health needs of student teachers. This article highlights the unique challenges they face, as well as the health-promoting and resilience-building resources available in the Swiss educational context.

Building on these applied findings, Chapter 4 extends the discussion to resilience as a distinct construct. It looks at its theoretical development, protective factors, and implications for teacher education, providing a comprehensive framework for understanding resilience as a

concept and practical tool for promoting the well-being and professional sustainability of educators.

Chapter 3: Publication I

Health and Resilience of Pre-Service Teachers: Insights into the current state of theory and research with a specific focus on teacher preparation programmes in Switzerland

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Abstract

This article provides an insight into the current state of theory and research on the health of preservice teachers, focusing specifically on student teachers in Switzerland. Given the unique circumstance that preservice teachers actively engage in school environments during their training, we also shed light on various dimensions of teacher health. Emphasizing the dual role that preservice teachers face, the article explores the challenges that are inherent in this dynamic. In particular, we place a specific spotlight on the pivotal role of resilience and examine practical approaches to promoting and sustaining resilience among preservice teachers.

Keywords health – preservice teachers – resilience – teachers

Einleitung

«Gesundheit» ist ein breiter Begriff und aufgrund seiner historischen und soziokulturellen Einbettung vielschichtig und uneindeutig (z.B. Buchner & Sommer, 2019). Im heutigen Diskurs um Gesundheit hat sich ein biopsychosoziales Verständnis von Gesundheit – ursprünglich eingeführt in den 1970er-Jahren von George L. Engel (1977) – etabliert, das den dynamischen und mehrdimensionalen Charakter von Gesundheit widerspiegelt und explizit berücksichtigt, dass Gesundheit mehr ist als die bloße Abwesenheit von Krankheit. Gesundheit wird verstanden ein aktiver Prozess des Balancierens zwischen Ressourcen und Belastungen und damit als «ein angenehmes und durchaus nicht selbstverständliches Gleichgewichtsstadium von Risiko- und Schutzfaktoren, das zu jedem lebensgeschichtlichen Zeitpunkt immer erneut in Frage gestellt ist» (Hurrelmann & Richter, 2013, S. 147). Damit verbunden ist die Annahme, dass die Gesundheit eines Menschen von vielen Faktoren beeinflusst wird. Dies führte zu den Determinanten-Modellen von Dahlgren und Whitehead (1991) und der WHO (2007), in denen individuelle Faktoren sowie soziale und wirtschaftliche Lebensbedingungen miteinander in Beziehung gesetzt werden. Gesundheit ist damit nicht nur in Relation zum Individuum, sondern immer auch in Relation zum Kontext zu sehen.

In unserem Beitrag möchten wir zunächst einen Überblick über die Diskussion zur Gesundheit von Studierenden des Lehrberufs geben. Aus Platzgründen beziehen wir uns dabei vor allem auf den Diskurs im deutschsprachigen Raum, nehmen aber auch Bezug auf zentrale Aspekte der Gesundheit von Lehrpersonen, weil Studierende nicht nur im Rahmen von Praktika an Schulen arbeiten, sondern oftmals bereits während ihrer Ausbildung als Lehrpersonen oder Stellvertreterinnen und Stellvertreter angestellt sind. Ihre Gesundheit kann daher unter zwei Perspektiven diskutiert werden: als Studentin bzw. Student und als Lehrperson. Zwar lassen sich die gesundheitlichen Herausforderungen von Berufseinsteigenden und langjährigen Lehrpersonen nicht gleichsetzen, etwa weil in

verschiedenen Berufsphasen unterschiedliche Entwicklungsaufgaben zu meistern sind (Keller-Schneider, Hasler, Lauper & Tschopp, 2020). Kernaufgaben des Lehrberufs betreffen jedoch alle Lehrpersonen unabhängig von ihrer Berufsbiografie, etwa der Umgang mit Heterogenität im Klassenzimmer. Anschliessend gehen wir auf einen wichtigen Teilbereich der psychischen Gesundheit in Studium und Beruf ein, der vor allem in den letzten Jahren vermehrte Aufmerksamkeit erfahren hat: die Resilienz. Unser Beitrag schliesst mit Überlegungen und Anregungen dazu, wie die Resilienz von Lehramtsstudierenden gefördert werden kann.

Zur Bedeutung der Gesundheit im Lehrberuf

In der internationalen Diskussion um die Gesundheit im Lehrberuf (im Überblick vgl. z.B. Jerrim & Sims, 2022; Rothland, 2022; Sandmeier & Mandel, 2021; Van Droogenbroeck & Spruyt, 2015) lassen sich zwei grosse Trends ausmachen: Zum einen wird die Bedeutung der Gesundheit von Lehrpersonen mit Bezug auf die eher hohen Raten an gesundheitlichen Beeinträchtigungen und Krankschreibungen thematisiert, die zu Berufswechseln und vorzeitigen Pensionierungen führen können. So wird der Lehrberuf als besonders belastend beschrieben und Lehrpersonen werden als besonders vulnerabel vor allem für Erschöpfungsdepressionen bzw. Burnout angesehen. In der Schweiz zeigte Kathrin Kramis-Aebischer bereits 1995 die Bedeutung dieser Thematik auf, später vor allem Doris Kunz Heim (Kunz Heim, Sandmeier & Krause, 2014). Als einflussreich ist die Potsdamer Lehrerstudie von Uwe Schaarschmidt (2006) zu bezeichnen, in der anhand des Verfahrens «AVEM» (Arbeitsbezogenes Verhaltens- und Erlebensmuster) vier für die Gesundheit relevante Persönlichkeitsmuster in der Beschäftigung mit beruflichen Tätigkeiten unterschieden wurden: Muster G für ein gesundheitsförderliches Verhältnis zur Arbeit, Muster S für den Ausdruck einer dominanten Schonhaltung, Risikomuster A für überhöhtes Engagement und geringe Distanzierungsfähigkeit und Risikomuster B für Anzeichen eines fortgeschrittenen Stadiums des Burnouts.

Zum anderen wird die Gesundheit von Lehrpersonen eng mit Schul- und Unterrichtsqualität verknüpft, und zwar mit dem Argument, nur gesunde Lehrpersonen könnten Unterricht in hoher Qualität gestalten und zu Leistungen und Wohlbefinden der Schülerinnen und Schüler beitragen. Entsprechend müsse bei der qualitätsbezogenen Schulentwicklung nicht nur auf Schülerinnen und Schüler, sondern auch auf «gute gesunde Lehrkräfte» (z.B. Sieland & Heyse, 2010, S. 197) geachtet werden. Auch der Dachverband Lehrerinnen und Lehrer Schweiz (LCH) argumentiert in seinem Positionspapier zur Gesundheit von Lehrpersonen mit den Effekten auf die Schülerinnen und Schüler (LCH, 2017). Im Positionspapier sind vier Forderungen hervorgehoben, die sich vor allem an Schulen und Gemeinden bzw. Kantone richten: a) die strikte Einhaltung der Jahresarbeitszeit, b) die konsequente Umsetzung der arbeitsmedizinischen Qualitätsnormen, c) die Etablierung eines professionellen Gesundheitsmanagements und d) die ausreichende Bereitstellung von bedarfsgerechten Unterstützungsangeboten für Lehrpersonen (LCH, 2017, S. 6). Auch wenn diese Anliegen für den Erhalt der Gesundheit von Lehrpersonen grundlegend zu unterstützen sind, ist die empirische Evidenz für einen direkten Zusammenhang zwischen der Gesundheit von Lehrpersonen und der Unterrichtsqualität (z.B. Klusmann, Kunter, Trautwein, Lüdtke & Baumert, 2008) noch eher schwach.

Gesundheit bei Studierenden der Lehrerinnen- und Lehrerbildung

Auffallend ist bei der Diskussion um die Gesundheit im Lehrberuf, dass bisher relativ wenig über die Gesundheit von Studierenden der Lehrerinnen- und Lehrerbildung gesprochen wird. Im Jahr 2007 widmete sich das «Journal für LehrerInnenbildung» in Heft 4 dem Thema «Gesundheit im Studium» mit dem Anliegen, für die Gesundheit von Studierenden zu sensibilisieren und Impulse für die Berücksichtigung des Themas in der Lehrerinnen- und Lehrerbildung zu geben. Tina Hascher und Peter Paulus (2007, S. 5) weisen im Editorial unter anderem darauf hin, dass bestimmte Belastungs-faktoren der Ausbildung zur Lehrperson immanent sind, etwa der hohe Workload durch die Ausbildung in mehreren Fächern, die hohe

Prüfungsfrequenz, die Gefahr gesellschaftlicher Geringschätzung der Ausbildung für den Lehrberuf oder die nie genügend erscheinenden Vorbereitungsmöglichkeiten für den Berufseinstieg. Auch die Berufstätigkeit während des Studiums, derzeit noch intensiviert durch den grossen Druck wegen des Lehrpersonenmangels, kann belastend sein. Gemäss dem Schweizer Bildungsbericht 2023 gehen auf allen Schulstufen über 50 Prozent der Studierenden mindestens gelegentlich einer sogenannten «ausbildungsunabhängigen Berufstätigkeit» (d.h. Stellvertretungen und Teilzeitanstellungen an Schulen) nach (SKBF, 2023, S. 307).

Neben der Berücksichtigung solcher strukturellen Faktoren plädierten die Autorinnen und Autoren des Themenhefts des «Journals für LehrerInnenbildung» dafür, die Kompetenzen der Studierenden zu stärken, etwa durch die Förderungen der psychischen Ressourcen von Studierenden (Albisser & Kirchhoff, 2007; Schaarschmidt, 2006). Schaarschmidt (2006) stellte anhand einer Untersuchung mittels des AVEM-Verfahrens fest, dass bereits bei Studierenden des Lehramts die beiden Risikomuster (und der Schontyp) vertreten sind, was in nachfolgenden Studien und anhand verschiedener Stichproben bestätigt wurde. So wiesen an der Universität Münster etwa 20 Prozent der Referendarinnen und Referendare das Risikomuster A und etwa 23 Prozent das Risikomuster B auf (Schröder & Kieschke, 2006). In einer Studie von Rothland (2011) befanden sich über 30 Prozent deutscher Studierender in den beiden Risikogruppen (15 % in Risikomuster A, 16 % in Risikomuster B). Zu noch höheren Verteilungen kamen Studien an der Universität Kassel (19 % in Risikomuster A, 32 % in Risikomuster B; Künsting, Billich-Knapp & Lipowsky, 2012) bzw. zu Lehramtsstudierenden im ersten Studienjahr an der Universität des Saarlandes (je 23 % in Risikomuster A und Risikomuster B; Reichl, Wach, Spinath, Brünken & Karbach, 2014). Der Identifikation der Musterverteilung kommt deshalb eine grosse Bedeutung zu, weil die Risikomuster mit tieferen Gesundheitswerten, zum Beispiel Herz-Kreislauf-Beschwerden, korrespondieren (Schaarschmidt & Kieschke, 2013).

Gesundheit bei Schweizer Studierenden

Da sich die Lehrerinnen- und Lehrerbildung in der Schweiz von den Ausbildungen in anderen (deutschsprachigen) Ländern unterscheidet (z.B. strukturell durch ihre Einphasigkeit), scheint ein spezifischer Blick auf diese Studierendengruppe sinnvoll zu sein. Anhand des AVEM-Verfahrens identifizierte Albisser (2009) bei Schweizer Studierenden 7 Prozent als Risikomuster A und 32 Prozent als Risikomuster B. Neuere Daten aus der Schweiz lassen aber vermuten, dass der Anteil der Muster stichprobenabhängig sein könnte. So fanden Deiglmayr, Grabner, Nussbaumer und Saalbach (2018) an der ETH Zürich eine deutlich andere Verteilung für angehende Gymnasiallehrpersonen (13 % in Risikomuster A, 8 % in Risikomuster B). Interessant ist auch, dass auf einer Liste von 27 erfragten gesundheitlichen Beschwerden zwar die beiden Risikomuster die höchsten Werte aufwiesen, die günstigsten Werte aber bei den Studierenden in Muster S vorlagen und nicht bei den Studierenden in Muster G.

Was lässt sich aus den Daten des Bundesamts für Statistik (BFS) ableiten, das im Jahr 2020 erneut eine landesweite Untersuchung zur gesellschaftlichen, ökonomischen und gesundheitlichen Situation der Studierenden an den Hochschulen in der Schweiz durchführte? Insgesamt 84 Prozent der Studierenden bewerteten ihren Gesundheitszustand als gut bis sehr gut. Diese positive Einschätzung nahm jedoch mit dem Alter ab und die Werte der Studentinnen lagen im Vergleich mit den Werten der Studenten tiefer. Auffallend ist, dass Studierende aller Hochschultypen – und damit auch Studierende an Pädagogischen Hochschulen – ihren Gesundheitszustand abermals als deutlich weniger gut bewerteten, wenn sie mit der ständigen Wohnbevölkerung (gematcht im Altersbereich von 20 bis 35 Jahren) verglichen wurden. Auch ihre mentale Gesundheit beurteilten sie als deutlich schlechter, was sich darin zeigte, dass Studierende überzufällig häufig von Depressionen betroffen waren. Insgesamt berichteten 18 Prozent der Studierenden an Schweizer Hochschulen über dauerhafte Gesundheitsprobleme (z.B. chronische Krankheiten oder psychische Probleme)

und insgesamt 16 Prozent fühlten sich dadurch im Studium eingeschränkt. Diese Werte lagen bei älteren Studierenden und Studentinnen erneut höher. Ob diese kritischere Einschätzung zum Ausdruck bringt, dass der Gesundheitszustand der älteren bzw. weiblichen Studierenden tatsächlich etwas schlechter ist (z.B. durch Beschwerden wegen Zusatzbelastungen oder im Kontext des weiblichen Zyklus), oder ob sie ihre Gesundheit bewusster wahrnehmen als die jüngeren bzw. männlichen Studierenden, bleibt dabei offen. Anhand der BFS-Daten lässt sich aber vermuten, dass sich Ergebnisse aus anderen Stichproben nur sehr bedingt auf den Schweizer Kontext übertragen lassen. Um dies an einem Beispiel zu illustrieren: Erst kürzlich untersuchten Hohensee und Schiemann (2022) den individuellen Gesundheitszustand und die subjektiv wahrgenommene Gesundheitskompetenz (Selbstregulation, Selbstkontrolle, Selbstwahrnehmung, Verantwortungsübernahme, Kommunikation, Kooperation, Umgang mit Gesundheitsinformationen) aus der Perspektive von Studierenden an einer deutschen Hochschule. Sie stellen fest, dass sich jede dritte Studentin bzw. jeder dritte Student einen schlechten Gesundheitszustand zuschreibt.

Die vom BFS bereitgestellten Daten liefern eine zuverlässige Momentaufnahme des Gesundheitsstatus der Studierenden in der Schweiz. Spezifische Aussagen zu Studierenden der Lehrerinnen- und Lehrerbildung liegen jedoch nur eingeschränkt vor, nämlich dann, wenn die Daten in der BFS-Studie nach Hochschultyp differenziert werden. Insgesamt scheinen nur wenige Unterschiede zwischen den Hochschultypen vorzuliegen, aber sie zeigen, dass Studierende an Pädagogischen Hochschulen weniger oft von mittleren oder schweren Depressionen betroffen sind als Studierende anderer Hochschultypen. Künftige Analysen müssten die Rahmen- und Ausbildungsbedingungen der Lehrerinnen- und Lehrerbildung besser berücksichtigen, da sich diese kantonal zum Teil deutlich unterscheiden. Dies führt uns unmittelbar zu der Frage, wie Hochschulen das Thema «Gesundheit in der Ausbildung» aufgreifen.

Gesundheit als Thema an Schweizer Institutionen der Lehrerinnen- und Lehrerbildung

Hochschulen stellen ein wichtiges Setting für die Gesundheit der Studierenden dar, indem sie das Gesundheitsverhalten der Studierenden rahmen und fördern, zum Beispiel durch gesundheitsbezogene Angebote im Kontext der Ausbildung. Anhand einer Durchsicht der Curricula aller Schweizer Institutionen der Lehrerinnen- und Lehrerbildung im Juni 2023 konnten wir beispielsweise die folgenden Ausbildungsanteile identifizieren: einen Schwerpunkt auf das Thema «Gesundheit» im Modul «Gesellschaft und Schulsystem» im ersten Semester an der Pädagogischen Hochschule Wallis, das Wahlmodul «Gesundheitsförderung» an der Pädagogischen Hochschule Bern (Zyklus 1 und Zyklus 2), den Kurs «Gesundheit stärken» an der Pädagogischen Hochschule Graubünden, die Spezialwoche «Mouvement et sport-sécurité-santé-nutrition» an der Pädagogischen Hochschule Fribourg, die Möglichkeit zum individuellen Projekt «Gesundheit und Prävention» an der Pädagogischen Hochschule Thurgau oder das Modul «Promotion de la santé à l'école: alimentation équilibrée et mouvement» an der Pädagogischen Hochschule Waadt. Auch wenn wir mit dieser Auflistung keinesfalls den Anspruch auf Vollständigkeit erheben, da wir sicher nicht alle Module ausfindig machen konnten, die das Thema «Gesundheit» adressieren, scheinen explizite Angebote zum Thema «Gesundheit» eher rar zu sein. Titel und Kurzbeschreibungen hinterlassen zudem den Eindruck, dass die Module vorwiegend die Gesundheit von Schülerinnen und Schülern adressieren. Dies scheint im internationalen Trend zu liegen, wenn zum Beispiel auf die Bedeutung der «mental health literacy» – gemäss WHO (1998) die Fähigkeit, Informationen im Bereich der psychischen Gesundheit zu erschliessen, zu verstehen und anzuwenden – von (angehenden) Lehrpersonen hingewiesen wird. Grundidee ist dabei, dass Lehrpersonen «mental health literacy» benötigen, um die mentale Gesundheit von Kindern und Jugendlichen im Kontext der Schule zu fördern (z.B. Dods, 2016; Kilic, Tasci & Altunoglu, 2023).

Es ist zwar durchaus möglich, dass Inhalte zum Thema «Gesundheit von Lehrpersonen» eher unter anderen Stichwörtern wie «Selbstmanagement» oder «Umgang mit Stress» angeboten werden (z.B. Keck Frei, Berweger, Bühner, Wolfgramm & Bieri Buschor, 2020). Die spärlich sichtbaren Angebote lassen jedoch darauf schliessen, dass der Gesundheit von Lehrerinnen und Lehrern noch nicht diejenige Aufmerksamkeit zukommt, die sie bereits in der Ausbildung von Lehrpersonen verdient. Deshalb sind Studien zum Wohlbefinden von angehenden Lehrpersonen (vgl. dazu in diesem Heft Haldimann, Hascher & Flick-Holtsch, 2024) und zu ihrer Resilienz relevant. Zudem ist zu begrüßen, wenn Hochschulen sich als Orte der Gesundheitsförderung verstehen. Initiativen wie «Healthy Campus Standards» (FISU, 2000) oder das Kompetenzzentrum «Gesunde Hochschulen.de» (Timmann et al., 2022), die in Deutschland initiiert wurden, warten in der Schweiz allerdings noch auf Akzeptanz und Umsetzung.

Resilienz von Studierenden der Lehrerinnen- und Lehrerbildung

Resilienz, definiert als die Fähigkeit, sich trotz erheblicher Belastungen und widriger Lebensumstände psychisch gesund zu entwickeln (Rönnau-Böse & Fröhlich-Gildhoff, 2011), spielt eine entscheidende Rolle, um in Studium und Beruf gesund zu bleiben und sich von verschiedenen Herausforderungen leichter zu erholen (Schumacher, Leppert, Gunzelmann, Strauß & Brähler, 2005). In der Forschung zur Resilienz von Erwachsenen gibt es eine Forschungstradition, die Resilienz als relativ stabiles Persönlichkeitsmerkmal charakterisiert (z.B. Letzring, Block & Funder, 2005). So haben Studien mit deutschen Lehramtsstudierenden und Referendarinnen und Referendaren aufgezeigt, dass unter anderem Selbstwirksamkeit, emotionale Intelligenz, Flexibilität sowie aktive Problemlösefähigkeiten, die Fähigkeit, Unterstützung anzunehmen, und die Fähigkeit, aus Fehlern zu lernen (Lohbeck, 2018), die Resilienz fördern. Besonders die Selbstwirksamkeit scheint die Resilienz von Lehrpersonen am präzisesten vorherzusagen (Peixoto, Wosnitza, Pipa, Morgan & Cefai,

2018). Diese kann durch Erfahrung und bewältigte Herausforderungen im Laufe der Karriere gestärkt werden. Auch die intrinsische Motivation für den Lehrberuf beeinflusst die Resilienz (Lohbeck, 2018).

Entsprechend wurde im deutschsprachigen Raum die Bedeutung von Resilienz im Kontext des Belastungserlebens von Lehramtsstudierenden untersucht. Drei Studien sollen dies illustrieren:

- Hahn, Kuhlee und Porsch (2021) widmeten sich dem Belastungserleben, dem Studienerfolg und den Abbruchintentionen von 204 Lehramtsstudierenden aus acht deutschen Bundesländern, wobei spezifisch auf individuelle Ressourcen eingegangen wurde. Die Ergebnisse auf der individuellen Ebene zeigen auf, dass Faktoren wie Resilienz und Misserfolgsangst das Belastungserleben beeinflussten. Zudem wurde darauf hingewiesen, dass eine gezielte Stärkung individueller Merkmale wie Resilienz und Selbstvertrauen einen positiven Einfluss auf das Belastungserleben hat und somit den Studienerfolg fördern könnte.
- Beer, Ebenberger, Potzmader und Beer (2021) untersuchten die Resilienz als Eigenschaft und das subjektive Belastungserleben von 129 österreichischen Lehramtsstudierenden. Die Studie verdeutlicht die Notwendigkeit von resilienzfördernden Massnahmen, die sowohl individuelle als auch kontextuelle Faktoren berücksichtigen. Die Ergebnisse zeigen, dass Lehramtsstudierende eine hohe Resilienz aufwiesen und durchschnittliche Belastungsscores verzeichneten. Die Selbsteinschätzungen auf der Gesamtskala «Resilienz» sowie den Subskalen «Persönliche Kompetenz» und «Akzeptanz des Selbst und des Lebens» waren hoch.
- Felix, Berndt und Anacker (2022) erforschten die Resilienz von Studierenden mit besonderem Blick auf Lehramtsstudierende während der

COVID-19-Pandemie und deren Wahrnehmung der digitalen Lehre der Otto-von-Guericke-Universität in Magdeburg. Insgesamt 1170 Studierende im zweiten bis sechsten Fachsemester wurden befragt, darunter 85 Lehramtsstudierende. Dabei wurden drei Typen identifiziert: coronaresiliente, coronavulnerable und belastete, coronaresiliente Studierenden-de. Eine höhere COVID-19-Pandemie-Resilienz hatte positive Auswirkungen auf Aspekte des Studienalltags und des Studienerfolgs. Die Ergebnisse zeigen auf, dass Lehramtsstudierende im Vergleich zu Studierenden anderer Fächergruppen eine geringere Selbstüberzeugung und Studienzufriedenheit sowie ein geringeres Kompetenzerleben aufwiesen.

Wird Resilienz als Persönlichkeitsmerkmal verstanden, trägt dies jedoch wenig zur Erklärung des Prozesscharakters von Gesundheit bei (Luthar, Cicchetti & Becker, 2000). Entsprechend betrachten Schwab und Fingerle (2013) Resilienz als dynamisches Zusammenspiel von Risiken und Ressourcen, das sich durch die Interaktion mit der Umwelt entwickelt. Damit wird auch betont, dass Resilienz erlernbar und kontextabhängig und nicht als Persönlichkeitsmerkmal zu betrachten ist. Diese zweite Konzeptualisierung von Resilienz hat sich von einem individuellen, psychologischen Fokus hin zu einem Verständnis von Resilienz als Kompetenz wie auch als Prozess und Outcome entwickelt (Hascher, Beltman & Mansfield, 2021; Mansfield & Gu, 2019). Die Betonung des Resilienzprozesses hebt die Handlungsfähigkeit des Individuums hervor. Anstatt passiv von Herausforderungen betroffen zu sein, setzen Menschen aktiv eine Vielzahl von Strategien zur Bewältigung von Herausforderungen ein. Für die Lehrerinnen- und Lehrerbildung bedeutet dieser dynamische Ansatz, dass die Integration von Resilienzförderung in die Hochschullehre und die Hochschulentwicklung dazu beitragen könnte, Studierende im Umgang mit Herausforderungen und in Bezug auf ihre professionelle Handlungskompetenz zu stärken. Die gezielte Betrachtung von Resilienz als Prozess bei Studierenden des Lehramts eröffnet die

Möglichkeit, Massnahmen zu entwickeln, die nicht nur die Bewältigung der spezifischen Herausforderungen dieses Studiengangs unterstützen, sondern auch langfristig zur Stärkung der psychischen Gesundheit und des Erfolgs im Lehrberuf beitragen können. Wie könnte eine solche Förderung gestaltet werden?

Förderung der Gesundheit von Studierenden der Lehrerinnen- und Lehrerbildung am Beispiel der Resilienz

Welche evidenzbasierten Programme zur Förderung der Resilienz von Studierenden liegen vor? Ein umfassendes Rahmenwerk zum Thema «Resilienz» und zu dessen Umsetzung in der Lehrerinnen- und Lehrerbildung ist das von Caroline F. Mansfield und ihrem Team entwickelte «Building Resilience in Teacher Education Framework» (BRiTE; Mansfield, Beltman, Broadley & Weatherby-Fell, 2016; vgl. auch www.brite.edu.au). Das Programm umfasst fünf interaktive Online-Lernmodule zu den Themen «Aufbau von Resilienz», «Beziehungen», «Wohlbefinden», «Eigeninitiative» und «Emotionen». Die Module wurden von einem Team australischer Lehrpersonen und Forscher entwickelt und werden – mittlerweile weit verbreitet – von Lehramtsstudierenden in Australien und international genutzt. Die empirische Begleitforschung bestätigt, dass die Nutzung der BRiTE-Module während der Praktikumsphase im Post-Test mit höheren Werten in den Bereichen «Resilienz» und «Lehrpersonenengagement» einhergeht (Beltman, Dobson, Mansfield & Jay, 2020). Des Weiteren verstärkte die Auseinandersetzung mit den Modulen die Wahrnehmung der eigenen bereits bestehenden Kompetenzen und das Selbstwirksamkeitsempfinden (Mansfield, Beltman & Weatherby-Fell, 2020).

Das Ziel des Projekts «Enhancing Teacher Resilience in Europe» (ENTREE; Silva, Pipa, Renner, O'Donnell & Cefai, 2018), an dem auch Lehramtsstudierende aus Deutschland beteiligt waren, war die Implementierung eines Präsenztrainingsprogramms mit insgesamt sechs Modulen zu den Themen «Resilienz», «Beziehungen im schulischen Umfeld», «Emotionsmanagement» und «Stressbewältigung» sowie zu pädagogischen Fähigkeiten für

effizientes Lehren und Klassenführung. Während die Teilnahme am Resilienzmodul verpflichtend war, konnten die Studierenden die anderen Module je nach individuellem Bedarf auswählen. Eine im Rahmen des ENTREE-Projekts durchgeführte Studie von Peixoto et al. (2018) untersuchte die Faktoren, die am stärksten mit der Resilienz in Verbindung standen. Die Studie ergab für deutsche Lehramtsstudierende, dass ihre Resilienz am stärksten durch Selbstwirksamkeit im Unterricht, emotionale Kompetenzen und das Management von Verhalten beeinflusst wurde. Im Gegensatz dazu zeigte sich in Malta, dass das Privatleben den grössten Einfluss auf die Resilienz hatte. Diese Unterschiede verdeutlichen, dass die Resilienz durch spezifische Unterstützungssysteme und Umweltfaktoren geformt wird und somit veränderbar ist.

Eine weitere Intervention zur Förderung der Resilienz bei Lehramtsstudierenden in Deutschland ist das Programm «RefueL» (Görich, 2019). Dieses Programm umfasst fünf Module – «Resilienz im Lehrkontext», «Gestaltung sozialer Beziehungen», «Wohlbefinden», «Zielsetzung» und «Emotionsregulation» – und legt den Schwerpunkt auf die Vermittlung praktischer Kompetenzen durch Übungen, Strategien und Techniken. Die Ergebnisse zeigten, dass die Burnout-Symptomatik der an den Modulen Teilnehmenden auch sechs Monate nach Abschluss des Programms geringer war im Vergleich zu einer Kontrollgruppe ohne Training. Ebenso berichteten die teilnehmenden Studierenden von höherem Wohlbefinden und einer gesteigerten Selbstwirksamkeit.

In dem jüngst veröffentlichten Interventionskonzept für angehende Lehrpersonen, entwickelt von Jentsch, Hoferichter, Seyfarth und Blank (2023), liegt der Schwerpunkt auf Wohlbefinden und Stressbewältigung. Es kombiniert die Anwendung von Entspannungstechniken, Achtsamkeit und Lernstrategien. Die Reflexionsmöglichkeiten für die Teilnehmenden zielen darauf ab, nicht nur kurzfristige Stressentlastung zu erreichen, sondern auch langfristig das Wohlbefinden und den Studienerfolg zu fördern. Begleitet wird das Seminar an der Universität Greifswald von einer Evaluationsstudie, die qualitative und

quantitative Befragungen einschliesst. Diese Studie untersucht, wie die Teilnahme an dem Seminar das Wohlbefinden und die Förderung individueller Ressourcen bei Studierenden beeinflusst, insbesondere in Bezug auf die Wahrnehmung und die Bewertung von Stress. Langfristig ist die Integration in den Studienplan der Lehramtsausbildung geplant, um präventive Massnahmen für die psychische Gesundheit von angehenden Lehrpersonen zu fördern und ihre Resilienz zu stärken.

Zusammenfassend lässt sich festhalten, dass bisherige Förderprogramme dazu beitragen können, die Resilienz von Lehramtsstudierenden zu stärken. Darüber hinaus gibt es weitere Projekte wie beispielsweise «PLUSTRACK-Connecting you!» (Reiß et al., 2023) und «Vom Halt! zur Haltung» (Poterpin, Atzesberger, Ensbacher-Roubin, Schmitt & Schopf, 2023), die darauf abzielen, Resilienz bei Studierenden zu erfassen und zu unterstützen. Diese Programme sind allerdings nicht spezifisch auf Lehramts-studierende zugeschnitten und bedürfen noch der empirischen Überprüfung.

Fazit und Ausblick

Hochschulen kommt bei der Entwicklung und der Förderung der Gesundheit Studierender eine zentrale Rolle zu, denn sie formen Gesundheitsgewohnheiten und stärken Gesundheitsressourcen, bergen aber auch Gesundheitsrisiken (Allgöwer, 2002). Studierende entwickeln im Rahmen ihrer Ausbildung ein gesundheitsbezogenes Bewusstsein und Gesundheitsgewohnheiten von überdauerndem Charakter. Deshalb sind für die gezielte Gesundheitsförderung im Rahmen des Studiums nicht nur individualisierte, sondern auch kontextbezogene und studieninhärente Massnahmen wichtig. Der künftige Weg zu einer umfassenden Integration von Gesundheitsförderung und Resilienz in der Lehrerinnen- und Lehrerbildung erfordert die Zusammenführung von Ausbildungs- und Forschungsansätzen. Diese könnte beispielsweise anhand der folgenden Themenbereiche strukturiert werden:

- a. Feststellung des Wissensstands: Eine sorgfältige Analyse etablierter Modelle und Methoden sowie erfolgreich implementierter Ansätze bildet den Ausgangspunkt.
- b. Identifikation von Forschungslücken: Die präzise Bestimmung der Wissensdefizite im Kontext der Gesundheitsförderung in der Lehrerinnen- und Lehrerbildung zeigt den Forschungsbedarf auf.

- c. Entwicklung neuer Ausbildungskonzepte: Die Adressierung dieser Wissenslücken sowie die Erforschung innovativer Strategien stehen im Zentrum, um die Gesundheitsförderung in der Lehrerinnen- und Lehrerbildung zu integrieren.
- d. Evaluation implementierter Programme: Eine detaillierte Evaluierung von Programmen ist unerlässlich, um deren Effektivität für die Lehrerinnen- und Lehrerbildung beurteilen zu können.

Wir möchten abschliessend mit einem Beispiel illustrieren, wie dies erfolgen kann: Resilienzförderung kann zur psychischen Gesundheit beitragen, den Studienerfolg erhöhen und Lehrpersonen im Beruf halten (z.B. Zadok-Gurman et al., 2021). Daher ist die gezielte Erforschung der effektiven Umsetzung von Resilienzförderung ein Hauptanliegen unseres aktuellen Projekts «Fostering Resilience in Teacher Education» (FoResT). In der deutschsprachigen Lehramtsausbildung gibt es bisher kaum Programme, die es Dozierenden ermöglichen, Resilienzförderung integrativ in ihren Kursen umzusetzen. Deshalb haben wir im Rahmen eines iterativen Design-Thinking-Ansatzes (Apel, Hull, Owczarek & Singer, 2018) mit Studierenden und Lehrpersonen, Therapeutinnen und Therapeuten, Dozierenden und Forschenden eine Lernplattform entwickelt. Der Prototyp der Plattform wird in den Herbstsemestern 2023 und 2024 im Rahmen einer Interventionsstudie am Institut für Primarstufe der Pädagogischen Hochschule Bern getestet. Bei einer positiven Evaluation kann das Programm in die (Schweizer) Lehrerinnen- und Lehrerbildung integriert werden.

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Chapter 4: Foundations of Resilience Theory

In psychological terms, resilience refers to the ability to adapt successfully in the face of adversity and to emerge stronger from such experiences (Luthar et al., 2000). The term has evolved significantly in psychology and the social sciences. Today, resilience is understood as a complex, multidimensional construct that is central to professions characterized by high demands and stressors (Matheson et al., 2016; Southwick et al., 2014).

The teaching profession exemplifies this need for resilience. Teachers are increasingly expected to cope with managing physical, emotional, and cognitive challenges that are exacerbated by economic, social, and technological changes. These challenges, coupled with the declining societal recognition of educators, highlight the importance of fostering resilience in teacher education (Bordás, 2023; Kyriacou, 2001).

The Historical Evolution of Resilience

The term "resilience" derives from the Latin word *resilire*, meaning "to spring back" or "to rebound" (Mukherjee & Kumar, 2016). First used in 19th-century engineering sciences to describe the ability of a material to return to its original shape after deformation (Tredgold, 1818), the concept entered psychology and the social sciences in the mid-20th century. Here, it evolved from a focus on individual traits to a multidimensional, dynamic process shaped by interactions between individuals and their environments (Masten, 2001; Rutter, 1987).

The Four Waves of Resilience Research

Resilience research has developed in four distinct "waves", each offering new perspectives and expanding the field's scope (Richardson, 2002). These waves have progressively shifted from identifying protective factors to understanding resilience as a dynamic process, with each wave building upon and enriching the insights of previous research phases. The evolution of resilience research has been particularly significant for understanding how individuals actively construct and maintain their resilience over time.

Resilience as an Individual Trait (1960s–1970s). Early research focused on resilience as an innate trait, studying children from high-risk families to identify personal characteristics associated with positive outcomes. Garmezy's (1974) work with children of schizophrenic parents emphasised the role of traits such as optimism and adaptability. Werner and Smith's (1982) Kauai longitudinal study further highlighted protective factors such as strong family ties and informal social support systems. However, critics of this phase argued that treating resilience as a static trait ignores environmental and contextual influences (Murphy & Moriarty, 1976).

Resilience as a Dynamic Process (1980s). During the second wave, researchers began to view resilience as a fluid process shaped by interactions with the environment. Antonovsky's (1979) salutogenic model contributed to this shift by emphasizing health-promoting factors. Studies such as Masten and Garmezy's (1985) showed that resilience varied across contexts and over time, challenging the idea of resilience as a one-size-fits-all construct. Rutter (1990) stressed the importance of both external support systems and internal capacities in fostering resilience.

Resilience as a Promotable Construct (1990s). The third wave introduced a focus on fostering resilience through interventions and support systems. Luthar et al. (2000) and Werner and Smith (1992) demonstrated the importance of protective factors across individual, contextual, and transactional domains. Longitudinal studies found that resilience could be cultivated through targeted programmes addressing emotional regulation, problem-solving, and community support (Howard et al., 1999).

Resilience as a Multidimensional and Transactional Construct (2000s–present). The fourth wave emphasizes resilience as an outcome of interactions between biological, psychological, and social dimensions. Advances in neuroscience revealed the role of neuroplasticity in resilience, while research on gene-environment interactions highlighted genetic contributions (Kim-Cohen & Gold, 2009). At the same time, sociocultural models (Ungar, 2005) explored how environmental systems shape resilience, moving beyond individualistic frameworks.

Together, these four waves collectively reflect a progression from understanding resilience as a fixed trait to recognizing it as a dynamic and multidimensional process influenced by diverse internal and external factors.

After establishing the historical and theoretical development of resilience, this chapter's focus now shifts to its application in specific contexts – particularly the teaching profession.

Conceptual and Methodological Challenges in Resilience Research

Despite decades of research, resilience remains a concept characterized by definitional ambiguity and methodological challenges. The lack of a single definition makes it difficult to compare and generalize findings, as researchers alternately define resilience as a stable characteristic, a dynamic process, or an outcome influenced by contextual factors (Luthar et al., 2000; Masten, 2001). These different perspectives reflect a conceptual tension: is resilience an intrinsic ability, or is it shaped by external conditions?

Resilience research is challenged by conceptual ambiguity, with ongoing debates about whether it should be defined as a stable trait or a dynamic, context-dependent process (Luthar et al., 2000; Masten, 2001). This ambiguity makes it difficult to develop universally applicable frameworks and tools. Cross-cultural differences further complicate resilience research. Much of the literature originates from Western contexts, with limited applicability to other cultural frameworks (Ungar, 2011). Concepts such as adversity, coping, and social support vary widely across cultures, underscoring the need for more inclusive and globally representative studies (Ungar, 2008). Teacher resilience, for example, may manifest differently in collectivist societies than in individualist ones, requiring culturally sensitive approaches to research and intervention.

In terms of methodology, resilience research requires resource-intensive longitudinal studies in order to capture its development over time (Masten, 2001). The integration of qualitative and quantitative methods is essential to understanding resilience as a dynamic process. For example, longitudinal studies coupled with narrative interviews can provide richer insights into how resilience develops over time and in different contexts (Cicchetti, 2010). Qualitative

methods such as interviews and case studies (Schussler et al., 2018) offer deeper insights into the subjective experiences of resilience but are often underutilized. Combining these approaches with quantitative data remains a challenge but is crucial for a comprehensive understanding of resilience (Cicchetti, 2010).

In addition to conceptual and methodological issues, there are practical challenges in the design and implementation of resilience-building programmes. These interventions must balance the cultivation of individual protective factors, such as emotional regulation and self-efficacy, with systemic support mechanisms like institutional policies and community networks (Fredrickson, 2001). In the educational field, the need for such programmes is acute, as teacher well-being directly influences student outcomes and the broader school environment (Greenberg, 2006).

Addressing these challenges is critical to translating resilience theory into actionable strategies. The following section explores models and protective factors that underpin resilience, focusing on their relevance to teachers and educational settings.

In psychological terms, resilience refers to an individual's ability to adapt successfully to adverse circumstances and to emerge stronger from such experiences (Luthar et al., 2000). The need for a clearer conceptualization is reminiscent of philosophical debates about abstract virtues, such as Aristotle's *eudaimonia*, where concepts like resilience are closely linked to contextual and experiential factors (Annas, 1996). Viewing resilience as a pathway to thriving reinforces its dynamic and evolving nature.

Protective Factors and Models of Resilience

Resilience research identifies various protective factors that contribute to positive adaptation in the face of adversity. These factors span individual traits, contextual support mechanisms, and dynamic interactions between the two. Table 2 synthesizes key resilience frameworks and their protective factors, with a focus on their relevance to teachers.

Table 2*Key Resilience Frameworks and Protective Factors*

Reference	Individual factors	Contextual factors	Transactional factors
Werner and Smith (1982, 1992)	Infant-early childhood: active, vital, drive, enthusiasm Childhood-youth: low emotionality, autonomy, positive self-concept, religious orientation	Infant-early childhood: small family size, mother's skills, supportive grandparents, institutional norms Youth-adulthood: supportive siblings, mentors	Long-term interactions with supportive adults, promoting adaptability across developmental stages
Rutter (1985)	Female, good temperament, self-control, planning skills	Close, stable relationship with an adult, positive school climate	Reciprocal interactions between planning skills and positive school climate
Garmezy et al. (1984)	High expectations, reflective ability, self-discipline, humour	Family cohesion, available adult support, community support	Continuous adaptation of family cohesion and support to changing child needs
Kumpfer (1999)	Intellectual competence, empathy, persistence	Proper environment can foster resilience	Dynamic interactions between intellectual competence and social environment
Benson (1997)	Internal values: commitment to learning, social competence, positive identity	External values: support from family, knowing boundaries, structured time	Interactive processes between internal values and external support structures
Grotberg (1995, 2003)	"I am": liked by others, calm "I can": find new ways, express thoughts	Stable family, trusted individuals, supportive community	Continuous development of self-efficacy through social networks
Ungar (2005)	Self-attributes: self-efficacy, positive self-image, empathy	Family quality, flexible environment, community support, access to resources	Transactional interactions developmental and sociocultural systems
Werner (2000); Werner and Smith (1992)	Resilient children exhibited sense of security, autonomy, and problem-solving abilities	Secure family attachments, supportive teachers, strong institutional norms	Interactions individual problem-solving skills and family/social support networks to foster resilience
Parker et al. (1990)	Inner control, problem-solving skills	Family/community support, consistent rules, and expectations	Reciprocal interactions impulse control and social expectations

Resilience frameworks collectively affirm that resilience is not an isolated trait but emerges through dynamic interactions between individuals and their environments (Rutter, 1987; Ungar,

2005). Supportive relationships – whether with family, mentors, or peers – play a pivotal role, offering emotional, social, and practical resources that mitigate adversity (Werner & Smith 1982, 1992). Access to community and institutional support mechanisms, such as professional development opportunities or structured environments, further strengthens resilience by fostering adaptability and problem-solving skills (Benson, 1997; Grotberg, 2003).

In the teaching profession, these insights can be translated into actionable strategies. For example, mentoring programmes reflect the protective influence of supportive relationships as described in Werner and Smith's (1982, 1992) developmental model. Similarly, Rutter's (1987) emphasis on planning and self-regulation highlights the importance of equipping teachers with stress management tools and organizational skills. Finally, Ungar's (2005) socio-ecological framework reinforces the need for school-wide initiatives that build a positive organizational climate and recognize that resilience is shaped as much by external systems as by individual characteristics.

These frameworks also stress the importance of transactional factors, such as teacher-student relationships and community engagement, which foster mutual support and create a sense of shared purpose (Grotberg, 1995, 2003). For teachers, engaging with students and collaborating with colleagues and parents provides emotional fulfilment and helps distribute responsibilities, thereby reducing stress and increasing resilience over time.

By synthesizing insights from these resilience frameworks, the protective factors that are critical to teacher well-being can be identified. The next section explores these factors in greater detail, emphasizing their practical application within educational contexts.

Resilience is underpinned by a range of individual characteristics that enable individuals to cope effectively with adversity. These characteristics, including optimism (e.g. Bengel & Lyssenko, 2010; Mansfield et al. 2016), autonomy (e.g. Beltman, 2021; Gu, 2014) and self-efficacy (e.g. Kunzler et al., 2020; Werner, 2000), have been identified in numerous studies and

are central to resilience-building interventions. Table 3 categorizes these characteristics into key domains and provides an overview of the attributes that contribute to resilience and their associated references.

Table 3*Individual Characteristics Supporting Resilience*

Category	Characteristics	References
Observation of events	Optimism	Bengel and Lyssenko (2012); Beltman (2021); Ee and Chang (2010); Harris Lord and O'Brien (2007); Kunzler et al., 2020; Mansfield et al. (2016); Pourtois et al. (2012); Reivich and Shatté (2002)
	Determination	Henderson and Milstein (2002); Huisman et al. (2010); Stewart and Yuen (2011); Werner (2000)
	Initiative	Beltman (2021); Mansfield et al. (2016); Werner and Smith (1982); Wolin and Wolin (1993)
	Autonomy	Beltman (2021); Gu (2014); Mansfield et al. (2016); Pourtois et al. (2012); Wymann et al. (1993)
	Independence	Werner and Smith (1982); Wolin and Wolin (1993); Werner (2000)
	Creative imagination	Kunzler et al. (2020); Pourtois et al. (2012); Werner and Smith (1982); Wolin and Wolin (1993)
	Motivation	Ahrens (2001); Beltman (2021); Brunetti (2006); Henderson and Milstein (2003); Kunzler et al. (2020); Mansfield et al. (2016); Patterson et al. (2004); Théorêt et al. (2003 in Leroux, 2009); Pourtois et al. (2012)
	Acceptance	Kuba and Scheibe (2017); Kunzler et al. (2020); Pourtois et al. (2012); Reivich and Shatté (2002); Stewart and Yuen (2011)
Self-perception	Self-esteem	Bengel and Lyssenko (2012); Masten and Wright (2010); Kunzler et al. (2020); Pourtois et al. (2012); Reivich and Shatté (2002); Stewart and Yuen (2011); Tousignant (2012); Wustman (2020)
	Confidence	Beltman (2021); Bernshausen and Cunningham (2001); Mansfield et al. (2016); Pourtois et al. (2012); Skodol (2010)
	Self-efficacy	Beltman (2021); Kunzler et al. (2020); Mansfield et al. (2016); Pourtois et al. (2012); Rutter (2010); Werner (2000); Werner and Smith (1982)
	Realistic Expectations	Beltman (2021); Mansfield et al. (2016); Pourtois et al. (2012); Wolin and Wolin (1993)
	Positive evaluations of situations	Beltman (2021); Kunzler et al. (2020); Mansfield et al. (2016); Sharplin et al. (2011); Skodol (2010); Tugade and Fredrickson (2004)
	Hope	Bengel and Lyssenko (2012); Brooks (1994); Kunzler et al. (2020); Stewart and Yuen (2011); Werner (2000); Werner and Smith (1982)
	Internal locus of control	Beltman (2011); Beltman (2021); Luecken and Gress (2010); Kunzler et al. (2020); Reivich and Shatté (2003); Stewart and Yuen (2011)
Reaction to events	Ability to feel pleasure	Davison (2006); Harris Lord and O'Brien (2007); Reivich and Shatté (2002); Singer (2010); Skodol (2010); Tugade and Fredrickson (2004)
	Sense of humour	Beltman (2021); Harris Lord and O'Brien (2007); Kunzler et al. (2020); Mansfield et al. (2016); Pourtois et al. (2012); Singer (2010); Wolin & Wolin (1993)
	Work achievement	Masten and Wright (2010)

Sense of belonging Altruism	Kunzler et al. (2020); Raes (2022); Tousignant (2012) Beltman (2021); Mansfield et al. (2016); Pourtois et al. (2012)

Table 3 highlights the diverse range of individual characteristics that contribute to resilience. These traits, identified through extensive research, underscore the importance of both personal attributes and relational capacities in fostering adaptability and well-being. Understanding these characteristics provides a foundation for designing resilience-building interventions that are tailored to different populations and contexts.

Resilience as a Multidimensional Construct

Resilience is increasingly understood as a multidimensional construct shaped by interactions across biological, psychological, and social (Masten, 2001; Feder et al., 2019; Ungar & Theron, 2019) and physiological dimensions (Ong & Cammarata, 2020). This transactional perspective reflects the complexity of resilience, emphasizing that it is neither fixed nor isolated but instead emerges through dynamic processes influenced by individual and environmental factors. For educators, understanding these dimensions provides valuable insights into how resilience can be supported both personally and systemically (Masten, 2007; Ungar & Theron, 2019).

Physiological Dimensions. The physiological dimension of resilience encompasses the body's adaptive responses to stress and adversity through multiple interconnected systems (Karatsoreos & McEwen, 2013). The body's stress response systems play a crucial role in regulating immediate responses to challenges and supporting recovery processes, while hormone-producing systems help maintain balance through stress management and adaptation (Leistner & Menke, 2020). Research demonstrates that physiological resilience manifests through markers such as heart rate variability, which indicates the body's capacity to respond flexibly to environmental demands (Calderón-García et al., 2024; Krick et al., 2021). Studies highlight the bidirectional relationship between physiological and psychological resilience, where effective stress management practices can enhance both domains (Davidson & McEwen, 2012; McEwen,

2017). For instance, research shows that regular physical activity not only improves cardiovascular function but also increases stress tolerance and emotional regulation (Harris et al., 2016).

The physiological underpinnings of resilience are particularly relevant in high-stress professions like teaching, where chronic stress can impact both physical and mental well-being (Johnson et al., 2014). While acknowledging these physiological foundations, this thesis primarily addresses psychological and social interventions that can positively influence physiological functioning, such as mindfulness practices, which have been shown to reduce cortisol levels and improve immune function (Calderón-García et al., 2024; Harris et al., 2016; Schussler et al., 2018).

Psychological Dimensions. Psychological resilience encompasses mental and emotional adaptive responses to stress and adversity through interconnected cognitive processes (Reivich & Shatté, 2002). Cognitive-emotional systems play a crucial role in regulating responses to challenges and supporting coping processes, while self-regulatory mechanisms help maintain emotional equilibrium through stress management and adaptation (Fredrickson, 2001; Luthar et al., 2000). Research demonstrates that psychological resilience manifests through indicators such as emotional regulation and self-efficacy, which indicate an individual's capacity to respond flexibly to environmental demands (Bagdžiūnienė et al., 2023; Gu & Day, 2007). Studies highlight the bidirectional relationship between psychological and physiological resilience, where effective coping strategies can enhance both domains (Bandura, 1977). Research shows that adaptive cognitive strategies not only improve emotional regulation but also enhance stress tolerance and professional effectiveness (Vesely et al., 2014; Wang et al., 2023).

The psychological foundations of resilience are particularly relevant in high-stress professions like teaching, where emotional demands can impact both mental and physical well-being (Johnson et al., 2014). These psychological factors are dynamic and can be strengthened

through professional development programmes and personal practices, such as reflective journaling and goal-setting (Beltman, 2021; Sharplin et al., 2011).

Social Dimensions. Social resilience encompasses interpersonal and communal adaptive responses to stress and adversity through interconnected relational processes (Ungar, 2005). Social support systems play a crucial role in facilitating responses to challenges and supporting coping processes, while organizational structures help maintain professional stability through collective support and adaptation (Gu & Day, 2013; Werner & Smith, 1992). Research demonstrates that social resilience manifests through indicators such as collegial relationships and mentoring networks, which indicate a teacher's ability to access and utilize support in response to professional demands (McDonough et al., 2021).

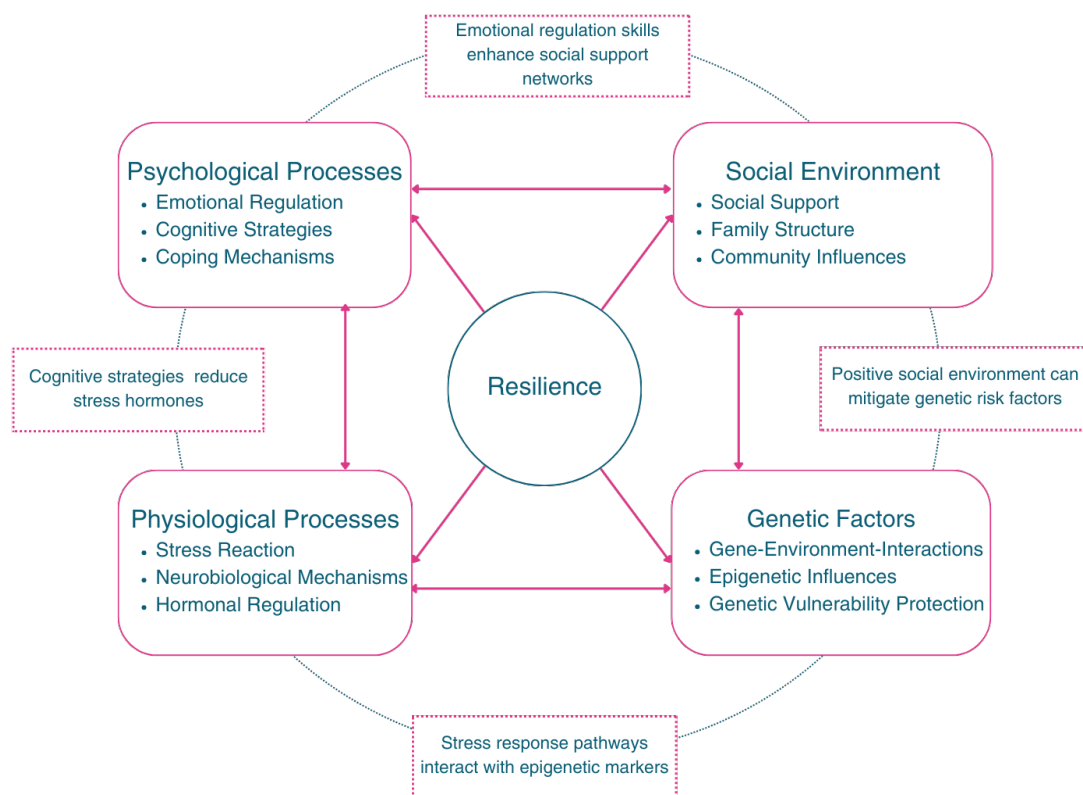
The literature also emphasizes how social and individual resilience are mutually reinforcing, with strong support networks strengthening personal capacity, while individual resilience contributes to collective strength (Gu, 2014; Le Cornu, 2009; Mansfield et al., 2016). Research reveals that supportive school environments create conditions in which collaborative practices strengthen both individual coping and professional growth (Beltman et al., 2011; Eisenschmidt et al., 2024; Jennings et al., 2013; Jennings & Greenberg, 2009; Meredith et al., 2023). The social foundations of resilience are especially important in high-stress professions like teaching, where interpersonal demands can impact both individual and collective well-being (Ghasemi, 2024; Falecki & Mann, 2021; Zautra et al., 2010). These social systems are critical to fostering resilience, emphasizing that no teacher faces challenges in isolation.

Integration Across Dimensions. The interplay between biological, psychological, and social dimensions underscores resilience as a holistic process (Masten, 2001; Ungar, 2005). For teachers, fostering resilience involves not only developing personal coping skills but also engaging with supportive systems and practices. For instance, a teacher who practices mindfulness (psychological) while benefiting from collegial mentorship (social) demonstrates the multidimensional nature of resilience in action (Beltman, 2021; Hölzel et al., 2011).

Figure 1 illustrates resilience as an integrated system comprising four key dimensions: psychological processes, social environment, physiological processes, and genetic factors. Each dimension makes a distinct contribution while maintaining reciprocal relationships with other components, creating a sophisticated system of protective mechanisms and adaptive responses.

Figure 1

Dimensions of Resilience: Understanding Interactive Processes



Note. Original figure created by the author for this publication.

The psychological dimension encompasses emotional regulation, cognitive strategies, and coping mechanisms that collectively shape how individuals perceive and respond to challenges. These psychological processes have direct physiological effects, as evidenced by research showing how cognitive strategies can modulate stress hormone production (Davidson &

McEwen, 2012; Yilmazer, 2024). This mind-body connection illustrates the intricate relationship between psychological and physiological resilience.

Physiological processes, including stress responses, neurobiological mechanisms, and hormonal regulation, represent the biological factors of resilience. These processes interact dynamically with genetic factors, including gene-environment interactions, epigenetic influences, and genetic vulnerability protection. Recent research in epigenetics has revealed how environmental factors can influence gene expression, suggesting that positive experiences and supportive environments modify how genes function in response to stress (Slavich et al., 2023; Whiting et al., 2021).

Research highlights the importance of the social dimension, which includes social support, family structure, and community influences (Beltman, 2021; Oldfield & Ainsworth, 2019; Ungar et al., 2014). This dimension can significantly mitigate genetic risk factors, demonstrating how supportive social contexts may help overcome inherited vulnerabilities. For teachers, this manifests in how collegial relationships and professional learning communities can buffer against occupational stress while promoting adaptive coping strategies (Gu & Day, 2013; Wang et al., 2023).

The model's circular arrangement, with resilience at its core, emphasizes the interconnected nature of these dimensions. For example, when teachers participate in professional development programmes that incorporate both mindfulness training (psychological) and collaborative learning communities (social), they may experience improvements in both their stress response (physiological) and their capacity to use social support effectively. This multidimensional approach reflects the current understanding that resilience development requires attention to both individual and systemic factors (Beltman, 2021; Ainsworth & Oldfield, 2019).

This framework suggests that interventions to enhance teacher resilience may be most effective when they address multiple dimensions simultaneously. For instance, school-based

programmes that combine individual stress management techniques with structural supports and collaborative practices are more likely to foster sustainable resilience than single-dimension approaches (Kangas-Dick & O'Shaughnessy, 2020; Schussler et al., 2018).

Critical Reflections on Resilience

While resilience is widely celebrated as a crucial capacity for overcoming adversity, it is not without its critics. One of the primary concerns is the tendency to overemphasize individual responsibility (Beltman, 2021; Oldfield & Ainsworth, 2019). This narrative risks overlooking systemic factors that contribute to adversity, such as organizational structures, societal inequities, and cultural norms (Bottrell, 2009). For example, workplace environments that demand resilience from employees without addressing the root causes of stress can perpetuate cycles of burnout and disengagement (Butz et al., 2019; Hart et al., 2016; Van den Broucke, 2021).

Furthermore, resilience can sometimes be misused to justify persistent adversity, framing individuals as "tough enough" to endure chronic hardship (Bobek, 2002; Chan, 2003) rather than addressing systemic barriers (Beltman, 2021; Oldfield & Ainsworth, 2019). This critique is particularly relevant in professions like teaching, where resilience is often framed as a prerequisite for success. Without institutional support, such framing places undue pressure on individuals to manage challenges independently, which can potentially lead to feelings of inadequacy or failure when resilience is difficult to sustain (Beltman, 2021; Boon, 2021; Gu & Day, 2013; Johnson et al., 2014).

Another concern is the cultural variability of resilience. The concept is predominantly researched and applied in Western contexts, which often emphasize individual autonomy and self-determination. In contrast, collectivist cultures may define resilience in terms of community support, family networks, or spiritual resources (Ungar, 2011). Failure to account for these cultural differences risks promoting a one-size-fits-all approach to resilience, thereby limiting its applicability across diverse populations.

These criticisms underscore the importance of understanding resilience as more than an individual capacity. Rather, resilience should be understood as a dynamic interplay between personal, social, and systemic factors, requiring interventions that address both individual growth and environmental support. Practical tools for measuring and building resilience offer a way to operationalize this integrative perspective, providing frameworks for both assessment and action. This integrative perspective on resilience has inspired the development of various practical tools and assessment instruments that enable organizations and practitioners to systematically measure, cultivate, and support resilience across individual, social, and systemic dimensions.

Practical Tools for Measuring and Building Resilience

The study and promotion of resilience have led to the development of several practical tools, ranging from assessment instruments to intervention strategies. These tools are essential for identifying levels of resilience, fostering adaptive capacities, and designing targeted support programmes. By integrating such tools into education, health care, and other fields, resilience can be cultivated in a systematic and sustainable way.

Measuring resilience is a critical first step in understanding its dynamics and tailoring interventions. A variety of resilience scales have been developed to measure and assist in understanding resilience across different populations and contexts. Table 4 provides a summary of eight empirically supported scales, highlighting their key focus areas and applications. These scales offer diverse approaches to measuring resilience, ranging from clinical assessments to academic tools, and provide a basis for evaluating and enhancing resilience in specific settings.

Table 4

Resilience Measurements

Resilience scale	Focus areas/key components	Intended use/applications	Example
Connor-Davidson resilience scale (CD-RISC; Connor & Davidson, 2003)	- Personal competence - Acceptance of change - Trust/tolerance - Control - Spiritual influences	PTSD clinical community; general resilience evaluation across varied populations	“I am able to adapt when changes occur”.

Resilience scale for adults (RSA; Friborg et al., 2003)	- Personal competence - Social competence - Social support - Family cohesion - Personal structure	Health and clinical psychology; protective factors against psychological disorders	"I am confident in my abilities to handle difficult situations".
Brief resilience scale (BRS; Smith et al., 2008)	- "Bouncing back" from stress	General population, especially individuals experiencing health-related stress	"I tend to bounce back quickly after hard times".
Resilience scale (RS; Wagnild & Young, 1993)	- Meaningful life - Perseverance - Self-reliance - Equanimity - Existential - Loneliness	Originally developed for older adults; measures life satisfaction and resilience-related traits	"I feel proud that I have accomplished things in my life".
Scale of protective factors (SPF; Ponce-Garcia & Madewell, 2024)	- Social-interpersonal factors - Cognitive-individual factors	Survivors of violent trauma; assessing buffers between trauma and stress	"I feel in control of my life".
Predictive 6-factor resilience scale (PR6; Roussouw & Roussouw, 2016)	- Vision - Composure - Tenacity - Reasoning - Collaboration - Health	Neurobiological approach to resilience; improvement of resilience and health hygiene	"I have clear goals that I am working towards".
Ego resilience scale (RS-14; Block & Kremen, 1996)	- Adaptability to changing circumstances	General adaptability, non-psychiatric contexts	"I quickly get over and recover from being startled".
Academic resilience scale (ARS-30; Cassidy, 2016)	- Perseverance - Reflecting and adaptive help-seeking - Negative affect and emotional response	Academic contexts; measuring resilience in educational challenges	"When I struggle with my coursework, I seek help from others".

The historical development of resilience research underscores the significance of protective factors and frameworks that promote positive adaptation to adversity (Luthar & Cicchetti, 2000). Instruments such as the Connor-Davidson resilience scale (CD-RISC; Connor & Davidson, 2003) and the brief resilience scale (BRS; Smith et al., 2008) offer valuable tools for measuring resilience, while intervention strategies like mindfulness-based stress reduction (MBSR; Schussler et al., 2018) and peer mentoring provide practical means of promoting resilience (Dreer-Goethe, 2023; Nesje & Lejonberg, 2022; Parker et al., 2022). These insights not only advance theoretical understanding but also pave the way for actionable programmes in fields like education, health care, and social work.

By recognizing resilience as both an individual capacity and a product of supportive environments, this chapter emphasizes the importance of integrating psychological, biological, and social dimensions into resilience-building initiatives. At the same time, it is crucial to address critiques of the concept and ensure that promoting resilience does not place undue responsibility on individuals while ignoring systemic barriers to well-being (Bottrell, 2009; Ungar, 2011).

This chapter serves as a foundation for understanding resilience within the context of teaching. The following chapters will build upon these insights by exploring the specific challenges faced by educators and the strategies that can be used to promote resilience in teacher education and professional development.

Intervention Strategies

Beyond measurement, practical strategies for building resilience have been developed across various fields. These interventions aim to enhance emotional regulation, cognitive flexibility, and social connectedness – core components of resilience that help individuals adapt to adversity. The following strategies represent evidence-based approaches that have been shown to be effective in various high-stress occupations, including education.

Mindfulness-Based Stress Reduction (MBSR). Developed by Kabat-Zinn (1990), MBSR is a structured programme that combines mindfulness meditation and body awareness techniques to improve emotional regulation and reduce stress. Studies have consistently shown that MBSR enhances resilience by decreasing reactivity to stressors, promoting emotional stability, and fostering a greater sense of well-being (Hölzel et al., 2011; Tabibnia & Radecki, 2018).

MBSR is particularly effective in high-stress professions, where individuals must manage ongoing emotional and cognitive demands. In education, MBSR has been applied to reduce teacher burnout and improve classroom interactions, demonstrating its practical relevance for fostering resilience in both pre-service and experienced educators (Jennings et al., 2011). Its

structured, practice-based approach ensures that participants develop sustainable skills, making it a cornerstone of resilience interventions.

Cognitive-Behavioural Interventions. Rooted in the principles of cognitive-behavioural therapy (CBT), interventions such as cognitive restructuring and problem-solving training help individuals identify and challenge negative thought patterns. By fostering a more adaptive mindset, these strategies empower individuals to face adversity with greater confidence and resourcefulness (Reivich & Shatté, 2002).

Research indicates that CBT-based approaches improve resilience by enhancing self-efficacy and reducing vulnerability to stress-related disorders (Richardson & Waite, 2002; Kangas-Dick & O'Shaughnessy, 2020). In educational contexts, incorporating CBT techniques into teacher training programmes has shown promise in equipping educators with tools to manage classroom challenges and maintain emotional balance. For example, goal-setting exercises and reflective journaling allow teachers to reframe setbacks as opportunities for growth (Beltman, 2021).

Strength-Based Approaches. Strength-based interventions focus on identifying and using personal assets, such as optimism, perseverance, and self-efficacy, to build resilience. Programmes like Resilient Futures emphasize the cultivation of these strengths as protective factors against stress and adversity (Fredrickson, 2001).

A key advantage of strength-based approaches is their focus on positivity and empowerment, which counteracts the deficit-based narratives often associated with adversity (Seligman, 2011). In education, these programmes align with professional development initiatives that celebrate teachers' accomplishments and foster confidence and engagement. Studies show that such interventions can boost morale and mitigate the impact of systemic challenges, such as increased workload pressure and low recognition (Mansfield et al., 2016; Mansfield et al., 2020).

Peer Support Programmes. Peer support networks provide emotional, informational, and practical assistance through structured collaboration. In workplace settings, peer mentoring and professional learning communities have been shown to buffer against stress and enhance collective efficacy (Beltman, 2021; Eisenschmidt et al., 2024; Meredith et al., 2023).

For teachers, peer support serves as a multifaceted mechanism for professional growth and emotional sustenance. Through structured opportunities to share experiences, teachers engage in collaborative problem-solving that not only generates practical solutions but also cultivates a deeper sense of professional belonging. Recent research demonstrates the effectiveness of specific peer support structures: regular check-in sessions foster ongoing dialogue and mutual support (Murray & Christison, 2023), while facilitated group problem-solving creates spaces for collective wisdom to emerge (Maasø & Simonsen, 2023). The implementation of formal mentoring relationships adds another layer of support, providing individualized guidance and opportunities for reflection (Dreer-Goethe, 2023). These complementary approaches have shown measurable benefits for teachers' well-being and resilience (Sharplin et al., 2011), suggesting that peer support acts as both a protective factor and a catalyst for professional development.

This chapter has explored resilience as a dynamic and multifaceted construct, tracing its theoretical evolution and examining key frameworks, protective factors, and intervention strategies. From its origins as a trait-based concept to its current understanding as a transactional and multidimensional process, resilience has proven to be essential in helping individuals and communities adapt to adversity (Masten, 2001; Rutter, 1987).

Measuring and developing resilience requires both robust assessment tools and evidence-based interventions. Validated instruments like the CD-RISC (Connor & Davidson, 2003) and the BRS (Smith et al., 2008) enable practitioners to quantify resilience levels and track changes over time, providing critical data on the effectiveness of the interventions. These measures complement practical approaches such as MBSR (Kabat-Zinn, 1990; Tabibnia & Radecki, 2018),

CBT (Kangas-Dick & O-Shaughnessy, 2020; Reivich & Shatté, 2002), and structured peer support programmes (Murray & Christison, 2023), which offer concrete pathways for building resilience. Together, these assessment and intervention strategies acknowledge resilience as a multifaceted construct that encompasses emotional regulation, cognitive adaptation, and social connection, allowing for a comprehensive approach to its development within educational settings (Kangas-Dick & O-Shaughnessy, 2020).

While resilience is often viewed as an individual capacity, this chapter underscores the importance of relational and systemic factors in building resilience. By adopting evidence-based strategies, practitioners can create environments that support both personal and collective growth. Addressing its conceptual and methodological challenges is essential for advancing resilience research and practice. This foundation sets the stage for exploring resilience in more specific contexts, including education, where resilience frameworks can address the unique challenges faced by teachers.

Chapter 5: Teacher Resilience

The growing demands placed on educators highlight the need for resilience as an essential characteristic for sustaining well-being and effectiveness in the teaching profession. Teachers operate in complex environments, navigating diverse classroom dynamics, integrating technological advances, and addressing ever-evolving curriculum standards (Brouskeli et al., 2018; López-Angulo et al., 2022). These challenges often culminate in high levels of stress, emotional exhaustion, and burnout, making resilience a crucial factor in teacher retention, job satisfaction, and overall mental health (Liu et al., 2021).

Resilience, in this context, refers to teachers' ability to maintain their effectiveness, well-being, and engagement despite encountering adverse conditions (Bobek, 2002; Kangas-Dick & O'Shaughnessy, 2020). However, resilience is not just an individual trait but a dynamic and multidimensional construct shaped by the interactions between personal, social, and organizational resources (Gu & Day, 2013; Mansfield et al., 2016). This chapter builds on the theoretical frameworks of stress and strain discussed in Chapter 2 and explores how resilience acts as a mediating mechanism within these contexts.

Research on teacher resilience has gained prominence in response to concerns about teacher attrition, dissatisfaction, and the subsequent impact on student learning outcomes (Gratacós et al., 2021). A nuanced understanding of resilience mechanisms and protective factors enables the design of targeted interventions that promote teacher well-being while enhancing their ability to navigate professional challenges (Daniilidou et al., 2020; Van Wingerden & Poell, 2019).

This chapter is structured to provide a comprehensive exploration of teacher resilience. It begins with definitions and conceptualizations, distinguishing resilience from related constructs like coping and emotional intelligence. The chapter then traces the historical development of resilience research, emphasizing its transformation into a multidimensional and systemic construct. A comparative analysis of resilience models then highlights the theoretical diversity in

the field. Finally, the chapter synthesizes these insights to provide practical strategies for fostering resilience in teacher education and professional development programmes.

Building on the theoretical understanding of resilience as a dynamic process, Table 5 presents protective factors and their associated enhancement strategies. The table is organized into four key dimensions: internal dispositions, interpersonal capabilities, professional skills, and contextual factors. Each dimension links inherent protective factors with specific strategies for their development, reflecting the understanding that resilience emerges from the interaction of personal characteristics and intentional practices. This organization aims to provide practical guidance for its development at individual and institutional levels.

Table 5*Teacher Protective Factors and Strategies*

Protective factors	Related strategies
Internal dispositions	
- Motivation (intrinsic, altruistic)	- Goal-setting and value-affirmation practices
- Personal efficacy (self-efficacy, self-confidence)	- Professional learning and mastery experiences
- Meaningfulness/purpose/vocation	- Reflection on teaching impact and purpose
- Hope and high expectations	- Professional growth planning and development
- Humour and optimism	- Positive reframing and gratitude practices
- Spirituality/religion	- Cultivation of personal meaning practices
Interpersonal capabilities	
- Empathy	- Setting and maintaining boundaries
- Social and emotional skills	- Managing difficult relationships
- Emotional intelligence	- Effective communication strategies
	- Emotion regulation techniques
Professional skills	
- Teaching competence	- Effective classroom management
	- Structured learning environment
- Instructional expertise	- Problem-solving and adaptive teaching strategies
Contextual factors	Contextual strategies
- Supportive relationships with school management	- Active participation in decision-making processes
- Collegial relationships with other teachers	- Engagement in mentoring programmes (as mentor or mentee)
- Positive relationships with students	- Building and maintaining professional network
- Trust and recognition from leadership	- Building trust through consistent communication
- Sense of autonomy	- Setting professional boundaries and priorities
- Supportive school culture	- Engaging in collaborative projects
- Strong extracurricular support system (family, friends)	- Life domain maintenance

Note. The strategies presented here represent key approaches identified in research and practice, but they are not exhaustive. Teachers and educational institutions may develop additional context-specific strategies that align with these protective factors, depending on their unique circumstances and needs. The effectiveness of any strategy may vary across different educational contexts and individual teacher experiences.

The protective factors presented in Table 5 emerges from a systemic understanding of teacher resilience, acknowledging that it develops through the interplay of personal characteristics and environmental conditions (Mansfield et al., 2016). These factors operate across multiple dimensions, reflecting the dynamic nature of resilience as both an individual and collective phenomenon (Gu & Day, 2013).

At the individual level, internal dispositions form the psychological foundation of teacher resilience. Research has consistently identified intrinsic motivation and self-efficacy as crucial elements that enable teachers to persevere through challenges (Bobek, 2002). A sense of purpose and vocation, coupled with hope and optimism, provide a psychological buffer against professional stressors, enabling teachers to maintain their commitment to education even in adverse circumstances (Kangas-Dick & O'Shaughnessy, 2020).

Interpersonal capabilities represent another critical dimension of teacher resilience. Emotional intelligence and social skills facilitate the development of supportive professional relationships, which research has identified as essential for sustained resilience (López-Angulo et al., 2022). These competencies enable teachers to navigate complex classroom dynamics while maintaining their emotional well-being through effective relationship management and boundary setting.

Professional competencies emerge as a distinct category of protective factors, highlighting the role of teaching expertise in building resilience. Effective classroom management and instructional skills provide teachers with the practical tools needed to address daily challenges, reduce stress, and enhance their sense of professional efficacy (Brouskeli et al., 2018). These competencies work in tandem with interpersonal capabilities to create a foundation for sustainable teaching practice.

The contextual dimension of protective factors emphasizes the organizational and social environment that supports teacher resilience. Strong relationships with school leadership, colleagues, and students create a supportive professional ecosystem that enhances teachers' capacity to overcome challenges (Daniilidou et al., 2020). Trust, recognition, and autonomy, particularly from school leadership, contribute significantly to teachers' professional resilience by fostering a sense of agency and valued participation in the educational community.

Each dimension of protective factors is accompanied by specific strategies for enhancement, reflecting the understanding that resilience can be actively developed through

intentional practices (Van Wingerden & Poell, 2019). These strategies range from individual practices, such as professional learning and mindfulness, to organizational initiatives, such as mentoring programmes and participatory decision-making processes. The effectiveness of these strategies depends on their systematic implementation within a supportive school culture that recognizes the importance of teacher well-being (Gratacós et al., 2021).

The protective factors framework provides a structured approach to understanding and developing teacher resilience across multiple levels of intervention. This comprehensive view aligns with current theoretical perspectives on resilience as a dynamic construct shaped by both individual and contextual factors (Beltman, 2021; Liu et al., 2021). By identifying specific protective factors and their associated enhancement strategies, this framework offers practical guidance for teacher education programmes, school administrators, and teachers themselves in building and maintaining professional resilience. Understanding how to implement these strategies effectively, however, requires a deeper examination of what teacher resilience means and how it operates in educational contexts.

Defining and Conceptualizing Teacher Resilience

Teacher resilience has emerged as an important focus in educational research due to the multifaceted challenges inherent in the profession. Teachers are expected to navigate diverse classrooms, manage behavioural issues, adapt to evolving curricula and technologies, and meet the demands of high educational standards (Brouskeli et al., 2018; López-Angulo et al., 2022). These pressures, if unaddressed, can lead to stress, exhaustion, and burnout (Liu et al., 2021). Resilience in this context refers to teachers' ability to maintain their effectiveness and well-being in the face of adversity (Bobek, 2002; Kangas-Dick & O'Shaughnessy, 2020).

Understanding teacher resilience requires an appreciation of its dynamic and multidimensional nature. Resilience is not a static trait but rather a process influenced by personal, relational, and organizational factors (Gu & Day, 2013; Mansfield et al., 2016). This complexity makes it essential to consider resilience within a broader framework of well-being,

health, and the specific demands of the teaching profession. For example, individual factors such as emotional regulation, self-efficacy, and optimism play a critical role in resilience. However, these need to be supported by external resources like mentorship, collaborative working environments, and professional development opportunities (Beltman et al., 2011; Eisenschmidt et al., 2024; Meredith et al., 2023). Without these external support mechanisms, even the most resilient teachers may struggle to sustain their well-being and effectiveness.

This interplay between individual and contextual resources highlights the importance of a systemic approach to promoting resilience in education, which is not only a humanistic goal but also a systemic imperative. A humanistic approach values teachers as whole individuals, emphasizing their well-being and professional growth (Biesta, 2015; Freire, 2018). From a systemic perspective, supporting teacher resilience reduces attrition, mitigates burnout-related costs, and enhances educational continuity (Organisation for Economic Co-operation and Development [OECD], 2020; Schleicher, 2018).

It is important to understand that resilience should not be framed as a mechanism for teachers to simply endure or adapt to systemic challenges without addressing underlying issues. Research cautions against an overemphasis on individual responsibility, which can inadvertently obscure the need for organizational and policy-level changes (Johnson et al., 2014; Zembylas, 2020). Rather, a holistic approach to resilience involves strengthening individual competencies while fostering a supportive professional environment (Day & Gu, 2014; Mansfield et al., 2016).

While resilience shares commonalities with constructs like social-emotional competence, psychological hardiness, and coping strategies, it is uniquely characterized by its focus on adaptability, recovery, and proactive growth (Mansfield et al., 2016). Research has supported these distinctions while highlighting the interconnectedness of emotional regulation and resilience. In a mixed-methods study of Chinese EFL teachers, Xie et al. (2021) found strong associations between teacher resilience and work engagement, with cognitive reappraisal- a key emotional regulation strategy- moderately correlating with both factors. This finding underscores

how resilience operates as part of broader systems of psychological resources that enable professional engagement, distinct from but related to emotional regulation strategies. Social-emotional competence primarily emphasizes the development of emotional regulation and interpersonal skills (Kanning et al., 2012), which serve as essential but not comprehensive components of resilience within educational settings. The concept of psychological hardiness centres on relatively stable traits such as commitment and control, offering valuable but ultimately limited insights into how resilience evolves and adapts throughout a teaching career (Bobek, 2002; Chan, 2003). The distinction between coping strategies and resilience reveals another crucial nuance: whereas coping mechanisms provide immediate responses to acute stressors, resilience represents a broader capacity to maintain well-being and achieve professional growth, even in the face of persistent challenges (Castro et al., 2010).

The implications of these theoretical distinctions have fundamentally reshaped approaches to teacher education programmes. Rather than focusing solely on discrete stress management techniques, these programmes must cultivate a deeper capacity for sustained professional growth and adaptation. This expanded understanding calls for the development of comprehensive support systems that operate at multiple levels. Recent research illuminates how different support mechanisms contribute to this goal: structured peer check-ins create regular opportunities for professional dialogue and mutual support (Murray & Christison, 2023), while facilitated group problem-solving sessions create collaborative spaces where collective wisdom can emerge and be shared (Maasø & Simonsen, 2023).

The addition of formal mentoring relationships provides crucial individual guidance and structured reflection opportunities (Dreer-Goethe, 2023), creating a multifaceted approach to professional development. This layered support aligns with empirical evidence from Mansfield et al. (2016), who demonstrated that teacher resilience flourishes most effectively when programmes thoughtfully integrate emotional regulation training with opportunities for collaborative learning. Similarly, Gu and Day's (2013) research established how relational

connections and systemic support structures serve as essential foundations for maintaining teachers' well-being throughout their careers. However, as Lohner and Aprea (2021) importantly note, the complex interplay between emotional regulation, self-efficacy, and social support makes it challenging to generalize findings across diverse educational contexts. This complexity reinforces the need for adaptable, context-sensitive approaches that can respond to varying institutional and cultural environments while maintaining a focus on core resilience-building mechanisms.

This chapter delves further into these aspects, beginning with the historical evolution of resilience as a concept and moving on to examine its components, models, and practical applications in teaching. By establishing a clear understanding of resilience as both a theoretical and practical construct, this chapter aims to provide a foundation for designing effective support measures in teacher education.

Development and Perspectives on Teacher Resilience

The understanding of resilience in teaching has evolved significantly, moving from a focus on static, individual traits to a dynamic, multidimensional construct that encompasses personal, contextual, and systemic factors (Beltman et al., 2011). This shift reflects a growing recognition of the complex interplay between teachers' internal resources and their professional environment. Resilience is no longer viewed solely as a personal attribute but rather as a dynamic process influenced by interactions with various contextual elements.

Beltman (2021) identified four key perspectives for understanding resilience: person-centred, process-oriented, context-based, and systemic. The person-centred perspective emphasizes teachers' individual qualities, such as emotional regulation and self-efficacy, as critical components of resilience (Pretsch et al., 2012). In contrast, the process-oriented view focuses on resilience as an adaptive response to challenges through experience and reflection (Castro et al., 2010). The context-based perspective highlights the significance of work environment and organizational factors in fostering resilience, including supportive relationships

and a positive school climate (Ungar, 2012). Finally, the systemic view frames resilience as an interconnected capacity involving individuals, schools, and broader educational systems (Masten, 2014).

Teacher resilience, therefore, can be succinctly defined as "the capacity to navigate challenges using personal and contextual resources, where individual traits and professional contexts interact to sustain engagement, growth, and well-being" (Beltman, 2015, p. 21). This definition underscores the dynamic and interactive nature of resilience and emphasizes its multidimensionality.

In order to provide a structured overview of how resilience in teaching has been defined and conceptualized, Table 6 provides a comparative analysis of key perspectives from various authors. This chronological summary demonstrates the progression of resilience research, highlighting how the concept has broadened over time to include both individual and systemic dimensions.

Table 6

Key Definitions and Characteristics of Teacher Resilience

Reference	Definition of resilience	Key characteristics	Distinctive aspects
Bobek (2002)	The ability to overcome adversity, recover from setbacks, and adapt to changes	Adaptability, recovery from setbacks	Focus on individual adaptability in stressful situations
Oswald et al. (2003)	The ability to successfully overcome personal weaknesses and environmental stressors, to "bounce back", and to maintain well-being	Overcoming weaknesses, maintaining well-being	Emphasis on overcoming personal and environmental challenges
Gu and Day (2007)	A relative, developmental, and dynamic construct that means positive adaptation and growth under difficult circumstances	Relative, developmental, and dynamic nature	Emphasis on positive adaptation and growth in challenging contexts
Castro et al. (2010)	A process based on a model in which individuals apply specific strategies when disturbed or unsettled by an adverse situation	Process of applying strategies	Resilience as a dynamic process with a central role in specific coping strategies
Beltman et al. (2011)	A dynamic process resulting from the interaction between risk and protective factors	Dynamism, person-context interaction	Emphasis on support from teacher training and school structures

Reference	Definition of resilience	Key characteristics	Distinctive aspects
Ungar (2012)	The capacity of individuals to navigate their way to resources that sustain well-being and negotiate these resources in culturally meaningful ways	Navigation, negotiation	Highlights the interaction between personal agency and cultural/contextual factors
Gu and Day (2013)	A dynamic and multidimensional concept developed through the interaction of personal, social, and organizational resources	Resource interaction, dynamic concept	Resilience as an interactive process within personal and professional contexts
Mansfield et al. (2014)	A dynamic process situated at the intersection of personal and contextual challenges and resources	Dynamic person-context interaction	Relationships with students, colleagues, and school leadership are central
Luthar (2015)	The process of overcoming risks or adversity through warm and supportive relationships, particularly in social or professional settings	Supportive relationships, overcoming adversity	Strong emphasis on relational resilience as a central mechanism
Gu (2018)	A relative, multidimensional, and developmental construct that includes cognitive, behavioural, and emotional responses to daily challenges	Context- and role-specific, need for daily resilience	Resilience as the ability to cope with inevitable uncertainties in teaching
Beltman (2021)	The ability of an individual to face challenges and utilize personal and contextual resources	Process of person-context interaction	Resilience as a collective task requiring both individual and systemic support
McDonough et al. (2021)	From a social-ecological perspective, influenced by personal factors and interactions with social contexts	Social-ecological perspective, interaction	Resilience as a product of biological, psychological, and social interactions
Lu & Chen (2024)	The capacity to maintain well-being through physical, emotional, psychological, social, and spiritual dimensions	Multidimensional resilience, reciprocal links between resilience and well-being	Emphasizes the dynamic, reciprocal relationships between resilience dimensions and teacher well-being over time

Early and Evolving Approaches to Resilience

Initially, resilience was conceptualized as a personal trait, focusing on teachers' ability to overcome difficulties and adapt to change (Bobek, 2002; Oswald et al., 2003). Early definitions emphasized individual adaptability and recovery, framing resilience as an innate quality or characteristic that enabled teachers to "bounce back" from challenges. This perspective was consistent with the broader psychological understanding of resilience at the time but did not fully account for the influence of external factors.

Over time, research on teacher resilience shifted towards recognizing it as a dynamic, contextual process. Studies began to incorporate the idea that resilience develops through interactions between personal traits and environmental factors, including relationships with colleagues, students, and school leadership (Beltman et al., 2011). The process-oriented view, for instance, underscores how reflective practices and adaptive strategies can shape resilience over time, enabling teachers to navigate fluctuating demands and stressors effectively (Ayoobiyan & Rashidi, 2021; Castro et al., 2010).

Building on these foundational insights, later models have emphasized the dynamic and multidimensional nature of resilience. For example, Mansfield et al. (2014) explored how resilience emerges from the interaction between emotional, motivational, social, and professional dimensions. These models showed that resilience is not a static trait but a process influenced by the interplay between personal resources and contextual challenges.

More recent research has extended this understanding by emphasizing the systemic and ecological dimensions of resilience. Duan et al. (2023) highlighted the importance of career-long development, showing that resilience evolves through different phases of teachers' professional journeys. This perspective aligns with McDonough et al. (2021), who explore resilience through a social-ecological lens, underscoring the importance of relational and environmental factors, such as collegial support, organizational culture, and societal expectations. These studies

highlight how systemic factors – ranging from school leadership to national education policies – can either bolster or undermine teachers' resilience.

The evolution of teacher resilience as a concept reflects a growing understanding of its complexity and its interdependence with both personal and environmental factors. Resilience is no longer seen as a static trait but as a dynamic, evolving process shaped by interactions between individuals and their professional contexts. This perspective not only enhances theoretical understandings but also provides a foundation for developing practical interventions that support teachers in navigating the challenges of their profession. The following sections will build on this multidimensional framework, exploring how resilience intersects with related constructs and the specific strategies teachers use to maintain their well-being and effectiveness.

Models and Theories of Teacher Resilience

The development of teacher resilience theories mirrors this evolution, with models increasingly emphasizing the multidimensional and systemic nature of resilience. These frameworks provide valuable insights into the mechanisms that enable teachers to sustain their well-being and effectiveness in the face of adversity. Table 7 presents a comparative overview of prominent resilience models, illustrating the progression from self-efficacy-focused frameworks to multidimensional and process-oriented perspectives.

Table 7*Comparison of Teacher Resilience Models*

Reference	Core concepts	Key factors	Unique aspects
Bobek (2002)	Adaptability and recovery from adversity	Adaptability, recovery from setbacks	Focus on individual resilience traits
Oswald et al. (2003)	Overcoming weaknesses and stressors	Maintaining well-being, overcoming challenges	Emphasis on personal and environmental interactions
Théorêt et al. (2006)	Social-ecological model incorporating environmental systems	Macro, micro, meso, exo, and ontosystem	Applies Bronfenbrenner's ecological theory to teacher resilience
Castro et al. (2010)	Process of applying coping strategies	Process of applying strategies	Dynamic, strategy-focused model
Beltman et al. (2011)	Resilience through the interaction of risk and protective factors	Person-context interaction	Stresses the role of teacher training and school structures
Gu and Day (2013)	A dynamic and multidimensional concept	Resource interaction, developmental nature	Interactive process across personal, social, and organizational contexts
Mansfield et al. (2012)	Multidimensional resilience across emotional, motivational, social, and professional dimensions	Emotional, motivational, social, professional	Emphasizes balance across multiple dimensions
Mansfield et al. (2018)	Social-ecological model highlighting relational support	School relations, networks	Stresses collaborative relationships and school culture
Hascher et al. (2021)	A cyclical process of event evaluation	Event perception, contextual resources	Highlights ongoing evaluation and strategic response
Duan et al. (2023)	Chronological resilience model across career phases	Career-long development, systemic factors	Demonstrates resilience as evolving across professional stages

Foundational Models: Self-Efficacy and Interactional Approaches

Initial models, such as those of Greenfield (2015) and Wright et al. (2019), emphasized the importance of personal beliefs and relationships in fostering resilience. Greenfield's (2015) model highlights self-efficacy, hope, and meaning as being foundational to resilience, underscoring that teachers with a strong sense of purpose and confidence are better equipped to manage adversity. Similarly, Wright et al. (2019) integrated both personal and systemic factors, suggesting that while individual traits such as educational experience and community ties are important, the adaptability of the educational system plays a significant role in bolstering

resilience. These models are particularly relevant for understanding how internal motivation and positive self-beliefs, combined with external support systems, form the bedrock of teacher resilience. However, their focus on individual and relational factors lays the groundwork for more complex perspectives that include environmental and systemic dimensions.

Social-Ecological Perspectives

Building on these foundational ideas, models like those by Théorêt et al. (2006), Wosnitza et al. (2018), and Mansfield et al. (2018) incorporate a social-ecological perspective derived from Bronfenbrenner's ecological systems theory (1977). These models conceptualize resilience as a product of interactions at multiple levels, including individual, relational, organizational, and societal influences.

For instance, Théorêt (2006) applied the ecological systems model to map resilience across the micro, meso, exo, and macro systems, highlighting how elements such as school culture and community engagement shape teachers' experiences. Similarly, Mansfield et al. (2018) emphasized relational and structural support mechanisms, demonstrating how school leadership, collaboration, and professional networks foster resilience. Wosnitza et al. (2018) further explored how emotional, motivational, and professional capacities interact with environmental support mechanisms to enhance resilience.

A notable addition to this perspective is Duan et al.'s (2023) chronological social-ecological model, which acknowledges that resilience evolves over career stages. This approach is especially relevant to teacher education, as it underscores the need to tailor resilience-building strategies to different stages of a teacher's career, from pre-service training to experienced teaching roles.

Multidimensional and Process-Oriented Models

Models such as those of Mansfield et al. (2012) and Lemon and McDonough (2023) have shifted the focus to the multidimensional aspects of resilience, encompassing emotional, motivational, social, and professional dimensions. Mansfield et al.'s (2012) model calls for

balanced development across these domains, illustrating how a holistic approach to teacher development can sustain resilience.

Lemon and McDonough (2023) extended this perspective by examining resilience during the COVID-19 pandemic, a period marked by unprecedented challenges. Their model highlights the interplay between emotional regulation, motivation, social connections, and professional flexibility, emphasizing the critical role of self-care and adaptability in navigating crises. By contextualizing resilience within specific challenges, this model offers practical insights into how teachers can develop strategies to manage both immediate and long-term stressors.

Together, these models provide a comprehensive framework for understanding teacher resilience as a dynamic and contextual construct. While early models laid the groundwork by focusing on individual traits and relational factors, later models broadened the scope to include multidimensional and systemic influences. In addition, the inclusion of Lemon and McDonough's (2023) insights into crisis-specific resilience highlights the need for adaptive strategies that address both immediate challenges and long-term well-being. By integrating personal beliefs, environmental support mechanisms, and systemic considerations, these models illustrate the complex interplay among factors that sustain teacher resilience.

This theoretical foundation not only enhances contemporary understandings of resilience but also informs practical approaches to resilience-building in teacher education. The implications of these models are explored in the following sections, particularly in the context of interventions and strategies aimed at promoting the well-being and effectiveness among educators.

Integrating the AWaRE Model

The AWaRE model (Figure 3, p.103) provides a framework for understanding how teacher resilience functions as a dynamic process (Hascher et al., 2021). This model closely aligns with the protective factors and enhancement strategies detailed in Table 5 and shows how these elements interact in practice. For instance, when teachers encounter an event or situation

(B1), their initial appraisal (B2) draws on the internal dispositions outlined in Table 5, such as personal efficacy and optimism. The way teachers interpret challenges is influenced by these internal resources, resulting in positive, neutral, or negative initial assessments (B2a, B2b, B2c).

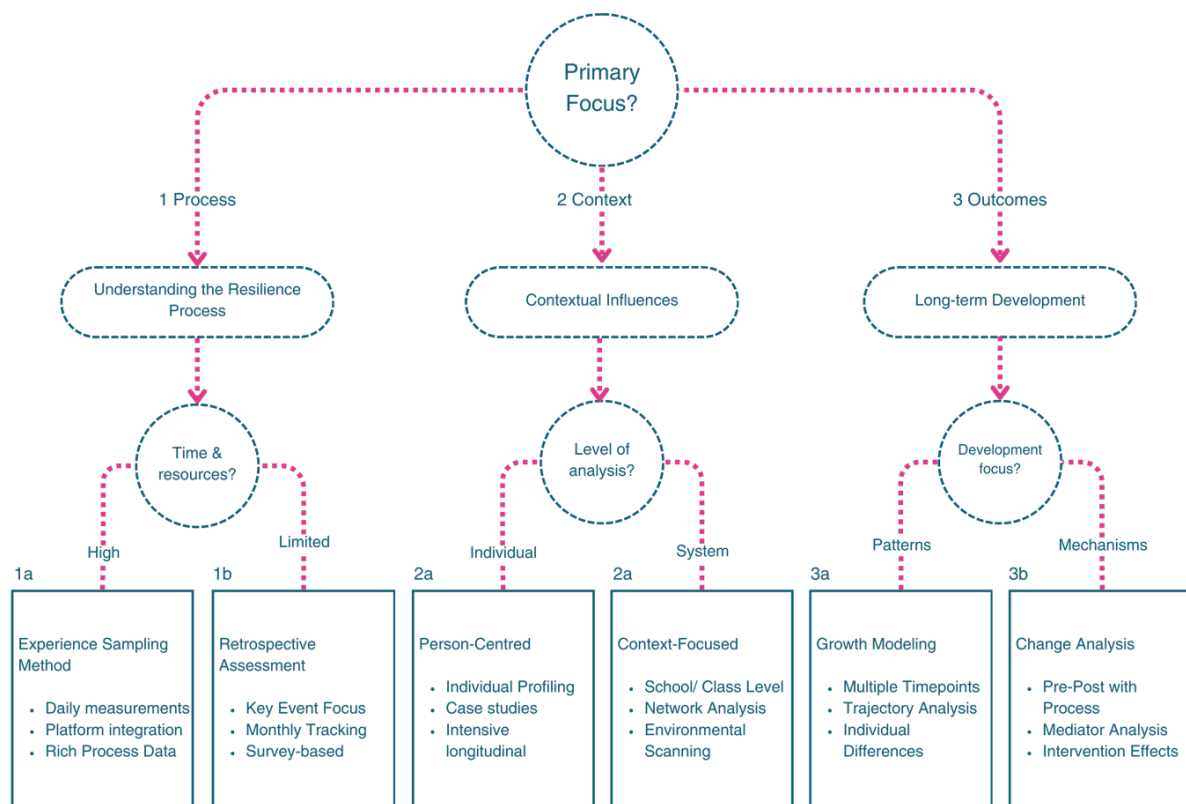
The model's emphasis on strategy selection and activation (B3) corresponds directly to the "related strategies" column in Table 5. When teachers activate these strategies, they are not working in isolation – the model's contextual challenges and resources (C) framework shows how the "contextual factors" from Table 5, such as supportive relationships with school management and collegial relationships, provide crucial environmental support for strategy implementation. Similarly, the individual challenges and resources (D) component reflects the professional skills and interpersonal capabilities detailed in Table 5, demonstrating how teachers draw on these competencies throughout the resilience process.

The historical evolution of concepts of resilience, presented in Table 6, facilitates an understanding of why the AWaRE model takes its current form. While early definitions, which focussed exclusively on individual characteristics (Bobek, 2002; Oswald et al., 2003), could be examined through linear research approaches, contemporary understanding of resilience as a dynamic, multidimensional construct (Gu & Day, 2013; Mansfield et al., 2014) demands a more sophisticated and nuanced methodological framework. This becomes clear in the presented methodological framework (Figure 2), which shows three central dimensions of investigation: the process itself, the contextual influences and the long-term development.

The cyclical nature of the AWaRE model with its feedback loops, in which final assessments (B5a, B5b, B5c) influence future situations, requires differentiated methodological approaches, particularly in the area of process analysis. As shown in Figure 2, these range from resource-intensive experience sampling methods to retrospective evaluations. The integration of contextual factors, which characterises both the modern understanding of resilience and the AWaRE model, is reflected in the need to consider both person-centred and systemic levels of analysis.

Figure 2

Pathways for Testing the AWaRE Model



Note. Original figure created by the author for this publication.

Building on this theoretical groundwork, the following chapter introduces our article "Navigating the Paradox Between Professional Challenges and Teacher Well-Being: The Role of Strategies Within the Resilience Process". This article examines how teachers manage to sustain their well-being when confronted with professional challenges by employing specific resilience strategies, thereby providing practical insights that complement the theoretical models discussed previously.

Chapter 6: Publication II

Navigating the paradox between professional challenges and teacher well-being: The role of strategies within the resilience process

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Abstract

Teaching is an immensely complex profession, often requiring managing multiple and varied professional challenges. Despite these challenges, teachers tend to report moderate to high well-being levels. This qualitative study explores this paradox by investigating teachers' professional challenges and strategies Swiss teachers use to support their well-being.

Relational problem-solving was identified as a commonly used strategy when professional challenges occur. The unique contribution of this study lies in further elucidation of the complex relationship between teacher professional challenges and teacher well-being embedded in a resilience process. The results of this study provide implications for understanding how to support teachers' resilience process and designing interventions to enhance teachers' well-being.

Keywords: teacher professional challenges; teacher well-being; teacher resilience; teachers; strategies

Introduction

Teacher shortages, teacher stress, and a high attrition rate have become critical areas of concern and research because of the important societal role of teachers (Borman & Dowling, 2008; Viac & Fraser, 2020). It is well known that teaching is an immensely complex profession, even more so when job demands are high and situations are challenging. Nevertheless, it is also well known that many teachers feel well and thrive in their work and, despite high job demands, maintain their well-being, passion, engagement, and commitment (Hascher & Waber, 2021). How can this paradox between concurrent challenges and well-being be explained? Research has shown that one of the reasons that teachers succeed and maintain their well-being despite high demands is teacher resilience (e.g., Li et al., 2019). Thus, resilience—defined as the process of drawing on a range of resources to navigate challenges and restore or improve well-being (Ungar, 2012)—seems a critical factor in teachers' professional lives. It has been found that the two dynamic and multidimensional constructs—teacher well-being and teacher resilience—are used in various disciplines and research areas and are often studied together (Hascher et al., 2021). To better understand the relationship between resilience and well-being, the Aligning Well-being and Resilience in Education (AWaRE) model was developed (Hascher et al., 2021).

The AWaRE model incorporates challenges and personal and contextual resources (e.g., self-efficacy beliefs as a personal resource and support by principals as a contextual resource) and illustrates the process of resilience to restore well-being. Within this model, strategies are given a crucial role in supporting individuals in responding to professional challenges. However, the model does not explain how teachers cope with professional challenges and which coping strategies are applied and valuable to maintain their well-being. The frontline contribution of this study is (1) to explore the paradox of concurrent teacher professional challenges and teacher well-being; (2) to better understand the complex association between resilience and well-being; (3) to empirically investigate the role of

strategies within a resilience process; and (4) to further shed light on some of the more nuanced strategies and processes that support teacher well-being in their professional life.

Professional challenges in teachers' work

Teaching is considered a highly demanding profession, and professional challenges can be manifold (Avidov-Ungar, 2018). For example, it was found that teachers face professional challenges relating to students, colleagues, time stress, or workloads (Mansfield et al., 2014). Research on teachers' professional challenges can contribute to a better understanding of the profession and the requirements to succeed as a teacher. In their study, Kitching et al. (2009, p. 43) suggested that frequent "little issues" are more relevant to teachers' commitment, motivation, satisfaction, stress, burnout, and attrition than infrequent and severe issues. Professional challenges can trigger the resilience process in teachers. These professional challenges can be structured within a social-ecological framework at the personal, relational, and organisational levels because individuals develop, live, and act within numerous internally and externally interacting systems, as demonstrated by research on teacher resilience (Masten, 2014).

Professional challenges may be allocated at three levels to better understand which professional challenges are particularly detrimental to teachers. At the organisational level, high workloads, limited time, scarce support (Flores, 2006), high responsibility (Johnson et al., 2014), pressures of societal expectations (Schelvis et al., 2014), and policy changes (Gu & Day, 2013) are seen as professional challenges. Regarding governmental policy revisions, Gu (2018) believes this can increase teachers' work stress, accountability responsibilities, and complexity. At the relational level, difficult relationships with students, parents, or coworkers can lead to unpleasant experiences and professional challenges for teachers (Marzano, 2003; Papatraianou et al., 2018). Challenging professional relationships may involve conflicts, lack of cooperation, or communication problems, which can increase stress and reduce teacher job satisfaction (Beltman et al., 2022; Mansfield et al., 2014). At the personal level, professional

challenges include low self-efficacy (Kitching et al., 2009), poor health (Day & Gu, 2010), and negative emotions (Veronese et al., 2018). Also, the disparity between professional expectations and actual practices (Flores & Day, 2006) or reluctance to seek help (Fantilli & McDougall, 2009), as well as inadequate social and emotional competencies, may result in classroom relationship issues and, ultimately, professional challenges (Cefai & Cavioni, 2014).

Teacher well-being

Over the past 20 years, teacher well-being has risen to the top of scientific and political agendas. Teacher shortage, the high incidence of mental and physical health problems, and the significance of teacher well-being for student academic progress and school outcomes are reasons for the increased attention (Viac & Fraser, 2020). As shown by Hascher and Waber (2021), teacher well-being is used as an all-encompassing concept to describe a variety of dimensions, including different aspects of burnout, stress, emotions, motivation, and health factors, as well as their interactions. The specific definition of teacher well-being frequently relates to the disciplinary approach of the studies. Hascher and Waber (2021) identified five different research fields (1) Psychology of Well-being, (2) Positive psychology, (3) Psychology and Work Organisation, (4) Teacher Well-Being, and (5) Health Science (p. 6). In the present study, we define teacher well-being as a positive imbalance, i.e., the prevalence of positive dimensions (e.g., enjoyment of teaching, self-efficacy beliefs) over the negative dimensions (e.g., worries, physical discomfort) (Hascher & Hagenauer, 2011; Hascher & Waber, 2021). The more pronounced the contrast between positive and negative qualities, the deeper the sense of well-being.

Recent research has identified numerous factors that contribute to teacher well-being (for an overview, see Hascher & Waber, 2021), and research is increasing. However, except during the pandemic, few studies have aimed to elucidate the processes that lead to maintaining or restoring well-being when facing challenges. Primarily, cross-sectional studies

show relationships between teacher well-being and age, gender, tenure, and concepts like self-efficacy or resilience (e.g., Jones et al., 2019). Studies also confirm the role of social support for teacher well-being (e.g., Viac & Fraser, 2020). Professional challenges, however, may be of specific importance for impacting teacher well-being as they urge teachers to engage actively and react to a situation.

The benefits of investigating teacher well-being have been demonstrated in prior research. For example, studies point to the association of teacher well-being with more effective teaching (Duckworth et al., 2009) and improved student performance (Klusmann et al., 2016). Also, it has been confirmed that teacher well-being promotes students' well-being (Harding et al., 2019), which can support their academic outcomes. Understanding the process that maintains well-being despite professional challenges seems critical.

Teacher resilience

As with teacher well-being, teacher resilience is a vital construct associated with teachers' commitment, engagement and job satisfaction (Day & Gu, 2014). Resilience can be considered a dynamic process or outcome that is the product of a person's engagement with his or her environment over time and is demonstrated by how individuals respond to challenging events (Mansfield et al., 2012). Teacher resilience is characterised by various positive aspects such as job satisfaction, engagement, teaching effectiveness, well-being, and a sense of professional identity (e.g., Day & Gu, 2014). Mansfield et al. (2016) stated that resilient teachers could draw on individual resources such as self-belief and optimism (e.g., Day & Gu, 2014) and contextual resources, such as support from colleagues (Ainsworth & Oldfield, 2019) while managing professional challenges. Recent research, however, has illuminated the complex and context-dependent nature of resilience and the crucial role of the school context in fostering or inhibiting teacher resilience (Ainsworth & Oldfield, 2019).

Although teacher resilience has been considered from various perspectives and disciplines, a common understanding can be identified regarding the definition of resilient

teachers. Ungar's (2012) social-ecological perspective has been used to understand teacher resilience (Mansfield et al., 2016), in particular, the interplay of both individual and multi-contextual resources in the resilience process while managing professional challenges. However, it is still necessary to comprehend how strategies are utilised for dealing with professional challenges and how this contributes to maintaining or restoring teacher well-being.

Teacher strategies

When teachers encounter challenging situations, research on teacher resilience highlights the significance of coping strategies (Parker & Martin, 2009). Coping strategies are “fundamental human adaptive processes” that assist teachers in managing stress and negative emotions (Zimmer-Gembeck & Skinner, 2016, p. 2). Typically, coping strategies focus on reducing extreme negative emotions or modifying the stressful situation that triggered them (Bonanno & Burton, 2013; Lazarus & Folkman, 1991). Lazarus and Folkman (1991) identified two primary coping strategies for handling difficult situations—emotion-focused and problem-focused. Emotion-focused strategies are reactive and prove beneficial when control over the stressor is limited, while problem-focused strategies prove more successful in addressing the source of stress (Frydenberg & Lewis, 2002). Prior research has indicated that problem-focused coping (e.g., planning or active coping) is positively connected with work engagement, self-efficacy for teaching, and job satisfaction (Parker et al., 2012; Parker & Martin, 2009). In a recent study, Beltman and Poulton (2019) explored the strategies nominated by 73 teachers and classified strategies into *waiting* (e.g., taking a breath or waiting for the next day), *assessing* (e.g., viewing from a distance or referring to existing literature), *problem-solving* (e.g., talking with colleagues), and *being proactive* (e.g., deciding not to take work home or pursuing hobbies). Given the growing concerns regarding the challenges in the teacher profession, further research is needed to understand how teachers apply strategies when faced with challenging situations, as this might help to elucidate how

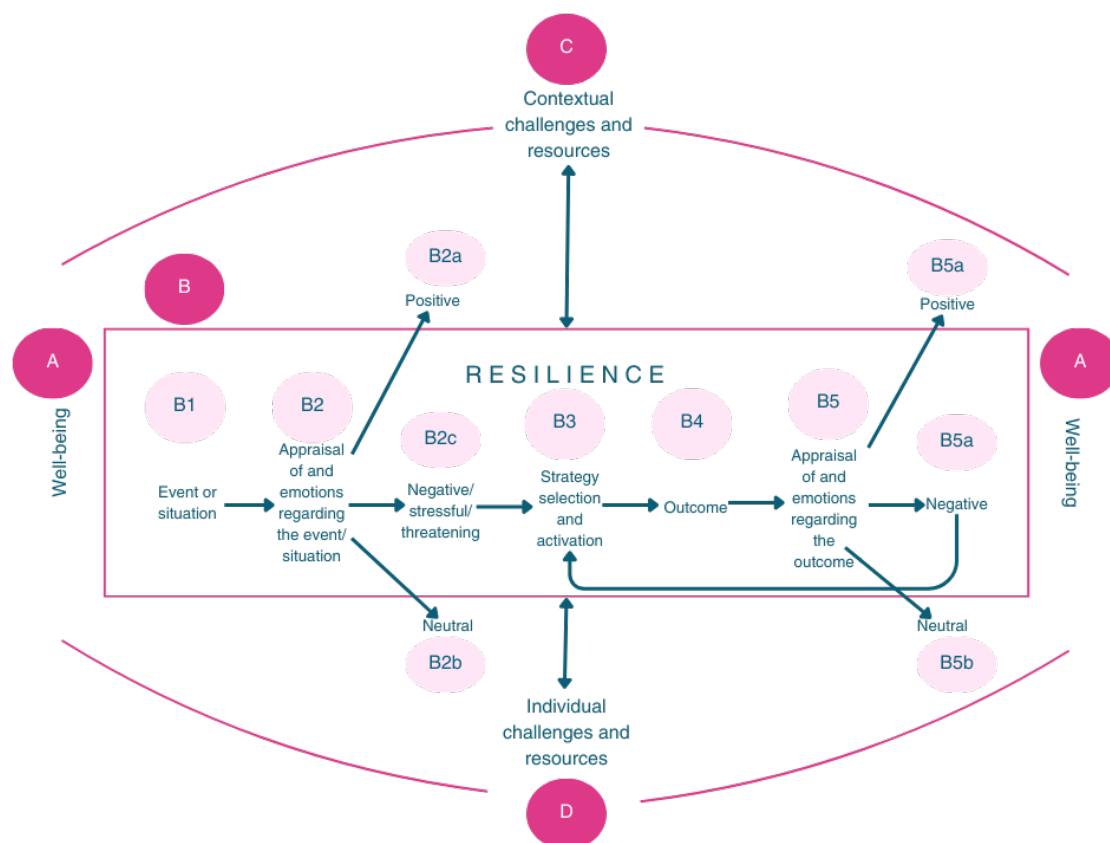
strategies contribute to teacher well-being within a resilience process. To further explore the relationship between teachers' professional challenges and their strategies, the Aligning Well-being and Resilience (AWaRE) Model provides a comprehensive framework.

Integrating teacher resilience and well-being: The AWaRE-Model

Even though the terms well-being and resilience are often used in tandem and sometimes interchangeably, the conceptualisation of these constructs needs closer attention. One of the reasons is the dynamic, complex, and multidimensional nature of both constructs and a need for more explanation of how the two constructs are related to each other (Hascher et al., 2021, p. 417). The recently introduced AWaRE model outlines the resilience process, framed by challenges and resources at the contextual and individual levels (see Figure 3).

Figure 3

The AWaRE-Model showing the Relationship between Resilience and Well-being (Hascher et al., 2021, p. 422).



According to Hascher et al. (2021), the resilience process (B) is initiated by an event that may have a detrimental effect on teacher well-being (see B1 in Figure 3). In our paper, we refer to this event as a professional challenge. Regarding the resilience process of teachers, both single and mild types of stressful or unpleasant experiences, as well as longer-term stressful events like burnout or leaving the field, are possible professional challenges. The model's next component, the appraisal process, refers to teachers' assessment of the event (see B2 in Figure 3). If individuals appraise a professional challenge as negative, stressful, or threatening, they believe that the harm of the event likely impacts their well-being, which activates the resilience process (Hascher et al., 2021). In the resilience process, teachers employ various strategies for coping with this negative, stressful, or threatening professional challenge (see B3 in Figure 3).

The strategy selection and application also lead to an outcome (see B4 in Figure 3) that reflects the strategy's effectiveness. This outcome is cognitively and emotionally evaluated a second time by reflecting on the negative/stressful/ threatening professional challenge (see B5 in Figure 3) and, if the evaluation is neutral or positive, leads to the restoration of teacher well-being. If the evaluation is negative, selecting and applying strategies is repeated (see B6 in Figure 3). This evaluation process, which, according to the Lazarus model (Lazarus & Folkman, 1984), consists of a primary and secondary evaluation, is crucial for the individual's perception of his or her ability to overcome similar professional challenges using the same strategies (Hascher et al., 2021, pp. 426-427). While research has shown many challenges that teachers may face (e.g., Gu & Day, 2013), few studies have specifically addressed teachers' strategies in the face of individually relevant professional challenges.

The present study

In the AWaRE model, identifying professional challenges and strategies supporting teacher well-being are vital in understanding the resilience process contributing to teacher

well-being. It is assumed that the individual cognitive and affective interpretation of an event, here defined as a professional challenge, is relevant for the resilience process to be activated. Within this process, negative appraisals such as student behaviour as disturbing, collegial exchange as less supportive, or school management as less effective, as well as negative emotions such as anger, frustration, discontentment, or anxiety are expected to activate the selection of strategies that help to overcome these challenges and to restore well-being. Thus, knowledge about this critical part of the resilience process, i.e., the interplay of professional challenges and teachers' strategies, could advance the research field.

Previous research shows that the teaching profession is under pressure due to high responsibility for students, multiple demanding tasks that go beyond teaching, high workload and time pressure, or societal expectations such as inclusion or digital education (Fernández-Batanero et al., 2021; OECD, 2019). However, there is still a lack of knowledge *of how* teachers cope with these professional challenges (Keller-Schneider et al., 2018) and how they restore or maintain their well-being in the face of these challenges. While some quantitative research has successfully identified factors negatively or positively associated with teacher well-being (e.g., Skaalvik & Skaalvik, 2018), this qualitative study aims to illuminate the interrelatedness of individually relevant professional challenges and strategies within the resilience process.

By considering teachers' professional challenges and strategies, this study offers a subjective perspective on the situations of the teaching profession that affect teacher well-being and call for resilience. It helps to understand how teachers cope with professional challenges in restoring their well-being. The insights into how teachers manage to function at work can inform schools on how to support teachers better and guide teacher education programs in preparing future teachers. Moreover, knowledge about professional challenges and coping strategies contributes to translating the theoretical AWaRE model into empirical

research and increases our understanding of the resilience process. Accordingly, our study was guided by the following research questions (RQs):

RQ 1: What professional challenges do teachers encounter?

RQ 2: What strategies do teachers employ to restore or improve their well-being in response to professional challenges?

Embedded into the AWaRE-Model (Hascher et al., 2021), we expect answers to these research questions to contribute to an understanding of the resilience process—that helps teachers to succeed and thrive in their profession—and, thus, add new knowledge to the theory of teacher well-being and resilience.

Methods

Participants and procedure

Study participants were $N = 29$ Swiss teachers (28 females) in compulsory schooling (Grades 1–9) who were invited for an online interview (45 to 60 minutes) between April and May 2021. Participants were selected through snowball sampling. In a quantitative check, they proved to be high on the well-being scale except for one person. Throughout the survey, schools were open for the entire school year. In Switzerland, most schools were closed from March 16 to May 11, 2020. This period was explicitly chosen as the pandemic was impacting schools less. Recognising that the pandemic could be challenging, we did not want to limit responses to this specific challenge and asked about challenges and corresponding strategies in teachers' daily lives. This type of questioning may have resulted in some comments about the pandemic but should not limit the variety of responses. Forty-eight per cent of the sample were early career teachers (five years of experience or less), 32% had 6–15 years of teaching, and 20% had more than 16 years of experience. More than half of teachers (56%) were under 30, 32% were aged 31–50, and 12 % were older than 51. The majority of participants (56%) worked full-time. Interviews were recorded and subsequently transcribed verbatim.

Participation was entirely voluntary, and participants consented to the audio recording. All personally identifiable information was anonymised.

Instruments

A semi-structured interview protocol (see Appendix A) allowed us to delve deeply into the participants' perspectives and concerns during the resilience process (Creswell, 2002; Hascher et al., 2021). The interview questions explored teacher well-being, resilience, and coping strategies for professional challenges.

The questionnaire guide encouraged the participants to respond to the questions in light of their everyday professional life. We investigated the strategies used to cope with a challenging event or situation, the strategies' impact on teachers' well-being, and aligned teachers' reported experiences with the AWaRE model. The data used for this study were drawn from responses to the following questions.

(Professional) challenges

- What (professional) challenges have you experienced?
- In which phase of your professional life did this challenging event/situation happen?
- Please reflect on what you think were the reasons for this event/situation.
- How did you feel? What emotions/feelings did you experience?
- What role did students, colleagues, school administration, and parents play?

Strategies

- What did you do about the challenging event/situation you have experienced?
- What personal resources and what of your character strengths helped you to deal with this event/situation?
- Which strategies helped you to cope with this event/situation?
- What other resources and supporting factors did you find helpful?

Data analysis

To explore the strategies used in challenging situations, we conducted a comprehensive analysis of the data in three phases. In the first phase, we transcribed the interviews and utilized Kuckartz's (2018) qualitative content analysis method to develop a

coding scheme. This resulted in the isolation of 71 challenges and 143 strategies, which were analyzed separately to gain an overall understanding of their prevalence. Codes emerged throughout the analysis to avoid predetermined frameworks (Hewitt-Taylor, 2001). The MAXQDA program facilitated the coding process, and a codebook with clear definitions and characteristics of the categories was created. Intercoder reliability assessment using Cohen's kappa was conducted, with discrepancies resolved through discussion and consensus. The analysis in this phase was inductive, leading to the identification of 9 first-order categories of professional challenges and 12 first-order categories of strategies and (Punch & Oancea, 2014). In the second phase, we analysed the coded data to establish higher-order categories. Similar concepts were grouped together (using a coding unit from 30 to 60 words) and we referred to relevant literature, including the work of Beltman and Poulton (2019; Beltman et al., 2022), to identify these higher-order categories. Consequently, we identified three higher-order categories for challenges.

Table 8 illustrates the challenging events and situations teachers encountered. Further sub-coding was performed from the three main codes—organisational, relational, and personal—and shown below with anchor examples. Participant identification are indicated in parentheses, i.e., P11 indicates an exact quote from the participant number 11.

Table 8

Professional Challenges: Main and Subcategories, Anchor Examples

Organisational professional challenges	
School system critique	<i>"(...) or children for whom you can't find a place, or you notice in the whole system that this child is simply not in good hands and (...) yes, what do you do then? And these are already such questions or moments of stress, which are close to me and bother me, which I also take home with me." [P10]</i>
Class constellations	<i>"And also with the individualisation, I think that's a good thing, but certain things are just somehow not possible, because you have so many students, because it's wild to and fro, because it's difficult to always keep track of the learning level of each child." [P22]</i>
Reforms, new curriculum	

"(...) the current development with the curriculum 21, where I am really partly overwhelmed (...) everything that would be required, where I get the impression that we can no longer manage that as a school." [P23]

Relational professional challenges

Concerns colleagues

"I have had to listen to a lot of very terrible comments about myself, which have nothing to do with my everyday work. Badmouthing, blasphemies in a nasty way." [P12]

Concerns students

"When a child refuses to do the tasks in class, that's difficult." [P26]

Concerns parents

"In my second year of working I already knew that one parent was rather difficult and then I had the parent meeting, and it didn't go on that long, then this father was yelling at me. And I as a young teacher was there, and I didn't know how to react to it." [P20]

Personal professional challenges

Physical

"I was very stressed because I knew "I have to go to school and I have to do this and that and oh no, there are still 7 students who don't have an apprenticeship (...) and I realised I come home, and I can't sleep, or I can't sleep very well." [P06]

Workload

"All the corrections, tests, meetings and so on (...) I don't know where to start." [P05]

Emotional

"For me it is particularly stressful or particularly challenging when I notice that everything is slipping away from me, as if emotionally (...) when the daily routine with the children is simply too turbulent. When I don't really believe in myself." [P10]

In the next step, the reported coping strategies were categorised. We discovered emotional strategies as found by Beltman and Poulton (2019). We subsequently classified them into four overarching categories, namely *waiting*, *assessing*, *problem-solving*, and *being proactive*. As all examples of the category problem-solving were related to activating social resources, this category was named relational problem solving (Table 9). Then, we revised the data to further differentiate categories related to interactional relationships at school and outside of school, as well as cooperative relationships at schools. Table 9 provides anchor examples of the differentiated subcategories. Throughout the analysis, an iterative process involving three researchers was employed to enhance reliability and credibility. Regular

discussions among two independent coders ensured consistency and consensus. The findings of each phase of the analysis are presented in the following section.

Table 9

Strategies: Main and Subcategories, Anchor Examples

Waiting	
Taking a deep breath	<i>"Something can always happen (...) so you should just be open and take a breath, not panic right away." [P29]</i>
Stepping away from the situation	<i>"...And sleep on it once and (...) then look at it again the next day. Maybe then you look at it with a completely different view. [P19]</i>
Assessing	
Looking at the bigger picture	<i>"Yes, I was glad to realize that the problem was not me, but this woman. The fact that she herself had problems understanding that helped me. [P08]</i>
Taking someone else's perspective	<i>"Maybe I also have a bit of empathy and can respond empathetically to the parents. I think that then my goodwill towards the child also comes across." [P27]</i>
Optimism	<i>"(...)Looking back, it was very enriching for me. This overpromotion was a challenge that strengthened me. So just as the situation was negative, it was also positive afterwards." [P18]</i>
Literature	<i>"In a book (...) I read tips on how to deal with difficult situations." [P07]</i>
Relational problem-solving	
Instrumental social action	<i>"There was a school counsellor; I called him and also explained the situation (...) he explained to me that this is a bit normal (...) and then he dealt with the parents and told them clearly (...) then it never happened again." [P20]</i>
Asking friends and family	<i>"Yes, definitely the exchange with colleagues or family. They have a more neutral view of it because they are not in the middle of the situation. That's why they have a different perspective and can come up with different solutions. Yes, and so they can give you tips." [P03]</i>
Collaboration	<i>"I think that it makes a lot of difference that I am not alone in the classroom, because there is still the remedial teacher who sits down with me and says: what is our next step? [P07]</i>
Being pro-active	
Downtime	<i>"So, for me, it's very important that I separate school and home. I also have a school phone where parents can reach me and which I rarely take home. ." [P27]</i>
Good preparation	<i>"If I know that I have parent-teacher meetings in two weeks, I prepare things for class in advance." [P11]</i>
Reducing workload	<i>"I have a correction station where the kids can correct themselves." [P07]</i>

Results

The following sections describe the essential findings and most significant aspects obtained from teachers' responses to the interview questions in three sections: The first section

demonstrates the reported professional challenges. The second section describes the strategies applied afterwards to overcome the professional challenge. The third section takes a holistic view of the resilience process through two illustrative cases.

Participants in this study faced various professional challenges regardless of how long they had been teachers. The professional challenges exhibited significant variation in duration and intensity, ranging from brief encounters to prolonged experiences lasting several months. Daily weaker professional challenges and highly stressful and emotionally taxing challenges were described. The three levels of challenges are illustrated in Table 10. The stated challenging situations or events were grouped into three primary levels—organisational (f=13), relational (f=43), and personal (f=15). Despite the variety of professional challenges that highlight the complex and multifaceted nature of the teaching profession, we found that the most common professional challenges were *relational* and equally distributed between concerns with parents, colleagues, and students. The challenges are outlined in order of frequency.

Reported Professional Challenges

Professional challenges at the *organisational* level were mentioned least often. Among the *organisational* challenges, critique of the existing school system (f=6), class compositions (f=5), and issues with reforms and the new curriculum (f=2) were reported as challenging factors. These challenges related to reforms and the new curriculum highlighted the inherent difficulties in implementing changes within the educational system. Participants expressed a need for adequate training and professional development to navigate such changes successfully. Teachers seem concerned with the school system when children do not seem to “fit the existing system”. The critique of the existing school system and concerns about class compositions indicated a desire for more inclusive and flexible approaches to education. Participants expressed a need for tailored support and resources to effectively address the diverse needs of their students. The system critique is closely linked to the reported professional challenges related to class composition that include student heterogeneity, social integration and adaptive teaching.

The strategies that teachers reported could be assigned to four categories (see Table 11)—waiting (f=9), assessing (f=24), problem-solving (f=88), and pro-active (f=19). Among the various coping strategies, problem-solving strategies that capitalise on social support emerged as consistently employed by the majority of participants, hence the category name of ‘relational problem solving’.

Reported Strategies

Beyond the school environment, teachers found support through friends and family (f=23). These out-of-school relationships provide a network that helps teachers reporting about professional challenges in a non-professional context. In talking with friends and family, teachers primarily sought emotional support in dealing with professional challenges.

Collaboration includes exchanging materials (f=5) and team teaching (f=5). The active cooperation of a second teacher implies sharing resources and responsibility for coping with professional challenges. Also, team activities such as co-planning (f=14) and initiating team meetings addressing prevalent professional challenges (f=6) were mentioned.

Assessing was the second most frequent coping strategy. The reported 24 situations of assessing were evenly distributed across four subcategories (see Table 4). Taking someone else's perspective emerged as a prominent aspect of assessing strategies, with an equal number of statements addressing the perspectives of students and parents. In the case of optimism, the strategy of *seeing the positive* in a situation was reported. Also, strategies of professional development such as further training (f=3) and consulting literature (f=2) were mentioned.

The proactive coping strategy was divided into three categories, with downtime (f=12) being the most mentioned strategy. Participants engaged in sports and allotted time dedicated to themselves. Good preparation (f=7) was mentioned as a crucial individual strategy in which teachers planned the lessons and their free time ahead. The explicit mention of reducing the workload (f=3) further demonstrated the teachers' proactive efforts to manage their responsibilities effectively.

The least often reported strategy was *waiting*. Despite the relatively low frequency of mentions, it is noteworthy that teachers reported remaining calm in a moment of heightened emotion as helpful such as taking a deep breath (f=6) and stepping away from the situation (f=3).

Understanding the resilience process through two illustrative cases

Our data analysis so far has revealed that relational professional challenges and problem-solving were the most frequently reported among the participants. In the following section, we thus aim to provide a more comprehensive understanding of how relational challenges negatively impact teacher well-being and how relational coping strategies contribute to restoring teacher well-being. Two in-depth cases aim to elucidate the resilience processes depicted in the AWaRE model (see Figure 1). Both cases revolve around a negative appraisal of a professional challenge involving students. However, they differ regarding the coping strategies employed and the outcomes achieved. In the first case, the teacher proactively sought help from professionals within the school and engaged in open communication with parents, which ultimately resulted in restoring the teacher's well-being. In the second case, the initially applied strategies failed to restore the teacher's well-being. However, through reflection and adjustment (illustrated as a loop in the AWaRE model), the teacher identified a new strategy ultimately led to an improvement in her condition, signifying an evolving journey wherein the resilience process remains incomplete.

A resilience process based on successful instrumental social action and collaboration

Participant 18 (pseudonym Laura) began working at her current school as a first and second-grade teacher in 2015 after travelling and substituting. She was in her eighth year of teaching and taught students from grades one to six. Laura described having weeks where she felt “at ease” and how she loved the flexibility of being a teacher, thus being able to integrate hobbies into her daily activities whenever the weather was great. When a week was more challenging, she explained that she had to work “on weekends in cases of emergency.” However, having a good work-life balance has always been important to her.

Laura encountered a challenging situation (B1) with two boys with “behavioural issues” who “made a pact.” Laura noticed “how much power they can have together” and worried

about their impact on the class. She realised she needed to break the negative spiral to avoid unforeseen consequences. She appraised the professional challenge (B2c) as “extremely demanding” and realised that it kept “occupying her thoughts”. As a first strategy (B3), she talked to “school administrators, school social workers, parents of students and the curative teacher”. She also assessed her part and reminded herself of tips she had learned from a former coach of autistic children in her class. She realised that her strategies had a positive outcome (B4) and that the children responded to the measures she had undertaken. Looking back on the situation, Laura described it as a highly enriching experience. She highlighted the effort between herself and the children, strengthening their relationship. Laura noted that the children became aware that submitting to the measures implemented resulted in more freedom and the opportunity to engage in particular activities. In her perception, the situation had both negative and positive aspects. In retrospect, she appraised the situation (B5) as follows:

... Looking back, it was very enriching for me. I was able to work with the children, strengthen the relationship, and (...) like (...) they became aware that it makes sense to submit to it because they have much more freedom or can also do special things. So, just as the situation was negative, it was also positive afterwards.

A resilience process with a loop based on unsuccessful instrumental social action but successfully asking friends and family

Participant 12 (pseudonym Lily) had been working for 5.5 years and had experience in the 3rd and 4th grades and the 5th and 6th grades. Her desired grade level would be 5th and 6th grade, but she took on a third-grade class in the summer. She had a workload of 30 lessons, up to 100 per cent. Lily described her daily routine as teaching in the morning and the afternoon and going home between 18:30 and 19:00 each evening. If she could take a break, it never lasted longer than 3 minutes, which she described as “not so pleasant”. For her, during teacher training, “a wonderful world (was) shown, which is not true and does not correspond to reality.”

Lily would have liked seeing “all the teachers pulling together” at her current school and not “just looking out for themselves.” This became evident when she described it as “always the same people doing something” and “the same people doing nothing.” She described the professional challenge (B1) when “children were left to run wild”, and she was “not supported” in this challenging situation. The school administration “bullied” her and “picked on her personally and privately.” She appraised the situation (B2) as “very difficult”; she “almost had a burnout because of it”. She then went on sick leave because she had “such severe cramps in all her muscles” and “could no longer switch off from her job”. She had to put up with “terrible comments about her person” when she left. She had the impression (B2c) of being “held responsible” for the situation.

In this situation, Lily had “felt helpless.” She described not knowing where to “get help.” On advice, she went to an outside agency (B3). However, this could have been of “little help” to her. They told her that she had “no chance to take action against such a school management” and was advised to “leave the school” (B4). She had hoped for help to learn “how one can defend oneself against such a system” and was “disappointed” (B5). Afterwards, she did not know how to “get out of this situation” and felt that “nobody helped her” (B5c).

It was only when her partner also advised her several times to quit that she “decided to leave” (B3 loop) to “help herself that way.” In reflecting on the professional challenges, Lily stated that she was happy to have gone through them because they taught her valuable lessons on maintaining her well-being. She expressed that leaving school was not a sign of giving up (b5a) but rather a way of protecting herself and caring for her well-being.

Discussion

Teacher well-being and resilience are topical in educational research, given the high demands on teachers and the teacher shortage. Empirical studies are needed to further our

understanding of the relatedness of teachers' resilience and well-being. This study sought to investigate teachers' professional challenges (RQ 1) and analyse which coping strategies teachers use to maintain or restore their well-being (RQ 2). The study aims to advance our theoretical understanding of the resilience process within the newly introduced AWaRE model (Hascher et al., 2021).

Teachers in this study faced a variety of professional challenges at the organisational (e.g., school system, class composition) and personal levels (e.g., low self-efficacy, physical issues), with *relational* challenges being the most prevalent (RQ1). This aligns with current research as social challenges such as lack of recognition or support of principals, parent complaints, and challenging behaviour among students have repeatedly been described in the educational literature (Gu & Day, 2013; Castro et al., 2010). It has been found that challenging relationships with parents, students, and fellow teachers may cause negative experiences for teachers (Beltman et al., 2019) and impede well-being (Hascher & Waber, 2021). Professional challenges may be single and highly intense, such as an argument with a colleague or a parent, or less intense and sustained over time, such as the continuous disruptive behaviour of a student (Gu, 2014). The case studies variety and complexity also illustrate the role of subjective interpretation of the interplay of individual competencies and work conditions, which leads to the appraisal of a professional challenge as positive, neutral, or negative. These appraisals broaden our understanding of the beginning of the resilience process as described in the AWaRE model (Hascher et al., 2021).

Regarding strategies to sustain well-being (RQ 2), teachers reported that *relational problem-solving* was the most frequent coping strategy, thus indicating that relationships are perceived as both constraining and enabling (Papatraianou et al., 2018). Teachers reported using supportive *interactional relationships in the school* context with colleagues or school principals (Honingh & Hooge, 2014) administration and *relationships outside of school* (e.g., with family or friends) to seek advice or take action with their help to

deal with professional challenges. This aligns with prior research showing that positive relationships with students, colleagues, and other school community members play a crucial role in boosting teacher work satisfaction and well-being (Hascher & Waber, 2021; Rueger et al., 2016; Skaalvik & Skaalvik, 2011). Positive interactions with students and colleagues can also be viewed as job resources in the Job Demands Resources (JD-R) model, the “good things” at work that have inherent motivational quality and induce positive energy at work, leading to better outcomes (Schaufeli, 2017, p.121).

More importantly, our results helped identify an additional form of relational problem-solving that we describe as *collaboration*. Collaboration related to a professional challenge can be seen as a more advanced form of a coping strategy that goes beyond seeking advice or sharing one’s feelings with others and is beneficial in managing stress and promoting well-being (Akbari & Eghtesadi, 2017; Kar et al., 2021). Instead, collaboration as a coping strategy enrolles others into problem-solving. When teachers initiate collaboration in solving professional challenges, they recognise the systemic character of their challenges and aim to share their resilience process, as shown in the AWaRE model. This mode of collaboration appears unique compared to established or regular collaboration (e.g., de Jong et al., 2019; Little, 1990; Vangrieken et al., 2015), as it can be interpreted as a collective reaction to an individually perceived professional challenge. This likely reflects a teacher's belief that education in school needs sharing and collaboration instead of singular action (Liu & Be, 2022). In line with Ungar (2012), we advocate recognising the role of contextual and social environment. Within the resilience literature, “flocking” is presented as a coping mechanism similar to collaboration (Ebersöhn, 2012, p.30). It underscores the group's joint response when confronted with professional challenges, sharing their resources and support networks. Like collaboration, which revolves around working jointly to reach a mutual goal, flocking involves individuals uniting to surmount obstacles. It accentuates the strength of unity and collective action, demonstrating that when individuals band together, they can successfully

navigate professional challenges to maintain well-being. In an educational institution, fostering a flocking culture would encourage educators to depend on each other, share resources, and collaboratively address professional challenges.

Along with *relational problem solving*, teachers reported employing *assessing* (e.g., finding the positive in a situation), *being proactive* (e.g., using downtime), and *waiting* (e.g., staying calm) as strategies. *Assessing* involves strategies that allow individuals to thoroughly evaluate the situation, including reappraising the situation from different perspectives (Beltman & Poulton, 2019). Maintaining a sense of purpose and self-efficacy while taking momentary breaks to reassess professional challenges also supports a resilience process illustrated in the AWaRE model as it changes the view of how a challenge is perceived. The *proactive* strategy aligns with the concept of self-care as an essential response among teachers (Schussler et al., 2018). As Beltman and Poulton (2019) showed, teachers actively implemented strategies to effectively manage future instances of heightened emotions, including engaging in hobbies or physical exercise. Accordingly, teachers aim to enhance their capacity to handle professional challenges that promote the resilience process in the AWaRE model. Consistent with Sutton's (2004) observation that well-prepared teachers experience fewer issues during lessons, participants in our study emphasized the significance of high-quality lesson preparation in preventing or mitigating professional challenges. Although rarely mentioned, *waiting* as a strategy supports the idea that a resilience process needs emotional regulation. Engaging in deep breathing and creating space for oneself can activate the sympathetic nervous system and facilitate recognising and labelling emotions, enabling teachers to respond appropriately to professional challenges (Sharp & Jennings, 2016). Accordingly, mindfulness training might be helpful to enrich teachers' strategies in reducing stress and improving well-being (Beshai et al., 2016; Sheppes et al., 2011)

Drawing a connection between professional challenges (RQ1) and strategies (RQ2), it becomes evident that social interactions serve a dual purpose. Social interactions are

frequently cited as the primary professional challenge, yet simultaneously, they offer a valuable resource for strategies. Our research highlights that these social elements form a strategy for managing professional challenges. Given that teaching is inherently a social profession and the crucial role of social belonging (Ryan & Deci, 2000), our findings underscore the importance of social competencies in thriving in this field. The two illustrative cases selected elucidate the relationship between professional challenges and strategies and a better understanding of the resilience process, as shown in the AWaRE model. Both cases are strongly related to the double role of social relatedness, i.e. social interactions as professional challenges and for social support as a coping strategy, in restoring teacher well-being (e.g., Aelterman et al., 2007). Although the two cases differ regarding the resilience process and its outcomes, they are both represented in the AWaRE model. In both cases, the teacher's negative appraisal of a challenging situation with students sets the stage for the subsequent events (Grayson & Alvarez, 2008). Both cases illustrate how a resilience process may be initiated through issues with students and how teachers apply instrumental social action as a coping strategy. In both cases, the retrospective appraisal of the situation as enriching suggests personal growth, indicating the potential for challenging situations to foster professional development (Mansfield et al., 2012).

The two cases also demonstrate the variability of the resilience process within the AWaRE model. In the first case, Laura's instrumental social action to seek help from various professionals and engage with parents demonstrates the role of relational strategies within the resilience process. She invited school team members and parents to discuss the challenging student behaviour and search for a shared solution. This enabled collaboration in managing the professional challenges and expanded the perception of the issue as an individual professional challenge that needs collaboration inside and outside school. Her commitment to maintaining a work-life balance may further support her well-being. Laura's case also shows how the school context contributes to a successful resilience process (Ainsworth & Oldfield,

2019), as school members and parents were willing to share the responsibility for Laura's professional challenge.

The second case demonstrates the negative consequences of lacking support and guidance from colleagues and school administration, highlighting how an unsupportive environment can hamper the resilience process and worsen the impact of professional challenges on teacher well-being (Mansfield, 2021). The process leading to leaving school can be understood through Lilly's experience and the theoretical framework of stress and coping. Despite employing relational problem-solving strategies such as seeking support from school administration, colleagues, and the student's parents, her well-being was not restored. This lack of support potentially frustrated her need for relatedness (Ryan & Deci, 2001), leading her to take leave and seek external advice, both of which were unsuccessful. As a final strategy, she left the profession to protect herself and regain her well-being (Mansfield, 2021). Lilly's perception of the challenge and her evaluation of her competence to (Keller-Schneider, 2020) led to stress and dissatisfaction. As McClelland (1998) suggests, a sense of competence helps form a self-image capable of meeting requirements. When this self-image and perceived competence are undermined, it can lead to stress and, if unaddressed, could result in leaving the profession. Therefore, providing adequate professional support and addressing these factors can potentially prevent or delay the point of leaving school.

Limitations and strength of this study

The present study also has several limitations and suggests avenues for future research. First, the findings of our study refer to a particular cultural group, Swiss teachers. Future research could profit from findings on maintaining well-being within the resilience process among teachers in other cultural groups. Furthermore, future studies could control for teachers' characteristics that may impact the relationship between well-being and resilience, such as teacher gender, migration background, professional years, or school stage (primary vs

secondary education). In our study, almost half of the participants were early career teachers. While it is possible to track the resilience process, it does not necessarily mean that well-being is synonymous with staying in the profession.

Regarding the AWaRE model, it would be expedient to investigate the underlying mechanisms in appraising the effectiveness of the chosen coping strategy. In addition, it would be beneficial to investigate teachers' strategies for coping with challenging situations in depth. We did not investigate the professional challenges and strategies during the resilience process, as our analysis was conducted retrospectively. However, examining their implications within the context of the resilience process would be an intriguing aspect to explore in future studies. More detailed elaboration of literature on teacher strategies could contribute to understanding the resilience process. Furthermore, longitudinal research on strategies could contribute to the understanding of possible patterns of associations between challenges and strategies.

Our research has several strengths. First, the present study is one of the first to analyse the well-being and resilience processes in alliance. We investigated how teachers manage professional challenges and which challenges they face. We also summarised teachers' strategies for challenging situations or events. Moreover, we applied a qualitative approach using interviews to allow teachers to express themselves and reflect upon their reported past experiences. Second, implementing the AWaRE model could have led to a more sophisticated understanding of the relationship between well-being and resilience processes. Supporting prior studies (e.g., Johnson & Down, 2013), findings in our study have confirmed that teacher resilience plays a vital role in developing or restoring teacher well-being.

A unique insight from our study reveals the intricate interplay of these social challenges and strategies in the day-to-day interactions of teachers with students, parents and colleagues within the resilience process. By delving into the challenges faced by teachers, our

research not only enriches our understanding but also offers practical implications for teacher education programs and ongoing training initiatives. Empowering both students and teachers with evidence-based strategies can be instrumental in navigating these challenges effectively. Furthermore, fostering a collaborative environment within teacher education and training programs can instill a sense of belief and camaraderie among teachers, potentially cultivating protective strategies early in their careers.

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Chapter 7: Reframing Coping and Resilience

Based on previous work examining challenges and strategies, this chapter shifts the focus to coping as an essential, dynamic component of teacher resilience. Coping strategies play a critical role in sustaining teacher resilience by providing situational, adaptive responses to stress. Coping is increasingly recognized not just as a mechanism for managing immediate stressors but as a dynamic process that is integral to the broader construct of teacher resilience. Resilience itself is not static; it evolves through the continuous interplay between personal, professional, and contextual factors (Beltman, 2020). Within this framework, coping strategies serve as mediators, linking theoretical understandings of resilience to their practical manifestations in teachers' daily lives (Mansfield & Beltman, 2019).

Central to coping is the process of appraisal – a metacognitive evaluation of a stressor's significance and the resources available to address it. According to Lazarus and Folkman's (1984) transactional model of stress and coping, this appraisal determines whether a situation is perceived as a manageable challenge or an insurmountable threat. Factors such as emotional intelligence, self-efficacy, workplace culture, and systemic support influence this appraisal process, shaping how teachers respond to stress (Jennings et al., 2013; Tait, 2008). For example, teachers with high self-efficacy are more likely to engage in adaptive coping behaviours, reframing stressors as opportunities for growth, whereas those with lower self-efficacy may tend towards avoidance or disengagement (Klassen & Chiu, 2010).

The decision to engage in specific coping strategies – or to avoid them altogether – is influenced by individual beliefs, professional identity, and sociocultural narratives surrounding emotional labour and self-care. In Western contexts, where professional autonomy is often idealized, problem-focused coping may predominate, whereas collectivist cultures may emphasize social support (Beltman, 2020). These cultural and contextual dimensions of coping

highlight its dynamic nature and underscore the importance of aligning coping mechanisms with teachers' lived experiences.

This chapter begins by distinguishing between problem-focused and emotion-focused coping strategies, emphasizing their respective roles in teacher resilience. It then examines the systemic and cultural contexts that shape coping behaviours before concluding with an analysis of coping as a developmental trajectory across career stages. By situating coping within these multiple contexts, the chapter highlights its evolving nature as a cornerstone of teacher resilience.

Understanding Coping Strategies

Coping strategies are adaptive, context-dependent responses shaped by individual traits and systemic influences (Beltman, 2020; Ungar, 2012). While strategies provide a structured framework for addressing stress, coping represents the lived, dynamic enactment of such frameworks in response to real-time challenges (Castro et al., 2010; Jennings & Greenberg, 2009). This section explores key types of coping strategies, their adaptive potential, and their contribution to teacher resilience (Lazarus & Folkman, 1984).

Problem-Focused Coping

Problem-focused coping, a cornerstone of resilience, involves directly addressing stressors by identifying solutions, seeking help, and implementing practical changes. This proactive approach is particularly effective in managing stressors related to workload, classroom management, and professional relationships (Castro et al., 2010; Lazarus & Folkman, 1984).

Efficacy of Problem-Solving Interventions. Research highlights the effectiveness of problem-solving in reducing teacher stress and enhancing job satisfaction. A meta-analysis by Dolati et al. (2014) demonstrated how structured problem-solving programmes enable teachers to develop actionable solutions to classroom challenges. Similarly, professional development opportunities that focus on collaborative problem-solving can equip educators with tools for addressing both immediate concerns and systemic barriers (Bailey, 2022).

However, problem-focused coping is not without challenges. Novice teachers often experience "impostor syndrome", which fosters feelings of inadequacy and discourages help-seeking behaviour (La Palme et al., 2022). Additionally, hidden hierarchies within schools can stifle open dialogue, limiting opportunities for collaborative problem-solving (Vangrieken et al., 2015).

To mitigate these barriers, schools can institutionalize problem-solving through professional learning communities (PLCs). These collaborative networks provide structured environments for teachers to share challenges, brainstorm solutions, and build collective resilience (Vangrieken et al., 2015). While systemic strategies like PLCs foster collaborative problem-solving, individual problem-focused coping reflects a teacher's personal engagement with challenges, highlighting the interplay between structured support mechanisms and personal agency in fostering resilience.

Emotion-Focused Coping

Emotion-focused coping complements problem-solving by addressing the emotional impact of stressors rather than their root causes. This approach is particularly valuable when stressors, such as systemic inequities or policy constraints, are beyond a teacher's immediate control (Folkman & Moskowitz, 2004). Practices like mindfulness (Jennings et al., 2011) and cognitive reframing (Seligman, 2011) exemplify adaptive emotion-focused coping, offering tools for regulating emotions and maintaining perspective.

A key component of emotion-focused coping is emotion regulation, which is underpinned by emotional intelligence. Teachers who can recognize, understand, and manage their emotions are better equipped to navigate professional complexities as they maintain composure in high-stress situations (Jennings et al., 2013; Tait, 2008). For example, reframing a difficult interaction with a student as a learning opportunity rather than a personal failure can significantly reduce emotional strain (Ee & Chang, 2010).

Mindfulness and Reframing. Mindfulness practices have gained recognition as powerful tools for emotion-focused coping. Research by Jennings et al. (2011) demonstrates that mindfulness enhances teachers' self-awareness, enabling them to respond constructively to stress. Similarly, cognitive reappraisal – or reframing – encourages teachers to view challenges through a positive lens, fostering optimism and a sense of control (Lazarus & Folkman, 1984; Seligman, 2002).

Cultural and Spiritual Dimensions. Cultural context significantly influences emotion-focused coping. For instance, spirituality often serves as a coping mechanism in collectivist cultures, providing teachers with inner strength and a broader perspective (Singelis et al., 1995). Acknowledging these cultural variations in professional development programmes can enrich their relevance and effectiveness by ensuring that they align with teachers' lived experiences (Ungar, 2012).

Adaptive Versus Maladaptive Strategies

While adaptive coping strategies such as problem-solving and emotion regulation enhance resilience, maladaptive strategies – including avoidance, disengagement, and self-punishment – pose significant risks to teachers' well-being (Chang, 2013; Lindqvist et al., 2020).

Avoidance coping, characterized by efforts to evade stressors, may provide short-term relief, but it exacerbates long-term challenges. For example, teachers who avoid addressing student behavioural issues risk escalating classroom disruptions, thereby further increasing stress (Wesselborg & Bauknecht, 2022). Similarly, self-punishment – in the form of excessive self-criticism – can undermine self-efficacy and lead to burnout (Ghasemi et al., 2022).

The prevalence of maladaptive coping often reflects systemic shortcomings. Schools with limited mentorship programmes or fragmented leadership structures leave teachers, particularly novices, feeling isolated and overwhelmed (Mansfield et al., 2016). Personal factors, such as low self-efficacy and perfectionism, also contribute to maladaptive coping (Klassen & Chiu, 2010).

Coping as a Reflective, Developmental Process

Coping is not a static response to stress but a dynamic, evolving process that reflects teachers' development throughout their careers (Beltman et al., 2011; Day & Gu, 2014). This perspective emphasizes the importance of reflection, adaptation, and professional growth in shaping teachers' coping strategies over time (Farrell, 2018; Tait, 2008). By engaging in reflective practices and drawing on accumulated experience, teachers can refine their coping approaches to meet the shifting demands of their profession (Meijer et al., 2009; Rodgers, 2002; Wosnitza et al., 2018).

Reflective Practice as a Catalyst for Coping Development

Reflection is central to the adaptive development of coping strategies. When teachers critically evaluate their responses to stressors, they can identify patterns, successes, and areas for improvement. Schön's (1983) concept of the "reflective practitioner" underscores the importance of deliberate reflection, which connects theoretical knowledge with practical application and fosters resilience in the face of challenges. Teachers' reflective practices can be understood as operating at multiple levels.

In-action reflection refers to how teachers adapt their coping strategies in real time during classroom interactions. For instance, adjusting communication styles to de-escalate conflicts exemplifies this immediate, situational problem-solving informed by reflection (Schön, 1983). In contrast, on-action reflection involves post-event analysis, allowing teachers to evaluate the effectiveness of their coping strategies and refine future responses (Farrell, 2018). Finally, meta-reflection focuses on broader patterns of coping behaviour, enabling teachers to align their strategies with long-term professional goals, thereby contributing to sustained resilience and growth (Beltman et al., 2011).

In addition to shaping coping strategies, reflection facilitates emotional regulation, helping teachers process complex emotions and develop healthier responses to recurrent stressors. Practices such as journaling and peer feedback sessions provide structured

opportunities for reflection, fostering both individual and collective growth (Rodgers, 2002). In this way, reflection acts as a bridge between resilience strategies and situational coping. While in-action reflection enables teachers to adapt strategies to immediate challenges, on-action and meta-reflection contribute to the iterative refinement of coping approaches over time (Farrell, 2018; Schön, 1983).

Coping Across Career Stages

Coping strategies evolve significantly over the course of a teacher's career, shaped by changing roles, responsibilities, and accumulated experiences. Understanding these developmental trajectories offers valuable insights into how coping can be effectively supported at different career stages.

Early-career teachers often rely heavily on external support systems, including mentorship and structured professional development programmes, to navigate the transition from training to practice. This transition is frequently accompanied by “reality shock” (Dicke et al., 2015; Veenman, 1984), which underscores the need for problem-focused coping strategies, such as seeking help from colleagues or implementing classroom management techniques (Hong, 2023). However, early-career teachers often face challenges such as impostor syndrome or limited social capital, which can hinder their ability to cope effectively (Mansfield et al., 2016). Interventions like the Building Resilience in Teacher Education (BRiTE) modules have proven effective in equipping novice teachers with foundational skills, including emotion regulation and reflective practices (Mansfield et al., 2016).

As teachers progress into mid-career, their focus often shifts from external reliance to greater autonomy in managing stress. This phase is characterized by a refinement of coping strategies, such as setting boundaries, balancing professional and personal commitments, and applying reflective practices to complex challenges (Beltman & Poulton, 2019). Collaboration also becomes a critical resource, as mid-career teachers often take on mentorship or leadership

roles within their professional communities. This dual role highlights their position as both learners and contributors to a culture of resilience within their schools (Le Cornu, 2009).

At the late-career stage, teachers frequently demonstrate heightened self-efficacy and adaptability, drawing on extensive professional knowledge to manage stressors. Reflective practices at this stage often focus on legacy-building and sustaining resilience amidst challenges such as ageing, role transitions, and organizational changes (Wesselborg & Bauknecht, 2022). In addition, late-career teachers play a pivotal role in fostering resilience among their colleagues by modelling effective coping strategies and contributing to a supportive school culture. Their ability to balance personal and systemic factors positions them as key agents of change within educational institutions (Skaalvik & Skaalvik, 2015).

Reflection, Resilience, and Professional Growth

Reflective practices not only enhance coping strategies but also contribute to broader professional growth by fostering a deeper understanding of resilience processes. Through reflection, teachers develop a greater awareness of their stress triggers, enabling them to formulate tailored coping responses that address unique challenges effectively (Tait, 2008). Reflective analysis also strengthens problem-solving skills, allowing teachers to anticipate and address difficulties proactively, thereby fostering a sense of agency and control over their professional lives (Rodgers, 2002).

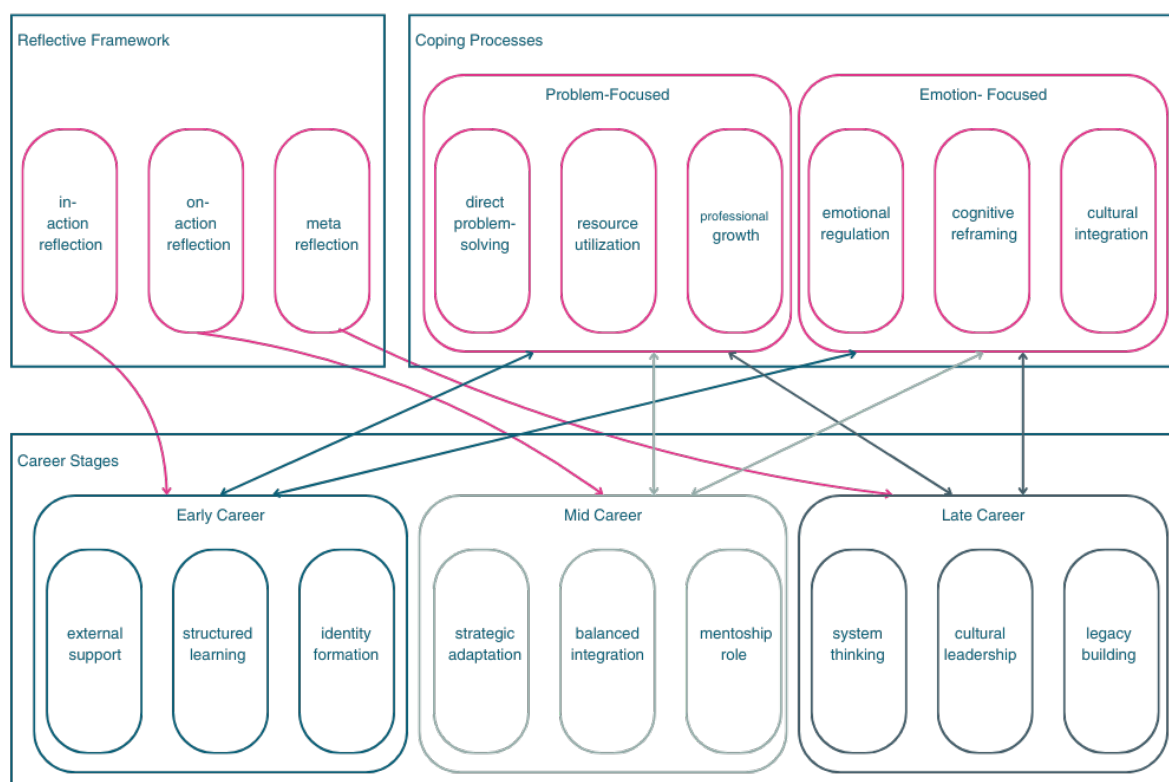
Reflection also supports the cultivation of a growth mindset, emphasizing that coping skills are not fixed but can be developed and refined through continuous improvement. This perspective aligns with Dweck's (2006) framework, which highlights the potential for adaptation and growth. Professional development programmes that integrate reflective practices, such as peer coaching and scenario-based training, provide structured opportunities for teachers to enhance their coping strategies. These programmes not only promote individual resilience but also help create a culture of collective resilience within schools (Ee & Chang, 2010).

Coping as a Developmental Journey

The complex interplay between reflection, career development, and coping processes in teaching can be conceptualized through a dynamic model that illustrates how these elements evolve and interact over time. Figure 4 presents a framework that captures the multifaceted nature of teachers' coping development, highlighting the central role of reflection in shaping how teachers navigate professional challenges throughout their careers.

Figure 4

Coping as a Developmental Journey



Note. Original figure created by the author for this publication.

As illustrated in Figure 4, the reflective framework encompasses three interconnected levels of reflection: in-action, on-action (Gilbert & Trudel, 2002), and meta-reflection (Lipp,

2007; Schön, 1983). These reflective processes serve as critical mechanisms through which teachers develop and refine their coping strategies (Sari et al., 2021). In-action reflection, which is particularly prominent in the early stages of a teacher's career, enables them to make real-time adjustments to their responses to classroom challenges. As teachers progress to mid-career stages, on-action reflection allows for a more nuanced analysis of past experiences and their implications for future practice. Meta-reflection, which tends to emerge more fully in late-career stages, facilitates a broader understanding of patterns and systemic influences on professional practice (Linden & McKenney, 2020).

The figure demonstrates how both problem-focused and emotion-focused coping processes interact dynamically with career stages. In their early careers, teachers often emphasize external support and structured learning while forming their professional identity (McIntyre & Hobson, 2016; Morrison, 2013; Pearce & Morrison, 2011). The bidirectional arrows in the figure indicate that these interactions are not merely one-way influences but represent ongoing exchanges that shape both individual teachers' development and their approach to coping. For instance, a novice teacher's experience with problem-focused coping through direct problem-solving may influence their identity formation, while their emerging professional identity simultaneously shapes how they approach future challenges.

As teachers progress towards mid-career, the model shows a shift toward strategic adaptation and balanced integration of different coping approaches. This period is marked by the emergence of mentorship roles, where teachers begin to contribute to the professional growth of others (Squires, 2019) while continuing to refine their own coping strategies (Skaalvik & Skaalvik, 2021). The figure illustrates how this transition is supported by increasingly reflective practices, particularly through on-action reflection, which allows teachers to analyse and improve their professional responses over time.

In the later stages of their career, the model depicts an evolution towards systems thinking and cultural leadership. This progression reflects how experienced teachers develop a more

comprehensive understanding of educational contexts and their role within them (Brouhier et al., 2021; Gutman & Oplatka, 2020; Shaked & Schechter, 2017). The integration of cultural elements within emotion-focused coping processes acknowledges how teachers' responses to challenges become increasingly nuanced by their understanding of institutional and societal contexts (Gutman & Oplatka, 2020; Skaalvik & Skaalvik, 2015).

Importantly, the model emphasizes that while career stages suggest a temporal progression, the development of coping strategies is not strictly linear (García-Arroyo & Osca, 2017; Symaniuk et al., 2021). The bidirectional relationships shown between coping processes and career stages indicate that teachers may draw upon different combinations of strategies depending on specific situations and contexts. This flexibility in applying various coping approaches, guided by appropriate levels of reflection, represents a key aspect of professional resilience.

This framework aims to illuminate how reflection serves as a bridge between experience and adaptation. It suggests that effective professional development programmes should not only introduce specific coping strategies but also foster teachers' capacity for multi-level reflection that can support their ongoing professional growth and resilience.

The selection of coping strategies depicted in the model reflects a focus on key developmental processes rather than an exhaustive inventory of all possible coping mechanisms. While Table 12 (pp.145-146) provides an overview of specific strategies, the figure prioritizes broader categories and processes that illustrate the developmental trajectory of coping across career stages. This selective approach serves several purposes.

Firstly, the model emphasizes foundational processes rather than specific techniques. For example, under problem-focused coping, "direct problem-solving," "resource utilization," and "professional growth" represent overarching categories that can encompass multiple specific strategies. "Direct problem-solving" might include various approaches like classroom

management techniques or curriculum adaptation, but depicting each specific technique would complicate the visual representation without adding substantial conceptual value.

In the emotion-focused domain, the selection of "emotional regulation," "cognitive reframing," and "cultural integration" reflects core processes that underpin many specific emotional coping strategies. While the chapter discusses additional strategies like mindfulness practices, maintaining work-life boundaries, and seeking social support (as detailed in Table 8), these can be understood as specific manifestations of these broader processes.

Notable omissions from the table include specific social support mechanisms and certain self-care practices. While these are crucial strategies discussed in this chapter, they are implicit in the career stage progression shown in the model. For example, social support moves from being primarily received (in early-career "external support") to being provided (in late-career "cultural leadership").

The model also deliberately excludes maladaptive coping strategies, which are also discussed in this chapter. While understanding these strategies is important for comprehensive teacher development, their inclusion would divert the figure's focus away from its primary purpose of illustrating positive developmental trajectories and the role of reflection in promoting adaptive coping.

Systemic and Contextual Influences on Coping Strategies

Coping strategies do not exist in isolation; they are deeply embedded within the systemic and contextual environments of teachers' professional lives. The interplay between individual resilience and organizational culture underscores the critical role of external factors, such as school policies, administrative support, and peer relationships, in shaping the effectiveness and accessibility of coping mechanisms. While individual traits and skills are integral to resilience, contextual and systemic elements significantly influence how coping strategies are developed and applied (Mansfield et al., 2012). Supportive school cultures provide essential resources such as

mentorship and peer networks, which teachers can transform into active coping strategies through collaborative problem-solving or seeking social support.

A supportive school culture serves as a powerful buffer against stress. Schools with collaborative environments foster resilience by encouraging teachers to share experiences, seek advice, and engage in collective problem-solving (Sharplin et al., 2011). These settings promote open communication, reduce feelings of isolation, and facilitate adaptive coping responses. PLCs are a particularly effective framework for institutionalizing such support. By fostering collaboration, PLCs enable teachers to refine their problem-solving and emotion-regulation strategies while building a culture of collective resilience (Vangrieken et al., 2015).

In contrast, less supportive environments amplify systemic stressors, such as excessive workloads, inadequate resources, and bureaucratic pressures that can erode resilience (Sandmeier et al., 2022; Wettstein et al., 2023). When teaching is undervalued, educators may encounter additional barriers to seeking support (Bentea, 2017) or prioritizing self-care (Murphy et al., 2020; Wosnitza et al., 2018). This underevaluation often results in an increased reliance on maladaptive coping mechanisms, including avoidance or self-punishment, which provide temporary relief but exacerbate long-term challenges (Johnson et al., 2014; Wesselborg & Bauknecht, 2022). The absence of mentorship programmes or fragmented leadership further compounds these issues, leaving teachers, particularly novices, without the guidance they need to navigate complex professional challenges effectively (Mansfield et al., 2016).

Organizational interventions, such as health-promoting school programmes, have shown promise in addressing these systemic challenges (Betschart et al., 2022). These initiatives aim to integrate teacher well-being into the broader educational framework, fostering a positive school climate that supports both individual and institutional resilience. Research by Ungar et al. (2014) highlighted the effectiveness of such programmes in reducing teacher burnout and enhancing resilience by addressing both personal and systemic factors.

The influence of systemic factors extends beyond school settings to include broader sociocultural dimensions. Societal attitudes towards teaching significantly shape how educators perceive and apply coping strategies (Skaalvik & Skaalvik, 2015). In cultures where teaching is undervalued or stigmatized, teachers often experience heightened stress and face additional barriers to accessing support (Jerrim & Sims, 2022; OECD, 2023). These challenges contribute to greater reliance on maladaptive coping strategies and reduced professional sustainability (Johnson et al., 2014). Conversely, in contexts where teaching is a respected profession, systemic and social support structures reinforce adaptive coping mechanisms, enabling educators to sustain resilience over time.

Systemic and contextual factors fundamentally shape not only teachers' immediate coping responses but also their capacity to develop sustainable resilience throughout their careers (Kärner et al., 2021; Mullen et al., 2021). The interplay between school culture, leadership approaches, and targeted support interventions creates an ecosystem that either nurtures or hinders professional growth and adaptation. When school environments actively prioritise teacher well-being through structured support systems, educators are better positioned to transform daily challenges into opportunities for professional development. However, unsupportive institutional contexts and persistent sociocultural stigma around teacher stress can undermine even well-designed coping strategies, highlighting how individual resilience cannot be separated from its organisational context.

This recognition of the systemic nature of teacher resilience demands a shift from viewing teacher well-being as solely an individual responsibility to understanding it as a collective priority that requires institutional commitment and strategic investment (Beltman, 2021). Creating educational environments that actively foster teacher resilience is not just a support measure but a fundamental prerequisite for sustaining an effective, engaged, and professionally fulfilled teaching workforce over the long term.

Strategies for Enhancing Teacher Resilience

Teacher resilience continues to be central to navigating the dynamic challenges of contemporary education (Beltman et al., 2011; Chen, 2024; Gu, 2018). This section extends the discussion of coping by incorporating a broader lens, presenting a synthesis of strategies that address the interconnected cognitive, emotional, social, and professional dimensions of resilience (Mansfield et al., 2016; Tait, 2008; Wosnitza et al., 2018). By highlighting these strategies, this section bridges theoretical insights into resilience with actionable interventions that enhance both coping and systemic support mechanisms (Beltman et al., 2011; Chen, 2024; Mansfield et al., 2016).

Table 12 consolidates findings from recent studies (2019–2024) and offers practical guidance for fostering teacher resilience at individual, organizational, and systemic levels. By addressing diverse dimensions of resilience, these strategies underscore the importance of both individual agency and collective support in sustaining professional well-being.

Table 12*Overview of Resilience-Building Approaches*

Strategy	Intervention	Practical implications	References
Active self-care/well-being	Encouraging practices such as mindfulness, maintaining work-life boundaries, and focusing on optimism to reduce burnout	Builds resilience by reducing stress, enhancing job satisfaction and promotes long-term psychological well-being.	Marcionetti and Castelli (2023); Zhou et al. (2024); Cann et al. (2024)
Seeking social support at school	Fostering collaboration through teamwork, trust building, and leadership support	Strengthens professional relationships, improves teamwork, and promotes organizational improvement.	Wullschleger et al. (2023); Turner et al. (2022)
Seeking social support outside of school	Using external networks or digital platforms like social media to find professional or emotional support	Social media platforms like Instagram enable knowledge-sharing and create a sense of digital community, contributing to teacher development and emotional support.	Einav et al. (2024); Richter et al. (2022)
Goal-setting and personal responsibility	Empowering teachers to reflect on their goals, emotions, and professional identities to build a stronger sense of responsibility	Fosters accountability and motivation, enabling teachers to manage their professional challenges with confidence and a growth mindset.	Cetin and Eren (2022); Glutsch et al. (2020)
Building relationships and effective communication at school	Promoting teamwork, shared values, and trust to cultivate collaborative school cultures	Collaborative school cultures reduce teacher burnout and foster emotional well-being. Open communication builds a supportive work environment.	Eisenschmidt et al. (2024); Pavlidou et al. (2022)
Building relationships and effective communication beyond school	Establishing connections through mentoring, professional networks, and supportive communities outside the workplace	External support systems provide additional resources for coping with work challenges and improve emotional well-being.	Symeonidis et al. (2023); Einav et al. (2024)
Emotion regulation	Teaching emotional intelligence skills like self-awareness, self-regulation, and social awareness	Improves teacher-student relationships, reduces burnout, and enhances classroom climate.	Gimbert et al. (2023); Wang et al. (2023)
Practising mindfulness	Incorporating mindfulness-based programmes to improve emotional regulation and reduce teacher stress	Reduces burnout, promotes classroom engagement, and enhances teacher well-being.	De Carvalho et al. (2021); Hwang et al. (2019)
Applying pedagogical knowledge	Training teachers in integrating technological, pedagogical, and content knowledge (TPACK) to create enriched learning environments	Enhances teaching effectiveness and student performance. Encourages continuous professional development in technology integration.	Aodah et al. (2022); Jammeh et al. (2024)

Perspective-taking	Promoting empathy by understanding students'	Reduces disruptive classroom behaviour, fosters inclusion,	Lebzelter (2021); Ottenheim-

Strategy	Intervention	Practical implications	References
	perspectives and engaging with diverse narratives	and strengthens teacher-student relationships.	Vliegen et al. (2023)

The strategies synthesized in Table 8 emphasize the interplay between individual and systemic factors in building resilience. These approaches are grounded in empirical research and offer a comprehensive understanding of how teachers can navigate stressors while fostering professional sustainability.

Recent studies have addressed the importance of mindfulness and self-care in reducing burnout and promoting well-being (De Carvalho et al., 2021; Zhou et al., 2024). Similarly, the significance of social relationships is evident in both school-based collaborations (Wullschlegel et al., 2023) and external professional networks (Richter et al., 2022). Emotional competencies, such as regulation and mindfulness, further enhance resilience by promoting adaptive coping and a positive classroom climate (Gimbert et al., 2023; Hwang et al., 2019). Additionally, innovative pedagogical approaches reflect the evolving demands of technology-enabled learning environments and highlight the need for continuous professional development (Aodah et al., 2022; Jammeh et al., 2024).

These strategies illustrate the multidimensional nature of resilience, emphasizing that it is not solely an individual responsibility. Institutional support mechanisms, including leadership initiatives and positive organizational cultures, are critical to translating these strategies into sustained professional effectiveness (Eisenschmidt et al., 2024).

As the next chapter transitions to pre-service teacher resilience, the strategies explored here provide a springboard for examining how interventions can address the unique challenges faced by early-career educators. The chapter emphasizes that while coping mechanisms are rooted in situational responses, they are inextricably linked to broader resilience-building practices that operate at individual, organizational, and systemic levels.

By reframing coping as a reflective and developmental process, this chapter bridges theoretical understandings with practical implications. It emphasizes that coping is not merely reactive but a dynamic element shaped by reflection, professional growth, and contextual influences. Building on previous work exploring challenges and strategies (Krummenacher et al., 2024a), this chapter opens the discussion by advocating a deeper exploration of resilience-building interventions tailored to the developmental needs of pre-service teachers.

This chapter highlights the interplay between adaptive coping behaviours and systemic resilience strategies, presenting them not as isolated constructs but as mutually reinforcing processes essential to fostering professional sustainability. By addressing resilience as a dynamic interplay between reflection, coping, and systemic support, the chapter positions it as a cornerstone of personal well-being and professional sustainability, paving the way for targeted interventions in pre-service teacher education.

Chapter 8: Publication III

Teacher Well-Being and Coping Strategies: A Two-Wave Qualitative Study With Secondary School Teachers in Switzerland

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Abstract

This qualitative study examines the role of coping strategies in shaping teacher well-being within secondary school environments while considering different levels of professional expertise. Interviews with 23 secondary school teachers over two waves revealed the dynamic nature of well-being and coping mechanisms throughout a school year. Utilizing Zuckerman and Gagne's (2003) framework, our analysis confirmed five key coping strategies: self-help, approach, accommodation, avoidance, and self-punishment. Self-help, mainly instrumental support-seeking, emerged as the most frequently used strategy, especially among novice teachers who relied on the experiences of their more experienced colleagues. Approach strategies, including active problem-solving, were prevalent among more experienced teachers, while accommodation strategies involved accepting unchangeable aspects of their roles. While less frequently reported, some teachers described using avoidance and self-punishment as coping mechanisms, indicating ongoing challenges in their professional experiences. The findings underscore the importance of fostering a supportive work environment where teachers can use effective coping strategies to navigate professional challenges. This study contributes to understanding how coping strategies relate to teacher well-being, providing insights into the specific strategies that support or hinder well-being in challenging contexts. The results emphasize the need for targeted interventions to enhance teacher well-being, considering teachers' professional expertise, and particularly for those employing maladaptive coping strategies.

Keywords: teacher well-being, coping strategies, teacher challenges, secondary school, qualitative research

Introduction

The body of research on teacher well-being is growing rapidly, driven by increasing concerns over the adverse effects of stress on teachers' physical and mental health (Hagermoser Sanetti et al., 2021), efforts to retain teachers (Weiland, 2021), and the crucial link between teacher well-being and student outcomes, such as academic achievement (Granziera et al., 2023). Given their daily tasks and responsibilities, maintaining teacher well-being is paramount in order to effectively meet these demands (Collie et al., 2015; Weiland, 2021). Teachers play an essential role in upholding instructional quality and cultivating a positive school climate – crucial factors in promoting student learning and well-being (Hascher & Hagenauer, 2011; Schumacher, 2012). While most Swiss teachers express satisfaction with their profession, mandated professional development and administrative duties are often perceived as stressors (Sandmeier et al., 2020). Similar findings emerge from studies conducted in other countries, indicating rising stress levels among teachers attributed to the demands of their profession (e.g. Herman et al., 2020; Woods et al., 2023). For instance, German and Norwegian teachers report diminished well-being at work, marked by emotional exhaustion from intense work pressure and insufficient recovery time (Klusmann et al., 2023; Skaalvik & Skaalvik, 2018).

To cope with these stressors and maintain their well-being, teachers can employ various strategies, such as seeking social support from colleagues and administrators, engaging in problem-solving and time-management techniques, practising self-care and stress management activities, and taking advantage of professional development opportunities (Nwoko et al., 2023). These coping strategies allow teachers to manage their workload while maintaining their well-being effectively, ultimately benefiting student outcomes. Previous research has identified several coping strategies teachers commonly use to manage stress and promote well-being (Kim et al., 2021).

This study aimed to explore the well-being and coping strategies of secondary school teachers in Switzerland over two school years. Recent research highlights the importance of investigating teacher well-being and coping strategies (e.g. Aulén et al., 2021; Bjørndal et al., 2022). The study addresses a gap in understanding teachers' perceptions of their well-being, their specific coping strategies in response to school environment challenges, and the evolution of these strategies over time. Furthermore, the nuanced relationship between well-being and coping strategies, particularly in the context of professional challenges faced by secondary school teachers, is underexplored. This study aims to bridge these gaps by providing a detailed, longitudinal exploration of how secondary school teachers' perceptions of their well-being and coping strategies develop and interact over two school years, shedding light on the dynamic nature of teacher well-being.

Teacher Well-being

A systematic review of the literature on teacher well-being highlights the complex nature of the construct (Hascher & Weber, 2021). This complexity stems from various factors: the diversity in theoretical frameworks and empirical approaches, cultural disparities, and the contextual nature of teaching across different countries (Cumming, 2017; Stromquist, 2018). For example, teacher well-being, a multidimensional construct encompassing various facets, can be perceived as the prevalence of positive emotions and thoughts regarding different aspects of the school environment (Hascher, 2007). Work engagement, happiness at work, and job satisfaction can also be considered positive indicators of teacher well-being (Bakker & Oerlemans, 2011). Teacher well-being has also been described as the absence of stress and negative emotions (Breeman et al., 2015; Lavy & Eshet, 2018; Yildirim, 2015), and has been defined as a positive emotional state that is crucial for teachers' effectiveness (Brouskeli et al., 2018). However, defining and measuring teacher well-being consistently helps in understanding and identifying its determinants and outcomes (Hascher & Waber, 2021; Nwoko et al., 2023). Due to the intricate nature of the construct of teacher well-being, it

is crucial to continue research in this area to enable a better understanding of the factors underlying teacher well-being and the sources contributing to it, and also to understand better how teachers themselves frame well-being at work (Ozturk et al., 2024).

Teacher Coping Strategies

Teachers employ various coping strategies to manage work-related stress and demands, which is critical for addressing the numerous stressors in the teaching profession (Skaalvik & Skaalvik, 2015). According to Lazarus and Folkman (1984), coping strategies are purposeful activities aimed at addressing work-related challenges.

Coping strategies can be categorized into adaptive and maladaptive. Adaptive strategies promote health and are associated with better outcomes in stress management. Examples include physical activity, communication with friends and family, positive reframing, active coping, planning, problem-solving, and seeking social support (Bakker et al., 2021; Herman et al., 2019; Klapproth et al., 2020). Conversely, maladaptive strategies are detrimental to health and linked to negative outcomes. These include behaviours like alcohol consumption, overeating, avoidance, and confrontation (Carver et al., 1989; Klapproth et al., 2020). Research shows that maladaptive coping impacts health outcomes substantially more than adaptive coping (Gustems-Carnicer & Calderón, 2013).

More resilient teachers are more likely to employ adaptive coping strategies, which can mitigate the effects of stressors on psychological well-being (Boczkowska, 2022; Chan, 1998). However, while some strategies may work effectively in the short term, they might not be sustainable over time, thus underscoring the need for resources to support teachers with stress management (Abdi & Kharbiryimbai, 2020).

Lazarus's coping model (Lazarus & Folkman, 1984) offers a deeper understanding of how individuals manage challenges through dynamic interactions shaped by perceived resources and risks (McEwen, 2007). Depending on context and implementation, problem-focused and emotion-focused coping can be either adaptive or maladaptive.

Tools like the COPE Inventory and Brief-COPE (Carver, 1997; Carver et al., 1989) have been developed to assess coping strategies. However, critics argue that these tools lack a holistic perspective, advocating broader approaches that capture the multifaceted nature of coping (Zuckerman & Gagne, 2003). Zuckerman and Gagne (2003) proposed a comprehensive framework, categorizing coping strategies into five groups: self-help, approach, adaptation, avoidance, and self-punishment. Self-help, approach, and adaptation are typically considered adaptive, while avoidance and self-punishment are viewed as maladaptive.

This framework emphasizes emotional expression, active problem-solving, positive reinterpretation, and acceptance of uncontrollable circumstances. It also acknowledges less effective behaviours like avoidance and self-punishment, recognizing their lower efficacy compared to adaptive strategies (Gustems-Carnicer & Calderón, 2013).

Research on teachers' coping strategies reveals diverse findings. Some studies highlight emotion-focused approaches, others stress problem-focused strategies, and some emphasize the combination of both (Alghaswyneh, 2012; Blase et al., 2008). Previous studies have highlighted the importance of adaptive strategies, such as seeking social support and engaging in problem-solving, are crucial for maintaining teachers' well-being (Bermejo-Toro et al., 2016; Kim et al., 2021). Problem-focused coping addresses the source of stress, whereas emotion-focused coping regulates emotional responses (Beltman & Poulton, 2019). However, avoidant coping can exacerbate stress and lead to burnout (Wang et al., 2022). Therefore, raising awareness about effective coping strategies is crucial for teachers in managing stress and effectively supporting students.

The Relation Between Teacher Well-Being and Coping Strategies

Teacher well-being is influenced by various factors, with subjective professional competence emerging as a significant predictor, unlike the limited impact of objective factors such as teaching experience (Aldrup et al., 2017; Collie et al., 2015). One consistent finding is

the crucial role of social relations, which echoes research on social support in educational settings (Acton & Glasgow, 2015). The inherently social nature of teaching underscores the importance of fulfilling teachers' need for relatedness (Ryan & Deci, 2000). Higher stress levels and psychological distress often negatively affect teacher well-being (Savage & Woloshyn, 2022; Stapleton et al., 2020). Coping strategies mediate stress and well-being (Gustems-Carnicer et al., 2019). Effective coping, such as seeking support and self-help, can mitigate stressors (Skaalvik & Skaalvik, 2015). Adaptive strategies and social support correlate with lower burnout and improved well-being (Griffith et al., 1999; Wamea & Nompo, 2024), while maladaptive strategies link to higher burnout (Herman et al., 2023). In teaching, well-being and coping are vital due to the demands of the work. Effective strategies help in reducing burnout risks (Parker et al., 2009) and in sustaining a positive professional outlook (Aulén et al., 2022). Problem-focused coping, such as problem-solving and goal-setting, addresses stressors directly, while emotion-focused strategies, like relaxation and reframing, regulate emotional responses (Beltman & Poulton, 2019; MacIntyre, 2020). A mix of both approaches provides a holistic way to support well-being (Sharplin et al., 2011).

Coping strategies evolve with professional development. Kamtsios (2019) noted that burnout dimensions change over time, with emotional exhaustion rising later, mediated by coping strategies. Similarly, Lindqvist et al. (2023) highlighted evolving strategies among beginning teachers, while Wang et al. (2021) linked coping profiles to job satisfaction and burnout. These findings show that experience fosters better coping strategies and confidence in handling challenges. Research exploring the interplay between coping strategies and well-being is vital for designing interventions to prevent burnout. Differentiating between direct effects (immediate stress reduction) and indirect effects (long-term well-being outcomes) is key (Karlsen et al., 2006; Rajesh et al., 2022). Understanding these dynamics from teachers' perspectives will significantly contribute to research and practice, guiding targeted interventions to enhance teacher well-being.

The Present Study

Based on extensive research on teacher well-being and the challenges faced in the teaching profession, it can be assumed that different professional challenges call for employing distinct coping strategies to maintain well-being. As teachers gain experience, particularly in the early stages of their careers, their coping strategies and perceptions of well-being may evolve. Therefore, this qualitative study aimed to: (1) identify the coping strategies that secondary school teachers use to navigate the challenges encountered in the school environment; (2) investigate how these coping strategies evolve over two school years, particularly in relation to teachers' increasing experience; and (3) better understand the relationship between coping strategies and teacher well-being. Ultimately, we seek to contribute to developing evidence-based practices that promote teacher well-being and support their coping strategies in the secondary school context. Accordingly, we addressed the following research questions:

1. What coping strategies do teachers use to navigate the challenges encountered in the school environment?
2. How do these coping strategies evolve over two school years, particularly in relation to teachers' increasing experience?
3. How is teacher well-being related to the reported strategies among teachers facing professional challenges at school?

Methods

Participants

In this study, we used data from the first and second waves of the longitudinal SNF project "XY" (XY, 2021–2025), which is investigating the well-being of secondary school students and their teachers. Teachers from five lower secondary schools in the cantons of XY and XY in Switzerland participated in the semi-structured group discussions in March 2022 (Wave 1; $N = 28$; Grade 7) and March 2023 (Wave 2; $N = 23$; Grade 8). In Wave 1, five

schools were randomly selected from the total sample of participating schools for the qualitative study. Initially, four to six teachers from each selected school were recruited for the study. These teachers were then divided into groups of two to three participants for the group discussions. Each group discussion lasted 45 to 60 minutes. The sample in Wave 1 included $N = 29$ secondary school teachers ($M_{age} = 42.54$, $SD = 14.19$). However, due to the withdrawal of one school from the study, the cohort size for Wave 2 was reduced to $N = 23$ ($M_{age} = 38.68$, $SD = 11.78$).

Additionally, introducing two new teachers in Wave 2 necessitated their exclusion from the comparative analysis. Consequently, the study focused on the subset of 23 teachers who contributed data across both waves of data collection. We aligned their responses over two waves with their respective ID number.

In analysing the group interviews, we employed a thematic approach that captured individual perspectives and shared visions and experiences, recognizing that the discussions reflected personal insights and collective understandings within the school contexts. This involved maintaining the group as a structural unit within each theme, allowing us to capture teachers' collective insights and shared experiences within the same school environment. To further refine our analysis, we categorized teachers based on their professional experience into novice teachers (0–5 years), mid-career teachers (6–15 years), and experienced teachers (16+ years). This categorization informed the grouping of participants, enabling us to systematically explore variations in coping strategies and well-being across different career stages. By considering factors such as experience level, age, and career transitions, we aimed to provide a nuanced understanding of how these elements influence teachers' coping mechanisms and perceptions of well-being. This approach ensured that the analysis was not solely focused on individual statements but also reflected the broader context of teacher

interactions in school. It provided a comprehensive understanding of the data, acknowledging the influence of school context on teacher experiences and coping strategies.

Instruments

The interview guidelines included questions about various topics, such as school climate, teacher and student well-being, and classroom experiences. In this article, we focus on teacher well-being and the coping strategies teachers use to navigate the daily challenges of the teaching profession. At the beginning of the interview, teachers were invited to articulate their understanding of teacher well-being. Following this, the group discussion was structured around three main themes. First, we discussed teacher well-being at the school, classroom, and individual levels. The second theme was devoted to the challenging events or situations teachers experienced at school and the strategies teachers used. The third theme encompassed potential prevention and intervention actions to foster and maintain well-being in school.

Teachers' answers to the following three questions were analysed in this study:

- How would you describe your well-being within the school environment where you teach?
- What challenging events or situations have you experienced at school that influenced your well-being?
- What strategies do you use to maintain your well-being in such situations?

After the interviews had been completed, they were transcribed and analysed using Mayring's (2015) content analysis method. The participants' responses were categorized into different themes based on the content of their statements, with the categorization carried out inductively using MAXQDA22 (2022). To analyse the responses, we first explored how teachers described their well-being within the school environment. This involved identifying common themes and patterns in their descriptions to provide an overview of the participants' various aspects of well-being. Next, we examined the challenging events or situations that

teachers reported as influencing their well-being. This analysis aimed to categorize the specific stressors mentioned, offering a comprehensive understanding of the challenges impacting teacher well-being. The coping strategies employed by teachers were analysed using a combination of deductive and inductive approaches. Initially, these strategies were divided into first-order categories and subcategories based on Zuckerman and Gagne's (2003) framework.

Additionally, second-order subcategories were identified inductively to capture nuanced strategies not covered by the existing framework. For the responses regarding what helped teachers overcome challenges added in the second wave, we focused on identifying the strategies and resources that were perceived as being most effective. This provided insights into the effectiveness of different coping strategies. During the initial wave, all coding endeavours were executed collaboratively by three researchers, fostering a unified approach and establishing a strong foundation for subsequent analyses. In the second wave, a hybrid methodology was adopted: 30% of the data underwent joint analysis to cultivate consensus among coders, while each coder independently analysed the remaining 70% to encourage diverse perspectives and minimize bias. Inter-coder reliability, calculated using Cohen's kappa, was 91.87%, indicating a high level of agreement among coders. Each strategy was coded once for each challenging event, and because coping strategies may apply to several challenges, the mentions exceeded the number of respondents, as shown in Table 3. The final categorization of coping strategies into the aggregated dimensions (Gioia, 2021) was achieved through consensus (Mayring, 2015).

Results

The findings are based on teachers' direct responses to the interview questions, with a focus on the group dynamics present in the discussions. The analysis considered the eight groups formed by teachers from different schools, allowing us to capture both individual and collective insights. Each group provided a unique perspective on the challenges and coping

strategies discussed, reflecting the shared experiences within their school environments. Participant numbers (P01–20) and wave (W1–2) are indicated with examples, e.g. P17W1 indicates an exact quote from participant number 17 in Wave 1. This notation helps in contextualizing the responses within the specific group and temporal context in which they were provided. By maintaining the group structure as a guiding framework, we ensured that the analysis highlighted individual responses and emphasized the collective themes that emerged from the group discussions.

Teachers' Coping Strategies at Work

Generally, 20 out of the 23 teachers reported good well-being levels in both data collection waves. Positive factors, such as a supportive and collaborative work environment, contribute to a sense of well-being. Negative factors, such as a lack of communication and restlessness, were identified as stressors. By understanding teachers' coping strategies, we gain insights into how individuals navigate and adapt to stressors in their professional lives (see Table 13). Building on the theoretical framework of Zuckerman and Gagne's (2003) categories, our analysis of coping strategies revealed several key themes. These categories – self-help, approach, accommodation, avoidance, and self-punishment – were used to classify the strategies teachers used to navigate and adapt to stressors in their professional lives. Among these, the self-help category was mentioned most frequently (76 mentions), with instrumental support-seeking being the most prominent strategy. This was particularly evident among novice teachers, who often rely on the experiences and advice of their more seasoned colleagues. For example, one participant noted, "When I experience something for the first time, I am very happy when I hear: 'Yes, that sometimes happens with us, it's not because you did the lesson wrong. You could try this out...'" (P10W2). Another teacher said, "I can benefit from the other teachers, that you can also copy certain things or take over teaching materials" (P10W2). In addition, after having taught for a few years, teachers put their expectations of themselves into perspective: "Just take a step back and say to yourself: 'Pfff, maybe this

lesson plan wouldn't work for someone else either'" (P07W2). The category of *approach* was also frequently mentioned by teachers (58 mentions; see Table 1). Getting into active coping with problem-solving was often mentioned by more experienced teachers in Wave 1: "Yes, I try to address it directly with them" (P20W1), as well as in Wave 2: "If I notice things where I think it's not okay, I react from my side and address it" (P13W2).

With regard to the category of *accommodation*, it can be seen that teachers accepted aspects they could not change, such as the classes or additional workload: "Afterwards you just have to accept it, that's the way it is in this class" (P18W2), and "sometimes you can do nothing about it, there's a time where we need to deal with more things" (P15W1). In the avoidance category, the subcategory other blame stands out: "If the class teacher hasn't worked with them, then I can't do anything either" (P06W1). In the category of *self-punishment*, self-focused rumination was mentioned most frequently: "I cannot stop thinking about it, I cannot sleep, and I just keep thinking about the kids; I mean, in the end, it's carried out on their backs" (P05W1).

Table 13

Teachers Applied Coping Strategies Across Two Waves

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Promoting positive
emotions

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		Humour	seeing the humorous coincidence, laughing at the funny moment	2 (9.5%)	2 (9.1%)
Total				21 (20.0%)	19 (15.7%)
Avoidance Avoidance includes mental as well as behavioral withdrawal, denial, goal substitution or blaming others (Zuckerman & Gagne, 2003)	Mental disengagement: trying to forget it	Mental disengagement	thinking about other job opportunities, no longer thinking about it	3 (23.1%)	7 (31.8%)
	Behavioural disengagement: quit trying, giving up	Behavioural disengagement	giving up, no longer trying, looking for other job opportunities, substance abuse	6 (46.2%)	6 (27.3%)
	Other blame	Other blame	blaming colleagues or the principal	2 (15.4%)	9 (40.9%)
	Denial: refusing to believe it happened, denying the reality	Denial	not believing that the situation happened	2 (15.4%)	0 (0.0%)
Total				13 (12.4%)	22 (18.2%)
Self-punishment	Self-focused rumination:	Self-focused rumination	difficulties with sleep and mental load, taking it personally and overthinking	6 (60.0%)	4 (57.1%)
Self-punishment refers to blaming oneself, greenwashing, and, to a lesser extent, suppression of competitive activities (Zuckerman & Gagne, 2003)	on and reliving the problem Self-blame: criticizing oneself, seeing oneself as the root of the problem	Self-blame	feeling that it's one's fault, thinking that somebody else would have dealt with the situation better	4 (40.0%)	3 (42.9%)
Total				10 (9.5%)	7 (5.8%)

Total mentions overall 105 (100%) 121 (100%)

* Categories highlighted in grey indicate substantial differences between the two years under study. The percentage values for subcategories are in relation to the total values of the main categories (e.g. in W2: Approach Active Coping: 10 = 37.0% when 27 = 100%). The total percentage values are in relation to the total mentions overall per measurement point (e.g. in W2: 27 = 22.3% when 121 = 100%).

Changes in Teachers' Use of Coping Strategies Over One School Year

Our analysis of coping strategies revealed changes over time. While an increase was observed in adaptive coping strategies, the data also indicated a rise in avoidance behaviours during the second wave, particularly in mental and behavioural disengagement, as well as a tendency to attribute blame to others. Despite a visible growth in adaptive coping strategies, we observed increased avoidance behaviour during the second wave, manifesting as heightened mental and behavioural disengagement and an inclination toward blaming others. Interestingly, differences in coping strategies and perceived well-being were evident among teachers within the same school. For instance, some teachers expressed feelings of uncertainty

and restlessness, with statements like, "There's a constant restlessness, an uncertainty, everything unspoken hangs in the air" (P01W1) and "My sense of well-being is not

guaranteed at our school. Integrity is being violated, which is also reflected at class level (...) my well-being is latently at risk" (P01W2). These comments highlight a sense of discomfort and vulnerability in the school environment.

Conversely, other teachers reported positive experiences and support, as reflected in statements such as, "We get on well together, I feel comfortable. We also play volleyball at lunchtime, go out for a meal together or play puzzles" (P04W2) and "I am always supported when I need something, and I feel that I can get an opinion at any time" (P05W2). In examining self-help, approach, and avoidance strategies, we observed a notable shift between the first and second waves. Initially, teachers new to the school or profession focused on gaining experience to manage daily challenges effectively. As they accumulated more experience over the year, there was a discernible shift in their approach: they began to rely more on their past experiences and were more proactive in planning their work. For instance, one teacher remarked, "Sometimes, it solves itself, and sometimes, I have to think about a different approach" (P04W2). Meanwhile, another stated, "I have now clearly defined where I work, and when I work, I never do anything for school on Sunday now" (P22W2). During the second wave, there was an increased emphasis on self-help strategies, particularly in seeking instrumental and emotional support. One teacher noted, "So now I just have my people that I talk to here" (P10W2), and another commented, "If I'm honest, it's just about getting confirmation from my colleagues that I'm not the one doing it wrong and I can always approach them about that" (P12W2).

Additionally, there was a notable decrease in mentions of ongoing professional learning. In the first wave, eight instances were recorded, compared to only one in the second wave. One teacher explained, "Then I see a course advertised at the university for teachers and try to further my education there with courses I would like to study more" (P09W1).

The Relation Between Teacher Well-Being and the Selection of Coping Strategies

In our study, we first observed a group of teachers who reported normal to high levels of perceived well-being. These teachers predominantly employed accommodation and self-help strategies, contributing positively to their mental health and job satisfaction. For example, one teacher noted, "I feel valued in this team and know that I will always receive support here" (P05W2). Another teacher said, "I simply try to approach the lessons with my rather relaxed, humorous manner" (P04W2). In contrast, we identified a group of teachers who reported low levels of perceived well-being. These teachers exhibited various coping strategies at the individual and school levels and within their classes. At the individual level, self-focused rumination was common, with teachers expressing uncertainty and needing progress in understanding their roles. This rumination often led to a lack of sleep and increased stress: "Moreover, I haven't slept well lately, thinking, yes, what is it? What is my role in this story? Where can I do something to change the climate?" (P02W2).

At the school level, avoidance strategies, such as behavioural disengagement, were prevalent. Teachers expressed reluctance to give their full effort in small group settings as a means of self-protection: "I'm thrilled to give 100 per cent, but I don't give 100 per cent in a small group, I just don't do that anymore because I want to protect myself there too" (P01W2). Additionally, some teachers tended to blame others for the challenging work environment, citing a lack of recognition from leadership: "They don't see that at all; they just see what they want to see" (P01W2). Mental disengagement was also evident, with some teachers contemplating quitting without notice if conditions did not improve: "Because I don't know either, I've already thought about whether I should just quit without notice if things continue like this" (P02W2). Substance use emerged as a coping mechanism for some, with reports of increased alcohol consumption: "For me, it's the alcohol that helps me when I'm in over my head" (P01W2). However, some teachers with low perceived well-being employed reframing as a coping strategy in their classes, viewing challenges as opportunities for growth: "It

doesn't have any effect on my teaching, it doesn't influence or anything. I look at it as an opportunity" (P02W2). As noted by the teachers, the presence of different groups within the school highlights the diverse perceptions and coping mechanisms at play: "There are different groups that perceive the world differently in their bubbles" (P03W2). These observations highlight the diversity in coping strategies and well-being perceptions among teachers within the same school environment.

Discussion

The purpose of our study was to identify teachers' coping strategies, how these strategies change over time and how these strategies are linked to teacher well-being in the context of work-related challenges. Current research has pointed out that teacher well-being has decreased indicating high levels of work-related stress, anxiety and depression being reported by teachers (Ozturk et al., 2024). This crisis is also visible by an increasing teacher attrition. According to Ozturk et al (2024), most of the existing literature on teacher well-being is grounded on deficit-based definitions or frameworks of poor mental health, overlooking alternative discourses such as teacher autonomy or positive emotions. Our study contributes to a better understanding of teacher well-being by analysing both adaptive and maladaptive coping strategies and their changes over time. This approach is in line with Ozturk et al.'s (2024) call for a more holistic view of teacher well-being. By exploring the relationship between coping strategies and well-being, our research adds to the emerging body of work that seeks to provide a more nuanced understanding of teacher well-being.

Coping Strategies Used by Teachers

We identified various ways through which teachers navigate challenges encountered in the school environment. The identified strategies can be classified into adaptive and maladaptive strategies. Teachers frequently used accommodation and self-help strategies to

address work-related challenges. These included seeking instrumental and emotional support from colleagues and school management, which aligns with previous research emphasizing the importance of social support mechanisms in teacher well-being (Skaalvik & Skaalvik, 2015). Despite the common use of adaptative strategies, some maladaptive coping strategies were also identified. These included avoidance behaviours, such as mental and behavioural disengagement, and the tendency to blame others. The use of such strategies are consistent with previous findings linking maladaptive coping to increased stress and reduces well-being among teachers (Parker & Martin, 2009; Seidman & Zager, 1991).

Changes in Coping Strategies Over Time

Our longitudinal approach allowed us to observe how teachers' coping strategies changed over two school years, particularly in the context of teachers' increasing experience. During the second wave of our study, we found an increase in adaptive coping strategies. Teachers placed more emphasis on self-help strategies, particularly in seeking instrumental and emotional support. This period was characterised by a supportive environment in which teachers felt more comfortable talking about classroom challenges, suggesting an improvement in their professional relationships and communication skills (Beltman & Poulton, 2019). As their experience grew, teachers relied more heavily on their past experiences and were more willing to plan their work (Beltman & Poulton, 2019). This shift suggests a change in the development of self-confidence and competence over time. However, we also observed an increase in avoidance behaviour during the second wave, which included mental and behavioural disengagement and a tendency to blame others. This inappropriate strategy was particularly evident when teachers faced communication and support issues in the school environment. These included a reluctance to ask questions and seek help due to the perceived chain of command, the lack of a school culture that encourages teachers to report problems, and the limited availability of school management to address important matters

such as grading systems, despite the generally good cooperation among teachers. This finding could possibly be consistent with Kamtsios' (2019) finding that the dimensions of burnout change as teachers progress through the career stages , with emotional exhaustion possibly increasing at later stages.

Relationship Between Well-being and Coping Strategies

The present study reveals a certain link between teachers' well-being and their coping mechanisms. The results of the study showed that teachers who felt well about themselves often used adaptive coping strategies such as adjustment and self-help. The strategies helped them to view the challenges as solvable and thus improve their teaching practice (Hascher et al., 2023). Another factor that helped increase teachers' well-being was the presence of a supportive environment in the school system to which the teachers belonged (Skaalvik & Skaalvik, 2015). On the other hand, teachers with low well-being resorted to coping mechanisms that were not adaptive, including avoidance and rumination. These strategies were associated with stress and hopelessness, demonstrating how unhealthy coping mechanisms affect teacher well-being (Parker and Martin, 2009; Seidman and Zager, 1991). This implies that there is a need to develop interventions tailored to the needs of teachers with low well-being.

Our study highlights several key factors that contribute to maintaining teacher well-being. First, a supportive school environment . First, a supportive school environment proved to be a crucial element. Teachers who reported high levels of well-being often emphasised the importance of a supportive school climate, which included feeling valued by school leadership and having opportunities to communicate openly with colleagues (Skaalvik & Skaalvik, 2015).

Equally important were adaptive coping strategies, particularly approaches that involved adjustment and self-help. Teachers who were able to reframe challenges positively

and seek support when needed were better able to maintain their well-being (Parker & Martin, 2009). Professional development also played an important role. As teachers gained more experience and developed their skills, they reported feeling more confident in dealing with challenges, which had a positive impact on their well-being (Beltman & Poulton, 2019). Finally, creating an environment of trust in which teachers could solve problems together, seek advice, and benefit from their colleagues' experience was crucial to effective coping and improved well-being (Soini et al., 2010; Tsuyuguchy, 2023). These interrelated factors work together to improve teacher well-being.

Strengths, Limitations, and Future Research

This study contributes significantly to our understanding of teacher well-being by focusing on the voices of teachers and the role of school environment. Its longitudinal design allowed for the observation of changes in coping strategies over time, thus contributing to a more comprehensive understanding of teacher well-being. The study highlights the critical role of schools and school leaders in promoting teacher well-being through collaborative structures that foster connectedness, such as every rituals and shared working hours for collaboration (Mulford, 2003). By acknowledging the developmental nature of teacher well-being, this study highlights how changes in perceptions of school environments may affect teacher well-being.

However, there are some limitations to keep in mind when interpreting our findings. First, the relatively small and unrepresentative sample size limits the generalisability of our results. While our qualitative longitudinal design provided insights into the changes of strategies over time, a larger sample size could reveal a broader range of challenges and additional coping strategies. Second, conducting group discussions only once a year limited our ability to capture fluctuations in teachers' experiences throughout the school year. Also, the observed increase in adaptive strategies could be due to greater awareness of the topic

after the initial interviews and not just a change in coping strategies. Furthermore, while group discussions encouraged collaborative sharing, they could have been influenced by dominant voices or social desirability. For example, dominant personalities can play a role in the dialogue, and may have acted as barriers to allow other voices to be heard (Krumpal, 2013). Additionally, participants may have censored their responses to align with socially desirable norms (Krumpal, 2013). Whilst we attempted to explore indirect effects on long-term well-being outcomes (Karlsen et al., 2006; Rajesh et al., 2022), further research is needed to fully understand these complex dynamics from teachers' perspectives.

Future studies could address these limitations by using larger, more representative samples to improve generalizability (Creswell & Poth, 2018). This is particularly important because teachers' coping strategies may be different depending on many factors such as demographic factors, contextual factors, teaching experience, school environment, and cultural expectations (Skaalvik & Skaalvik, 2021). More frequent data collection could capture more nuanced changes in coping strategies over the course of the school year. It is important to note that coping strategies are not fixed and tend to change depending on the stressors and resources that are present at different points in time (Skaalvik & Skaalvik, 2021). Combining one-on-one interviews and group discussions could reduce potential group effects. Expanding the focus to include primary school teachers and comparing findings across different educational levels may provide a more comprehensive understanding of teacher well-being. The impact of adaptive coping strategies on teachers' turnover and students' achievement in the long-term and the efficacy of interventions that aim at enhancing the use of adaptive coping strategies in teachers research would be valuable direction for future research.

Practical Implications

The research we have conducted contributes to the existing literature by highlighting the dynamic nature of teacher's well-being and their coping strategies over time. It also brings attention to the central role of the school environment for teacher well-being and underlines the importance to develop adaptive coping strategies over the course of their careers (Beltman & Poulton, 2019; Skaalvik & Skaalvik, 2015). The present study also reveals how schools affect teacher well-being and how it is influenced by the conditions that prevail in schools. Our findings also show that a positive and constructive school climate can enhance the well-being of teachers. For instance, the findings show that teachers who rate their well-being as low employ different coping strategies than those who rate their well-being as high. Therefore, it requires targeted interventions and support systems to meet these needs. Some strategies that can help in enhancing teacher well-being include: encouraging collaborative problem-solving, emotional support, and recognition of teachers' contributions.

These approaches strengthen teacher resilience and thus help to create a positive school culture. Understanding the multifaceted dimensions of teacher well-being and the range of coping strategies may provide insights for developing appropriate forms of support in schools. However, it should be noted that schools operate differently and a one-size fits all solutions do not work. Schools should conduct need assessments and work with teachers to develop specific, achievable measures tailored to their own needs. School leaders should know that subgroups can develop a culture of collaboration through social contagion processes, which have an impact on job satisfaction and work engagement (Meredith et al., 2023). Transformational leaders who foster a sense of belonging can facilitate organizational change and improve team well-being (Paganing et al., 2023)

However, there are certain factors which can act as constraints and affect the development of collaborative work culture such as external accountability and prescribed learning outcomes (Ibrahim, 2022). In light of our findings, our work is contributing to the

identification of better ways in supporting teachers during their initial training and professional development. As the concept of teacher well-being continues to change, its understanding enables schools to develop targeted interventions and coping strategies for teachers throughout their careers (Hepburn et al., 2021).

Conclusion

In this two-wave study, we examined teachers' experiences of their school environment, coping strategies, and teacher well-being through group interviews. Our findings demonstrated that teachers' perception of their school environment plays a crucial role in their choice of coping strategies, with these experiences varying across different career stages. Whilst teachers who perceived their environment negatively tended towards maladaptive strategies, those working in better-perceived environment showed an increase in adaptive coping strategies, which contributed to their well-being. This pattern varied across career phases, with novice teachers showing distinct patterns of strategy adoption compared to their more experienced teachers, suggesting that professional experience plays a crucial role in how teachers respond to their environments.

The results support previous research that teaching is not simply an individual endeavour but is deeply embedded within the institutional context and professional development trajectory. Our two-wave approach has helped to illuminate how these experiences unfold over time, providing a more nuanced understanding of teachers' perceived well-being and their coping strategies across different career stages.

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Chapter 9: Pre-Service Teacher Resilience

The transition from teacher education to the teaching profession is widely recognized as a critical phase in the development of educators (Mansfield, 2021; McGrew et al., 2016; Wettstein et al., 2021). This period is characterized by high levels of stress (Reynolds, 2023), uncertainty (Peixoto et al., 2018), and adaptation pressure (Mansfield & Beltman, 2019), underscoring the importance of fostering resilience among pre-service teachers. Research indicates that these early experiences often lead to "reality shock", where idealized expectations of teaching clash with the complex realities of the classroom, leading to stress, self-doubt, and decreased motivation (Dicke et al., 2015; Kim & Cho, 2014; Squires et al., 2022).

Given these challenges, resilience has emerged as a foundational competency in teacher education (Bagdžiūnienė et al., 2023; Mansfield, 2021). Studies show that teachers with well-developed self-regulation skills (Mansfield et al., 2016) and sufficient personal resources (Zhang & Luo, 2023) are better equipped to navigate the multifaceted demands of the profession (Beltman & Mansfield, 2018), recover from setbacks, and sustain long-term commitment (Bagdžiūnienė et al., 2023; Mansfield et al., 2012). However, resilience is not merely an individual trait; it is shaped by the interplay of personal, social, and systemic factors (Gu & Day, 2007). As the analysis of teacher resilience in Chapter 5 shows, effective resilience-building requires a holistic approach that integrates psychological and emotional resources with structural support mechanisms, such as a positive school environment and collegial networks. This interplay between individual and environmental factors extends beyond the educational context, informing resilience-building approaches across diverse settings.

The increasing mental health challenges experienced by pre-service teachers reinforce the need to understand and develop resilience in educational settings (García-Martínez et al., 2022; O'Brien et al., 2020; Squires et al., 2022). Research suggests that pre-service teachers face significant psychological stressors during their preparation for the profession, making resilience-

building particularly crucial during this formative period (Correia, 2021; García-Martínez et al., 2022; Mansfield et al., 2020).

In summary, promoting resilience in pre-service teachers is not an optional add-on but a foundational element of teacher education. By addressing both individual and systemic factors, teacher education programmes can better prepare future educators to meet the demands of their profession, laying the groundwork for sustainable and fulfilling teaching careers.

Theoretical Foundations

Resilience in pre-service teacher education is increasingly understood as a dynamic process shaped by psychological, social, and contextual factors (Masten, 2014). Traditionally viewed as the ability to "bounce back" from adversity, contemporary research understands resilience as a proactive and adaptive process that develops through the interaction of personal resources and external support mechanisms (Chen, 2024; Luthar et al., 2000). This perspective is in line with the challenges faced by pre-service teachers, who must balance complex demands while developing a professional identity.

Self-determination theory (SDT), developed by Deci and Ryan (2000), provides a foundational framework for understanding resilience in this context. SDT emphasizes three basic psychological needs – autonomy, competence, and relatedness – as critical to motivation, well-being, and resilience. For pre-service teachers, fostering autonomy through reflective practices, enhancing competence through experiential learning, and building relatedness through mentorship can significantly bolster their ability to adapt and thrive (Day & Gu, 2014; Kangas-Dick & O'Shaughnessy, 2020).

Similarly, the social-ecological model of resilience underscores the importance of supportive social networks and institutional resources in shaping resilience (Ungar, 2011). For pre-service teachers, robust support systems, including peer collaboration and a positive school climate, are essential for buffering stress and fostering adaptive coping strategies (Johnson et al., 2014). Recent applications of this model in teacher education suggest that cultivating these

networks during training can mitigate the effects of reality shock, particularly during the critical transition from theory to practice (Chen, 2024).

Challenges in the Pre-Service Phase

The pre-service phase of teacher education represents a critical period marked by significant challenges that test pre-service teachers' resilience. A central challenge during this phase is 'reality shock,' defined by Kim and Cho (2014) as the gap between idealized expectations of teaching and the complexities of real-world classrooms. This phenomenon often manifests during the practicum phase, when pre-service teachers encounter challenges such as classroom management, student behaviour, and balancing instructional responsibilities with limited resources (Squires et al., 2022). For many, this phase triggers stress (Klassen et al., 2013), self-doubt (Mena et al., 2023), and a decline in motivation (García-Martínez et al., 2022).

The emotional and psychological demands of teaching prove particularly challenging for pre-service teachers, who often face these complexities for the first time during their initial training phases. Studies consistently show that pre-service teachers report significantly higher levels of stress than the general population, with the practicum phase identified as particularly formative (Klassen et al., 2013). The intensive workload associated with teacher training, combined with underdeveloped self-regulation skills, further compounds these challenges. Keller-Schneider and Hericks (2014) identified self-regulation and personal resources as critical to managing the inherent stress of this phase, yet many pre-service teachers struggle to achieve this balance (Horgan et al., 2018; Ji et al., 2022).

Reality Shock

Reality shock frequently manifests during the practicum phase, when pre-service teachers encounter challenges such as classroom management, student behaviour, and balancing instructional responsibilities within constrained resources (Squires et al., 2022). For many, this phase triggers stress (Klassen et al., 2013), self-doubt (Mena et al., 2023), and a decline in

motivation (García-Martínez et al., 2022), underscoring the urgent need for targeted interventions to support their transition from theory to practice.

Research highlights the significant impact of reality shock on pre-service teachers. For instance, Dicke et al. (2015) demonstrated that beginning teachers often feel unprepared to handle classroom disruptions. Classroom management training has been shown to improve not only teachers' skills but also their overall well-being, thereby mitigating some of the adverse effects of reality shock (Mouw et al., 2020). Additionally, Hascher et al. (2004) emphasized the importance of the practicum experience, noting that the quality of this phase can profoundly impact long-term learning outcomes. However, poorly structured practicum experiences can amplify the challenges of reality shock, leaving pre-service teachers ill-equipped for the realities of teaching (Alemdag & Simsek, 2017). Addressing these challenges requires comprehensive preparation that includes both practical training and emotional support.

Professional Identity Formation

A crucial component of coping with reality shock is the development of a strong professional identity. Beauchamp and Thomas (2009) described this process as dynamic and iterative, involving continuous negotiation between personal values and beliefs and the demands of the teaching profession. Identity formation often involves moments of tension and reflection as aspiring educators reconcile their aspirations with the realities they encounter in the classroom.

The practicum serves as a central context for professional identity formation. Zhang et al. (2018) and Sinclair (2008) identified the practicum as an essential social and professional space where pre-service teachers engage in meaningful interactions that shape their evolving identity. Meyer et al. (2023) further explored this process in a study of 490 pre-service teachers, revealing diverse identity profiles that reflect the interplay between individual perceptions and institutional factors. These findings underline the importance of tailored teacher education programmes that support the unique identity trajectories of pre-service teachers.

The relationship between professional identity and well-being also warrants attention. Hui et al. (2024) demonstrated that a strong professional identity positively influences pre-service teachers' well-being by enhancing emotion regulation and self-esteem. This relationship underscores the role of identity formation in fostering resilience, enabling pre-service teachers to manage reality shock more effectively and maintain motivation.

Research indicates that professional identity development is not solely an individual process but is strongly influenced by contextual and relational factors. Supportive practicum environments characterized by effective mentorship, collegial collaboration, and constructive feedback play a critical role in fostering confidence and resilience during this formative period.

Griffiths et al. (2019) highlighted the belief that positive practicum settings, where pre-service teachers feel valued and supported, enhance professional identity development and mitigate the effects of reality shock. Conversely, unsupportive settings can exacerbate feelings of isolation and self-doubt, thereby hindering professional growth. Mentorship also emerges as a key factor. Izadinia (2018) found that mentor teachers who provide emotional and instructional support enable pre-service teachers to experiment, take risks, and develop a sense of agency, strengthening their professional identity.

Collegial collaboration further supports identity development. Rajuan et al. (2007) observed that pre-service teachers benefit significantly from shared reflection and problem-solving within supportive peer networks. More recently, Rushton et al. (2023) examined pre-service secondary school teachers as they navigated their professional growth during the COVID-19 pandemic. Their study revealed that collaborative practices across diverse communities and modes of interaction were integral to identity development, demonstrating the value of relational support in fostering resilience and adaptability.

PLCs also provide structured opportunities for collaboration and shared learning. These communities provide a platform for pre-service teachers to engage in collective problem-solving and reflection, cultivating a sense of belonging and professional confidence. Such initiatives

underscore the importance of fostering relational and contextual support mechanisms alongside individual resilience-building efforts (Izadinia, 2018).

The challenges of reality shock and the process of professional identity development are deeply intertwined, shaping the resilience and adaptability of pre-service teachers. Reality shock acts as a catalyst for reflection and growth, prompting pre-service teachers to reconcile their aspirations with the realities of teaching. The development of a robust professional identity, influenced by mentorship, collaboration, and supportive practicum environments, enables aspiring educators to face these challenges with greater confidence and resilience.

By addressing both the individual and relational dimensions of identity formation, teacher education programmes can better prepare pre-service teachers for the demands of the profession. Integrating strategies that support professional identity development into teacher preparation curricula is essential to fostering resilience, reducing attrition, and ensuring the long-term well-being of educators as they transition into their roles.

Workload Demands and Time Management

The transition to teaching presents significant workload challenges that can overwhelm pre-service teachers during their practicum experiences. Research consistently shows that pre-service teachers face mounting pressures from planning requirements, assessment responsibilities, and reflective practice obligations during their training phase (Baeriswyl et al., 2022; Keller-Schneider et al., 2020; Ma et al., 2022; Sandmeier et al., 2022). These demands intersect with broader patterns of work intensification in education, where increased paperwork and heightened accountability measures place additional burdens on both pre-service and practising teachers (Creagh et al., 2023; Fitzgerald et al., 2018).

The concept of "time poverty," highlighted by Creagh et al. (2023), emerges as a critical factor affecting pre-service teachers' professional development and well-being. This phenomenon occurs when the combined demands of lesson planning, classroom management, and administrative tasks overwhelm pre-service teachers' ability to maintain a sustainable work-life

balance. The psychological toll of these workload pressures often compounds the emotional challenges identified by Klassen et al. (2013), potentially exacerbating feelings of stress and inadequacy during the practicum phase.

These workload challenges particularly impact pre-service teachers' ability to engage in meaningful reflection and professional growth. As shown in research on professional identity development (Beauchamp & Thomas, 2009), the time required for deep reflection and identity formation often competes with immediate practical demands. This tension between immediate tasks and professional development needs creates additional stress for pre-service teachers who are already struggling with reality shock and classroom management challenges.

The institutional context, as noted by Griffiths et al. (2019), plays a crucial role in either mitigating or exacerbating these workload pressures. Pre-service teachers in supportive practicum environments, characterized by effective mentorship and reasonable expectations, are better equipped to manage their workload while maintaining their well-being. Conversely, environments that lack adequate support structures can amplify the negative effects of work intensification, potentially compromising both teaching quality and personal resilience.

Classroom Management

The development of effective classroom management skills emerges as a crucial challenge during the pre-service phase, particularly as teachers work to build their competencies and self-efficacy in this domain. Research by Keller-Schneider et al. (2020) and Wettstein et al. (2021) showed that classroom management proficiency significantly influenced both teacher confidence and student outcomes. This challenge becomes especially salient during the practicum phase, where pre-service teachers must translate theoretical knowledge into practical classroom strategies while managing their own emotional responses to classroom dynamics.

Teacher education programmes play a fundamental role in shaping how pre-service teachers approach classroom management. Girardet and Berger (2018) shed light on how these programmes influence not only practical skills but also the underlying beliefs and attitudes that

guide classroom management decisions. This finding aligns with previous research on reality shock, suggesting that the gap between theoretical preparation and classroom reality often manifests most prominently in classroom management challenges. The quality of practicum experiences particularly affects how pre-service teachers develop their management strategies, with well-structured observations and guided reflection opportunities proving essential for professional growth.

Observing exemplary teaching practices serves as a powerful tool for developing classroom management competencies. Coulter et al. (2019) found that when pre-service teachers observe high-quality lessons, they develop a stronger professional identity and enhanced critical thinking skills. These structured observations allow pre-service teachers to witness effective management strategies in action, bridging the gap between theoretical understanding and practical implementation. This process of observation and reflection helps mitigate the effects of reality shock by providing concrete models of successful classroom management.

Contemporary classroom management challenges extend beyond traditional behavioural concerns to include digital and media integration. Botturi's (2019) research revealed that even a short course in digital and media literacy could significantly impact how pre-service teachers approach technology integration in their classroom management strategies. This finding is especially relevant as modern classrooms increasingly incorporate digital tools, requiring teachers to develop management strategies that address both physical and digital learning environments.

The diversity of pre-service teachers' backgrounds also influences their approach to classroom management challenges. Troesch et al. (2023) highlighted that second-career pre-service teachers often bring unique resources and perspectives to classroom management and experience practicum demands differently from their first-career counterparts. These varying experiences and backgrounds contribute to the development of diverse management styles and

coping strategies, enriching the collective understanding of effective classroom management practices.

The intersection of classroom management challenges and professional identity development is particularly evident during the practicum phase. As noted earlier, Beauchamp and Thomas (2009) found that pre-service teachers continuously negotiate between their personal values, professional expectations, and the practical demands of classroom management. This negotiation process, while potentially stressful, serves as a crucial catalyst for professional growth and identity formation. Supportive practicum environments, characterized by effective mentorship and opportunities for structured reflection, help pre-service teachers develop both their management skills and professional confidence.

Emotional Demands

The emotional landscape of teaching presents significant challenges for pre-service teachers as they navigate their early professional experiences. Research has consistently demonstrated that teachers, including those in their pre-service phase, face considerable emotional demands that can lead to exhaustion and burnout. Baeriswyl et al. (2021) and Squillaci Lanners (2020) documented high levels of emotional exhaustion among both pre-service and special education teachers, highlighting the universal nature of these challenges across different teaching contexts.

The sources of emotional strain are multifaceted and interconnected. Baeriswyl et al. (2021) and Maas et al. (2021) identified several key factors that contributed to emotional exhaustion: the intensity of daily workload, challenges in managing student behaviour, complex interactions with parents, and persistent time pressures. These stressors often occur simultaneously during the practicum phase, creating a particularly challenging emotional environment for pre-service teachers who are still developing their professional competencies.

The emotional dynamics become especially complex during team teaching experiences. De Zordo et al. (2019) concluded that pre-service teachers' emotional responses to team

practicums are deeply influenced by their underlying beliefs about teaching and their capacity for teamwork. This finding underscores how personal beliefs and collaborative skills shape emotional experiences during professional training, adding another layer to the already complex emotional demands of classroom teaching.

Coping strategies emerge as crucial mediators in managing these emotional challenges. A recent study by Özdemir et al. (2024) provided insights into the relationship between emotional regulation, resilience, and well-being among pre-service teachers. Their research with 325 university students revealed that emotional regulation and resilience together explained 43% of the variance in subjective well-being, with resilience serving as a significant mediator between emotional regulation and well-being. These findings highlight the critical role of developing both emotional regulation and resilience during teacher preparation. Interestingly, Baeriswyl et al. (2021) and Sandmeier et al. (2022) found that some pre-service teachers responded to workload pressures by extending their working hours. While this strategy may temporarily address immediate demands, it raises concerns about long-term sustainability and well-being. This pattern is directly related to the concept of "time poverty" discussed earlier and its implications for teacher wellness.

The role of institutional support in managing emotional demands cannot be overstated. Maas et al. (2021) and Sandmeier et al. (2022) emphasized how social support from school principals and workplace autonomy can serve as protective factors against emotional exhaustion. This finding aligns with the chapter's broader discussion of institutional factors in teacher resilience, highlighting how supportive leadership and professional agency contribute to emotional well-being.

These emotional demands intersect with the previously discussed challenges of reality shock and professional identity development. As pre-service teachers struggle to reconcile their idealized expectations with classroom realities, they must navigate a complex emotional terrain.

This emotional journey becomes an integral part of their professional identity formation and influences how they develop resilience and coping mechanisms.

The combination of high emotional demands and developing professional competencies creates a particularly vulnerable period for pre-service teachers. During this phase, the emotional challenges identified by Baeriswyl et al. (2021) can either catalyze professional growth or contribute to early career burnout. This dichotomy highlights the importance of developing robust support systems and effective coping strategies during teacher education programmes.

Understanding these emotional demands within the broader context of pre-service teacher development reveals the intricate relationship between emotional well-being and professional growth. The research suggests that addressing emotional challenges requires a multifaceted approach that combines individual coping strategies, institutional support, and professional development opportunities. This comprehensive approach is consistent with the chapter's emphasis on both personal and systemic factors in fostering teacher resilience.

Institutional and Systemic Factors Influencing Pre-Service Teacher Resilience

The understanding of resilience in pre-service teachers has evolved significantly in recent years, moving beyond a view of resilience as a purely personal characteristic. Contemporary research recognizes resilience as deeply embedded in institutional and systemic contexts, with studies highlighting how school environments and support systems fundamentally shape teachers' ability to navigate professional challenges. This more nuanced understanding emerges from a growing body of research that examines how contextual factors influence teacher development and resilience.

From Individual to Systemic Perspectives

Johnson et al. (2014) provided a valuable framework for understanding early-career teacher resilience, emphasizing the need for a contextualized social theory approach. This framework helps explain how resilience develops through complex interactions between individual teachers and their professional environments. Price and McCallum's (2015) ecological

perspective provides a valuable framework for understanding how various systemic levels influence teacher well-being, emphasizing that resilience develops through the dynamic interaction between individuals and their professional environments. Building on this foundation, Kangas-Dick and O'Shaughnessy (2020) demonstrated that interventions targeting contextual factors and school-level programmes show particular promise in promoting teacher resilience, suggesting that institutional support plays a crucial role in teacher development. Recent studies have deepened the understanding of how resilience develops through relational connections. Le Cornu (2009) and Papatraianou et al. (2018) found that resilience flourishes when pre-service teachers establish strong professional relationships and develop a deep understanding of their teaching context. These findings suggest that resilience is not simply an individual characteristic but rather emerges through meaningful interactions within supportive professional environments.

Institutional Structures

Educational institutions play a pivotal role in either fostering or inhibiting the resilience of pre-service teachers. As Gu and Day (2007) argued, the development of resilience depends not only on personal attributes but also on external factors such as school policies, leadership practices, and resource availability. Addimando's (2019) study in Switzerland provided evidence of this relationship, showing that positive working conditions were strongly correlated with increased work engagement and the implementation of diverse teaching practices. When institutions fail to provide adequate support, pre-service teachers encounter additional stressors that compound the challenges of transitioning into the profession.

The impact of institutional support became particularly evident during the COVID-19 pandemic, which created unprecedented challenges for pre-service teachers. Fokkens-Bruinsma et al. (2021) documented how the pandemic affected both personal resources and teaching conditions, highlighting the critical importance of robust institutional support systems during periods of significant disruption. This experience underscores how external challenges can

simultaneously affect multiple aspects of teacher preparation, from practical teaching experience to emotional well-being.

Cultural Context and Systemic Challenges

The cultural and social context in which pre-service teachers work adds to the complexity of resilience development. Beltman et al. (2011) emphasized that resilience is inherently contextual and varies significantly across different regions and educational systems. In environments where teacher autonomy is restricted (Beltman, 2021; Corcoran & O’Flaherty, 2022; Sandmeier et al., 2022), pre-service teachers may find themselves constrained by systemic factors that limit their ability to respond flexibly to classroom challenges. Conversely, educational systems that prioritize teacher agency and provide supportive environments foster greater adaptability and professional growth (Rönnau-Böse, 2021; Sandmeier et al., 2022; Skaalvik & Skaalvik, 2015; Wettstein et al., 2023).

Research on effective interventions provides valuable insights into how institutions can better support pre-service teacher resilience. Kangas-Dick and O’Shaughnessy (2020) found that interventions targeting contextual factors and school-level integration showed the most promise in promoting teacher resilience. This finding aligns with Howard and Johnson’s (2004) critique of approaches that overemphasize individual responsibility while neglecting structural issues such as excessive workload, insufficient resources, and unsupportive leadership.

Creating a Supportive School Environment

Creating supportive school environments has become essential to fostering resilience among pre-service teachers. Recent research has demonstrated that schools characterized by collaborative cultures (Meredith et al., 2023), strong leadership (Granville-Chapman et al., 2024), and robust support systems (Kelleci Alkan et al., 2024) create conditions in which teachers can thrive. PLCs play a particularly vital role, offering platforms for shared reflection and problem-solving that reduce isolation and promote collective learning (Vangrieken et al., 2015). Similarly, mentorship programmes that connect pre-service teachers with experienced educators provide

crucial guidance and emotional support during the challenging transition from theory to practice (Izadinia, 2018).

Organizational interventions, such as health-promoting school programmes, have shown promise in addressing these systemic challenges (Betschart et al., 2022). These interventions recognize that student well-being does not exist in isolation but emerges from the complex interplay of individual, social, and institutional factors. By taking a whole-school approach, such programmes can create supportive environments that foster positive health outcomes through multiple reinforcing channels. For instance, Ungar et al. (2017) found that schools adopting a health-promoting framework successfully reduced teacher burnout while enhancing overall well-being through integrated support approaches. These findings underscore how institutional initiatives can simultaneously address both individual and collective needs.

Moving forward requires recognizing resilience as a dynamic process shaped by the interaction between teachers and their professional contexts rather than viewing it as solely an individual trait. This understanding calls for a holistic approach that addresses both personal competencies and structural challenges. Educational institutions need to create environments that nurture resilience at multiple levels and implement comprehensive support systems that acknowledge the complex interplay between individual and systemic factors in teacher development.

Resilience-Building Programmes in Teacher Education

Resilience-building programmes are increasingly recognized as an essential component of teacher education. They address the significant challenges faced by pre-service teachers and equip them with the skills needed to navigate the complexities of the teaching profession. These programmes have a dual focus, emphasizing individual resilience through skill-building such as emotional regulation, problem-solving, and self-efficacy while also promoting systemic support mechanisms, including peer collaboration and institutional initiatives. Research highlights the value of integrating theoretical foundations with practical applications to ensure that pre-service

teachers are prepared for the realities of the classroom (Görich, 2023; Kangas-Dick & O'Shaughnessy, 2020).

A range of resilience-building initiatives has been developed, each with unique approaches and outcomes. The following table provides an overview of key programmes, detailing their methodologies, outcomes, and limitations (see Appendix A for additional international programmes). These programmes collectively underscore the importance of comprehensive strategies that integrate personal skills development with contextual support.

Table 14

Resilience-Building Initiatives

Programme	Focus areas	Methodology	Outcomes	Limitations
RefueL-Resilienzprogramm (Görich, 2023)	Resilience and self-efficacy in managing occupational stress	Empirical study with control and experimental groups; resilience block seminars	Significant reduction in burnout, improved self-efficacy post-intervention	Small, homogeneous sample; no long-term follow-up
Gestärkt für den Lehrberuf (Çelebi et al., 2014)	Professional self-efficacy and self-regulation with strengths-deficit approach	Quasi-experimental study ($n = 293$) with three groups: strengths, deficits, combined approach	Increased self-efficacy and self-regulation, particularly in combined approach group	No long-term tracking; self-selected sample may skew results towards more resilient participants
Potsdamer Trainingsmodell (Schaarschmidt & Kieschke, 2007)	Behaviour pattern management, problem-solving, and self-management skills	Modules on diagnostics (AVEM), practical skills, and relaxation techniques	Reduced burnout-associated risk patterns, improved social-communication skills	Limited resource orientation; insufficient statistical validation
Förderung der berufsspezifischen Selbstwirksamkeitserwartung (Eder-Karavaya et al., 2021)	Teacher self-efficacy via Bandura's sources of efficacy	Four-week intervention based on performance, vicarious experience, verbal persuasion, and emotional states	Improved teaching self-efficacy and stress management	Short duration, narrow focus on self-efficacy without addressing broader resilience dimensions

BRiTE-Programme	Resilience via self-	Five online	Positive effects on	Limited social
Mansfield et al. (2021)	efficacy, coping	modules with	resilience;	interaction in

Programme	Focus areas	Methodology	Outcomes	Limitations
	strategies, and professional identity	simulations, case studies, and workshops	flexible self-paced learning.	online format; lack of longitudinal validation
Seminarkonzept (Jentsch et al., 2023)	Social-emotional skills, especially emotional awareness and conflict management	Thirteen sessions combining theory and practice on emotional awareness and cognitive reappraisal	Enhanced emotional awareness and reappraisal skills	Small sample size; no follow-up on long-term effects; mixed conflict management results
Study by Lohner and Aprea (2021)	Resilience journaling for academic challenge management	Pre-post design evaluating journaling on resilience and life satisfaction	Increased resilience; reflective practice benefits	Limited to general university students; no control group; not specific to teaching context

Table 14 illustrates the diversity of resilience-building approaches, highlighting the potential of these programmes to reduce burnout, improve self-efficacy, and enhance social-emotional competencies. However, these initiatives are not without limitations, such as short intervention periods, limited generalizability, and an insufficient focus on systemic factors. The following section examines these criticisms in more detail.

Limitations of Resilience-Building Programmes

Despite their promise, resilience-building programmes in teacher education face several challenges that require refinement. A common criticism is their overemphasis on individual responsibility. By focusing on personal skills, many programmes risk implying that resilience is the sole responsibility of the teacher, neglecting systemic stressors such as excessive workloads, inadequate resources, and restrictive policies. Without addressing these broader issues, the effectiveness of resilience programmes is inherently constrained. Researchers have argued that resilience should be conceptualized as a dynamic interplay between individual capacities and supportive environments (Beltman et al., 2011; Howard & Johnson, 2004).

Another key limitation is the short-term nature of many interventions. Programmes often produce immediate benefits, such as reduced stress or improved emotional regulation, but these

effects often diminish over time without sustained reinforcement. Long-term studies suggest that ongoing support, such as booster sessions or extended training, is needed to ensure that resilience skills remain effective in the face of evolving challenges (Beltman et al., 2018; Görich, 2019).

Participant selection is another concern. Resilience programmes often attract self-selected individuals who are already motivated or predisposed to benefit from such interventions. This self-selection introduces a sampling bias that limits the generalizability of the findings. Moreover, the variability in how resilience is defined and measured across studies makes comparisons difficult and undermines the establishment of standardized best practices. Programmes often emphasize different dimensions of resilience, such as emotional regulation, self-efficacy, and social support, making it difficult to generalize conclusions across diverse contexts (Lohner & Aprea, 2021).

Finally, the cultural adaptability of resilience programmes remains underexplored. Initiatives designed in specific cultural settings may not align with the values, norms, and systemic challenges of other regions. Researchers have stressed the importance of tailoring programmes to regional contexts to ensure their relevance and efficacy (Rönnau-Böse, 2021). In order to address these limitations, future resilience-building efforts must adopt a more integrated, sustained, and context-sensitive approach.

Towards a Holistic Approach to Resilience

Improving resilience-building programmes requires a comprehensive strategy that balances individual, systemic, and cultural dimensions. One positive approach would be to embed resilience as a core element of teacher education curricula. Rather than offering isolated workshops, resilience training should be integrated throughout the entire professional preparation process. Skills such as emotional regulation, stress management, and problem-solving should be progressively developed through experiential learning, reflective practice, and classroom simulations. Such an approach would ensure that pre-service teachers do not view resilience as an ancillary skill but as a fundamental professional competency (Mansfield et al., 2016).

In addition to curricular integration, collaborative support systems can significantly enhance resilience, building on the multi-level support structures discussed earlier. Structured mentorship programmes, in which experienced teachers provide guidance and support, can help pre-service teachers navigate the transition to professional practice. Similarly, learning communities enable pre-service teachers to reflect on shared challenges, foster peer support, and collectively develop problem-solving strategies. These collaborative environments create a sense of belonging and reinforce resilience through mutual learning (Beltman et al., 2018; Raes, 2022; Werdecker & Esch, 2021).

Addressing resilience on a systemic level is equally critical. Schools and training institutions must prioritize teacher well-being through policies that reduce workloads, provide access to mental health resources, and cultivate supportive workplace cultures. Policymakers can further support resilience by promoting reforms that address structural challenges and ensure that resilience programmes are complemented by systemic improvements (Gu & Day, 2007; Howard & Johnson, 2004).

Finally, resilience programmes must be adapted to reflect the cultural and institutional realities of their target populations. Tailoring interventions to local contexts ensures their relevance and effectiveness (Rönnau-Böse, 2021).

By integrating resilience into teacher education curricula, fostering collaborative support systems, and addressing systemic and cultural factors, these programmes can better equip pre-service teachers to meet the multifaceted demands of their profession. Such holistic strategies will ultimately contribute to a more resilient and sustainable teacher workforce.

In order to build on the recommendations outlined in the Future Directions section, the next chapter introduces a resilience-building initiative developed specifically for pre-service teachers: the Fostering Resilience in Teacher Education (FoResT) platform. This platform, grounded in evidence-based practices from resilience-building research (Mansfield et al., 2021), was designed for the specific needs of pre-service teachers in Switzerland and responds to the

call for integrated resilience training in teacher education (Mansfield et al., 2016). Drawing on the pedagogical insights of respected scholars, including those of Professor Mansfield, whose work has significantly shaped this approach, FoResT seeks to create a supportive, adaptable framework for developing resilience among aspiring teachers.

In the following chapter, our article “Media Didactic Principles in Practice: Development and Implementation of the FoResT Learning Platform to Promote Resilience in Pre-Service Teachers” details the development, implementation, and outcomes of this digital learning platform, which was designed collaboratively by the University of Bern and PHBern. This initiative addresses both theoretical and practical aspects of resilience-building through a media-didactic approach and offers valuable insights and implications for future resilience-building efforts in teacher training.

Chapter 10: Publication IV

Media Didactic Principles in Practice: Development and Implementation of the FoResT Learning Platform to Promote Resilience in Pre-Service Teachers

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Abstract

To navigate the dynamic modern education system, teachers need not only subject-specific competencies but also cross-disciplinary skills, including important socio-emotional abilities such as resilience. Resilience can be understood as a crucial capability for adaptability in the teaching profession. Resilient teachers are better able to overcome adverse situations and adapt to changes. They are also less likely to leave the profession. Although the importance of teacher resilience is widely recognised, there is little knowledge about effective strategies to promote this ability. Digital learning environments designed according to media pedagogical and media didactic principles offer promising approaches here, as they create flexible, personalised, and interactive learning opportunities that allow teachers to test and reflect on resilience strategies in a protected space. The project "Fostering Resilience in Teacher Education (FoResT)", a collaboration between the University of Bern and the Bern University of Teacher Education, addresses this research gap by developing a media-didactically designed online learning platform for teaching resilience strategies.

This paper describes the design-based research approach used to develop and optimise the FoResT learning platform. In three phases - conception, adaptation, and implementation - the platform was designed through iterative cycles of design, implementation, and evaluation, applying media didactic principles (according to Kerres 2024 and Middendorf 2022). The conception phase included the development of the basic design and content orientation. The adaptation phase involved revision based on formative feedback. The implementation phase included summative evaluation in the context of the Bern University of Teacher Education (PH Bern).

The results demonstrate that the combination of design-based research methodology and media didactic foundation enabled systematic further development of the learning platform. This connection between resilience promotion and media didactic design aims to create a learning environment that is tailored both in content and methodology to the needs of

prospective teachers. Finally, implications for teacher education are discussed, focusing on the integration of media-didactically designed online interventions for promoting resilience.

Einleitung

Die professionelle Entwicklung von Lehrpersonen beginnt mit der Grundausbildung und erstreckt sich über die gesamte Dauer ihrer Berufslaufbahn. Sie umfasst den Erwerb berufsrelevanter Kompetenzen und Fähigkeiten sowie die Ausbildung pädagogischer Einstellungen und Werthaltungen und wird als biografisch verankerter, aktiver und lebenslanger Prozess verstanden (Berliner, 2001). Studien in der Schweiz haben gezeigt, dass Lehrpersonen, insbesondere in den ersten Berufsjahren, mit zahlreichen Herausforderungen konfrontiert sind. Diese Schwierigkeiten können zu Stress, Burnout und sogar dem Entschluss führen, den Beruf aufzugeben (Hericks et al. 2018). Gemäss aktuellen Erkenntnissen fühlen sich vor allem Lehrpersonen zu Beginn ihrer beruflichen Laufbahn stark belastet und unzureichend auf die Bewältigung dieser Herausforderungen vorbereitet (Dicke et al. 2020). Ein häufig erlebter Realitätsschock in den ersten Berufsjahren (Huber und Lusnig 2022) verdeutlicht die Herausforderungen, mit denen Lehrpersonen konfrontiert sind, insbesondere den Übergang von der Universität in den Beruf (Keller-Schneider 2020). Der Übergang zur eigenverantwortlichen Tätigkeit wird als eine der herausforderndsten Phasen der Berufslaufbahn angesehen (Keller-Schneider 2020) und immer wieder als entscheidende Phase für Lehrpersonen hervorgehoben (Messner und Reusser 2000; Freisler-Mühlemann und Paskoski 2018).

Die Ausbildungseinrichtungen stehen somit vor der Herausforderung, Lehrpersonen optimal auf ihren Beruf vorzubereiten (Dreer 2013). Ein möglicher Zugang ist dabei, die Lehrpersonen nicht nur in ihren fachlichen, fachdidaktischen und pädagogischen Kompetenzen zu stärken, sondern auch in Bezug auf ihre sozial-emotionalen Kompetenzen (Kuhbandner und Schelhorn 2020). So könnte ein gezielter Aufbau von Resilienz dazu beitragen, den Berufseinstieg zu erleichtern und qualifizierte Lehrpersonen im Beruf zu halten (u. a. Fernandes et al. 2019; Jennings et al. 2019; Zadok et al. 2021). Resilienz wird als entscheidende Fähigkeit für proaktive Anpassung und Erfolg im Lehrberuf angesehen (Mansfield und Gu 2019). Sie

versteht sich als komplexer Prozess, der das Zusammenspiel von individuellen und kontextuellen Herausforderungen und Ressourcen widerspiegelt, wenn Lehrpersonen mit schwierigen Situationen konfrontiert sind (Hascher et al. 2021). Verschiedene Forschungsergebnisse zeigen, dass Lehrpersonen dank Resilienz widrige Situationen eher meistern können und seltener den Beruf verlassen (z. B. Mansfield et al. 2012). Trotz ihrer hohen Bedeutung wird Resilienz in den Schweizer Curricula der Lehrer:innenbildung bisher wenig aufgegriffen. Unser Ziel war deshalb, ein benutzer:innen-freundliches Angebot für die Implementierung des Themas Resilienz bereitzustellen. Dabei haben wir uns für einen Ansatz entschieden, der die Bereiche Resilienzförderung und Mediendidaktik durch eine digitale Lernplattform verbindet. Die digitale Transformation hat in den letzten Jahren stark an Bedeutung gewonnen. Insbesondere die Erfahrungen während der COVID-19-Pandemie (Aufenanger und Bigos 2023; Budde 2021) und digitale Lernumgebungen, die nach medienpädagogischen bzw. mediendidaktischen Prinzipien gestaltet sind, werden zunehmend als wichtige Settings an Hochschulen angesehen (Hombach und Rundnagel 2023). Hochschulen stehen vor der Herausforderung, einen komplexen Veränderungsprozess strategisch sinnvoll zu gestalten, wobei es zentral ist, nicht nur technologisch aufzurüsten, sondern auch die didaktische und pädagogische Integration der neuen Technologien in den Fokus zu nehmen.

In Anlehnung an das australische Projekt «Building Resilience in Teacher Education» (BRiTE, Mansfield et al. 2016) haben wir eine digitale Lernplattform entwickelt, die Studierende der Lehrer:innenbildung bei der Entwicklung ihrer Resilienz unterstützen soll (Beltman und Poulton 2018; Day und Gu 2014; Mansfield et al. 2020). Unser Ansatz basiert auf der systematischen Gestaltung digitaler Lernumgebungen nach mediendidaktischen Prinzipien, wobei wir uns insbesondere an den aktuellen Konzepten von Kerres (2024) und Middendorf (2022) orientieren. Diese Prinzipien bilden den methodischen Rahmen für die Entwicklung unserer Lerninhalte und gründen auf lernpsychologischen Erkenntnissen. Dazu

gehören das Lernen durch authentische Problemstellungen und die Anwendung von Wissen in verschiedenen Kontexten. Kerres (2018) hebt hervor, dass diese Prinzipien erfolgreich auf mediengestütztes Lernen übertragen werden können, was die Grundlage für unsere Lernplattform bildet. Bei der Konzeption unserer Plattform für angehende Lehrpersonen berücksichtigen wir auch die von Rummler (2018) betonte Unterscheidung zwischen «Medienkompetenz» im traditionellen medienpädagogischen Verständnis und dem Kompetenzbegriff in aktuellen Bildungspolitiken. Letzterer ist stärker auf Fertigkeitserwerb und Problemlösung ausgerichtet und stellt einen instrumentellen, anwendungsorientierten Zugang zur Digitalisierung dar. Wir streben an, beide Aspekte in unserer Plattform zu vereinen, indem wir sowohl praktische Fertigkeiten als auch kritische Reflexionsfähigkeiten fördern. Dies spiegelt sich in den folgenden Prinzipien wider:

- **Problemorientierung:** Die Plattform adressiert gezielt die konkreten Herausforderungen, mit denen Lehrpersonen in ihren ersten Berufsjahren konfrontiert werden. Durch die Präsentation realer Szenarien und praxisnaher Aufgaben fördern wir die Entwicklung von Problemlösungskompetenzen.
- **Zielgruppenorientierung:** Sämtliche Inhalte und Methoden sind spezifisch auf die Bedürfnisse angehender Lehrpersonen zugeschnitten. Dies gewährleistet eine hohe Relevanz und Anwendbarkeit des Gelernten im Berufsalltag.
- **Handlungsorientierung:** Durch interaktive Elemente und Reflexionsaufgaben fördert die Plattform aktives Lernen. Angehende Lehrpersonen werden ermutigt, ihr Wissen direkt anzuwenden sowie ihre Handlungskompetenzen in praxisnahen Situationen zu erproben und zu erweitern.

Dieser Beitrag fokussiert auf den Entwurf und die Verbesserung der Webseite zur Resilienzförderung. Wir untersuchen, wie mediendidaktische Prinzipien konkret in die Praxis umgesetzt werden können und welche Schritte nötig sind, um die Qualität von Online-Lernangeboten zu verbessern. Dabei soll dieser Beitrag eine mediendidaktische Diskussion anregen, die bei der Gestaltung von Online-Lernumgebungen berücksichtigt werden muss (vgl. Kerres 2018). Dazu berücksichtigen wir aktuelle bildungspolitische Diskurse zur Digitalisierung, wie sie im Positionspapier zur Weiterentwicklung der KMK-Strategie «Bildung

in der digitalen Welt» (Braun et al. 2021) angesprochen werden. Unser Fokus liegt jedoch primär auf der effektiven Förderung von Resilienz durch den gezielten Einsatz mediendidaktischer Prinzipien. In der abschliessenden Diskussion werden wir die Ergebnisse unserer Studie reflektieren. Wir werden sowohl die Potenziale als auch die Herausforderungen unseres Ansatzes aufzeigen und dabei insbesondere untersuchen, wie die systematische Integration mediendidaktischer Elemente in eine digitale Lernplattform zur Resilienzförderung bei angehenden Lehrpersonen beitragen kann.

Designbasierte Forschung: Entwicklung der Lernplattform «FoResT»

Im Folgenden wollen wir den iterativen Entwicklungsprozess der Lernplattform «FoResT» und die Evaluation der Lernplattform bei ihrer ersten Anwendung durch Studierende der Primarstufe an der PH Bern vorstellen sowie medienpädagogische und -didaktische Überlegungen aufzeigen. Die FoResT-Lernplattform basiert auf dem australischen Projekt BRiTE (Mansfield et al. 2016), das fünf Online-Module und ein Zusatzmodul umfasst, die den Erwerb von Wissen und Fähigkeiten für die berufliche Resilienz von Lehrpersonen unterstützen. Diese Module wurden auf der Grundlage eines empirischen Rahmens (Mansfield et al. 2016) entwickelt, der auch als Grundlage für die FoResT-Lernplattform diente und an den Schweizer Kontext angepasst wurde. Die FoResT-Lernplattform umfasst sechs Module, die sich mit verschiedenen Aspekten der Resilienz und des Wohlbefindens von Lehrpersonen befassen. Die Module decken Themen wie Resilienzverständnis, Beziehungspflege, Wohlbefindensförderung, Initiative ergreifen, Emotionswahrnehmung und Achtsamkeitsübung ab, wobei jedes Modul spezifische Lernziele und praxisnahe Inhalte bietet. Durch eine Kombination aus theoretischen Grundlagen, Fallbeispielen, Reflexionsaufgaben und praktischen Übungen zielt die Plattform darauf, Studierende und Lehrpersonen in ihrer persönlichen und beruflichen Entwicklung zu unterstützen und ihre Resilienz zu stärken.

Grundsätzliche Entscheidungen zur Weiterentwicklung basieren auf einem mehrstufigen multimethodischen Ansatz, der sowohl empirische Daten als auch theoretische Grundlagen der gestaltungsorientierten Mediendidaktik (Kerres 2024) berücksichtigt. Häufigkeit und Konsistenz der Rückmeldungen (Genova und Gassel 2024) dienen als primäre Indikatoren für die Bedürfnisse der Nutzer:innen. Diese wurden in Einklang gebracht mit den Prinzipien der multimedialen Unterrichtsgestaltung nach Mayer (2024), wobei besonderes Augenmerk auf die Implementierung eines strukturierten Lernpfades, eine ausgewogene multimediale Gestaltung und die Integration authentischer Problemstellungen gelegt wurde. Die technische Umsetzbarkeit (Dignaß 2024) spielte eine zentrale Rolle in der Realisierung interaktiver und selbstgesteuerter Lernelemente sowie der Gestaltung hybrider Lernarrangements. Das Potenzial zur Verbesserung des Lernerfolgs (Wetzel 2024) wurde durch die Einbindung von Reflexions- und Selbstdiagnoseelementen gezielt adressiert. Konkret äusserte sich dies in der sequenziellen Anordnung der Lerninhalte mit integrierten Lernfortschrittsanzeigen, der Kombination verschiedener Medienformate zur Optimierung kognitiver Verarbeitungsprozesse und der Einbettung praxisnaher Fallstudien und Simulationen (Reinmann-Rothmeier und Mandl 2006; Kerres 2018). Die Benutzeroberfläche wurde mit interaktiven Elementen wie Quizzes und Drag & Drop-Elementen angereichert, um die aktive Auseinandersetzung mit den Inhalten zu fördern. Reflexionsfragen und ein digitales Lerntagebuch dienten der Förderung metakognitiver Fähigkeiten (Kerres 2024). Dieser Ansatz ermöglichte eine kontinuierliche Anpassung der Lernplattform an die Bedürfnisse der Nutzer:innen unter Berücksichtigung aktueller mediendidaktischer Erkenntnisse und der spezifischen Anforderungen hybrider Lernumgebungen im Hochschulkontext (McKenney und Reeves 2013; Albrecht et al. 2021). Die systematische Integration dieser mediendidaktischen Prinzipien hatte zum Ziel, ein kohärentes und effektives Lernarrangement zu schaffen, das sowohl die kognitiven Prozesse der Lernenden optimal unterstützt als auch ihre Motivation und Selbststeuerungsfähigkeit fördert im Einklang mit den Zielen der gestaltungsorientierten Mediendidaktik (Kerres 2024).

Tabelle 1

Zentrale Phasen des Entwicklungsprozesses der Lernplattform

Phase	Arbeitsschritte	Forschungsfragen
Konzeptionsphase	Erarbeitung des grundlegenden Konzepts und Festlegung der inhaltlichen Ausrichtung	Welche Inhalte sind für die Lernplattform essenziell und wie können diese optimal gestaltet werden?
Anpassungsphase	Gezielte Anpassung und Verfeinerung der Inhalte basierend auf Befragten-Feedback	Wie können die Inhalte bestmöglich auf die Bedürfnisse der Studierenden und Lehrpersonen abgestimmt werden?
Implementierungs- und Evaluationsphase	Anpassung der Plattform an die institutionellen Rahmenbedingungen der PH Bern sowie Erweiterung um unterstützende Funktionen	Wie lässt sich die Lernplattform optimal in die spezifischen Strukturen der Pädagogischen Hochschule Bern (PH Bern) integrieren?

Für die Entwicklung und Optimierung der Lernplattform haben wir einen designbasierten Ansatz gewählt. Unser Ziel war es, die Anforderungen der Nutzer:innen zu verstehen und die Lernplattform in einem iterativen Prozess anzupassen (Nieveen 1999; 2013). Der Entwicklungsprozess der Lernplattform gliederte sich in drei zentrale Phasen, deren Arbeitsschritte sich jeweils an spezifischen Leitfragen orientierten (Tabelle 1).

Jede Phase beinhaltete Design-, Implementierungs- und Evaluierungszyklen, wobei die Erkenntnisse kontinuierlich in die Weiterentwicklung einfließen. Die Datenerhebung kombinierte quantitative und qualitative Methoden, um ein umfassendes Bild der Nutzer:innenerfahrungen zu gewinnen. Diese strukturierte Herangehensweise ermöglicht, die Lernplattform kontinuierlich zu verbessern und an die sich verändernden Anforderungen der Nutzer:innen anzupassen.

Phase 1: Konzeptionsphase (Erkundung und anfängliches Design)

In der ersten Phase konzentrierte sich unser Projekt auf die inhaltliche Schärfung und das anfängliche Design der Lernplattform. Dabei zeigte sich, dass das Programm BRiTE aus kulturspezifischen und sprachlichen Gründen sowie aufgrund der starken Regionalität und Nationalität der Schweizer Lehrer:innenbildung bzw. des Bildungssystems nicht direkt

übernommen werden konnte. So stehen Berufsanfänger:innen mit einer einphasigen Bachelor-Ausbildung in der Schweiz anderen Herausforderungen gegenüber als Absolvent:innen eines zweiphasigen Masters in Australien. Zudem wurde mit der Entwicklung einer neuen deutschsprachigen Lernplattform das Ziel gesetzt, dass Elemente der Resilienzförderung anhand eines aktuellen, ansprechenden Designs gezielt nutzer:innenfreundlich, zeitunabhängig, niederschwellig und in kurzen Sequenzen abrufbar sind. Bei der Umsetzung dieses Ziels wurden mediendidaktische Grundlagen genutzt, um mit der Lernplattform ein möglichst lernförderliches Umfeld zu schaffen. So beeinflusst die erlebte Qualität des Lernangebots und die emotionale Reaktion, wie Kerres festhält (2018), den Lerneffekt. Die erlebte Qualität umfasst nach Kerres inhaltliche, formale, ästhetische sowie didaktische Aspekte der Aufbereitung von Informationen; die emotionale Reaktion das Interesse am und die Aufmerksamkeit gegenüber dem Lernangebot.

Durch eine Analyse und Bewertung des vorhandenen Materials des Programms BRiTE (Mansfield et al. 2016) und durch eine intensive Zusammenarbeit mit potenziellen Endnutzer:innen erhielten wir zudem einen Einblick in die Bedürfnisse und Präferenzen der Zielgruppe. Zunächst wurde das vorhandene Material des Programms BRiTE übersetzt und anschliessend in einem Design Thinking Workshop (Brown 2008) analysiert, strukturiert und gekürzt. In diese Erkundungsphase waren sieben Personen eingebunden, darunter ein Studierender der Mediendidaktik, eine Person mit CAS-Vertiefung in der Mediendidaktik sowie mehrere Personen mit Praxiserfahrung und psychologischem Hintergrund, um verschiedene Perspektiven auf die Entwicklung neuer Lehr- und Lernformen zu berücksichtigen. Das Team umfasste zwei Forscherinnen der Universität Bern, zwei Dozierende der PHBern, eine Designerin und zwei Studierende der PH Bern. Die identifizierten Bedürfnisse bezogen sich vor allem auf eine kürzere Darstellung der Inhalte, präzise Beispiele zur Veranschaulichung im schweizerischen Kontext und die Integration spezifisch produzierter Videos und Audios mit authentischen Fallbeispielen. Diese Erfahrungen wurden mit

Forschungserkenntnissen im Bereich des multimedialen Lernens nach Mayer (2024) abgeglichen, um das Lernen der Nutzer:innen zu verbessern. Die Lehr- botschaften wurden so gestaltet, dass sie eine kognitive Verarbeitung während des Lernens anleiten, ohne das kognitive System des Lernenden zu überlasten (ebd.; Liu 2024).

Der Meilenstein dieser ersten Phase war der Prototyp der Lernplattform FoResT. In Anlehnung an BRiTE besteht dieser aus sechs Modulen zum Thema Resilienz, welche eigenständig anhand von theoretischen Inhalten, Fallbeispielen und Übungen erarbeitet werden. Die Module adressieren folgende Inhalte: Resilienz verstehen, Beziehungen pflegen, Wohlbefinden etablieren, Initiative zeigen, Emotionen wahr- nehmen und Achtsamkeit üben. Modul 1 «Resilienz verstehen» beinhaltet Definitionen von Resilienz, ein Modell zum Zusammenhang von Resilienz und beruflichem Wohlbefinden sowie Strategien, zu Resilienz zu gelangen. In Modul 2 «Beziehungen pflegen» geht es um den Aufbau von Beziehungen und wie man diese gewinnbringend mitgestalten kann. Modul 3 «Wohlbefinden etablieren» zeigt auf, wie zentral eine positive Work-Life-Balance und wirksame Zeitmanagementstrategien sind, um das persönliche Wohlbefinden zu erhalten. In Modul 4 «Initiative zeigen» geht es sowohl um Grenzen setzen als auch um Problemlöseprozesse und effizientes Arbeiten. Modul 5 «Emotionen wahrnehmen» behandelt die Themen Emotionswahrnehmung und -regulation. Modul 6 «Achtsamkeit üben» stellt die Selbstaufmerksamkeit und den Umgang mit sich selbst in den Mittelpunkt. Abbildung 1 zeigt ein Beispiel, wie die Studierenden die Module starten und gemäss Navigation bearbeiten.

Abbildung 1

FoResT Lernplattform

17/23



Initiative zeigen und du
Fallbeispiel
Initiative zeigen
Strategien
Erkenntnisse
Problemlöseprozess
Effizientes Arbeiten

Modul 4: Initiative zeigen

Prokrastination

"Tomorrow - A mystical land where 98% of all human productivity, motivation and achievement are stored." (Unknown)

Wichtig: Behalte deine Maus auf dem Bild, damit die Folien nicht von alleine weitergehen. Klicke auf den hellen Pfeil, damit du alle Folien dazu sehen kannst.

Reframing in Bezug auf Erwartungen

„Ich weiss gar nicht, wie man so eine Arbeit schreibt.“	„Ich kann: ...“ (Literatur suchen, Deckblatt gestalten, bei anderen Arbeiten Struktur abschauen etc.)
„Ich weiss gar nicht, wo ich anfangen soll.“	„Ich darf irgendwo beginnen. Im Verlauf wird es klarer.“
„Es ist so viel – ich schaffe das nicht!“	„Jede Folie, die ich lerne, bringt mich weiter.“
„Ich bin sowieso zu dumm.“	„Man muss kein Genie sein, um das zu schaffen.“ „Das haben schon viel Blödere als ich geschafft.“
„Ich weiss gar nicht, wie man so eine Arbeit schreibt.“	„Ich darf eine erste Version abgeben – die darf noch etwas holprig klingen.“

zurück weiter

Phase 2: Anpassungsphase (Weiterentwicklung des Prototyps und formatives Feedback)

In der zweiten Phase wurde der Prototyp der Lernplattform in zwei Teilstudien auf der Grundlage von Feedbacks durch potenzielle Nutzer:innen verfeinert. In Teilstudie 1 führten wir Think-Aloud-Interviews mit Studierenden ($n = 11$) und Lehrpersonen ($n = 13$) durch, um Feedback zu den Inhalten und zum technischen Design des Prototyps einzuholen. Die Auswahl der Interviewpartner:innen erfolgte nach dem Prinzip der zielgerichteten Stichprobe, wobei auf eine ausgewogene Verteilung zwischen Studierenden ($n = 11$) und Lehrpersonen ($n = 13$) geachtet wurde und verschiedene Studienphasen und Berufserfahrungen berücksichtigt wurden. Die Teilnahme fand auf freiwilliger Basis unter Zusicherung von Anonymität und Vertraulichkeit statt. Das Think-Aloud-Interview, wie von Ericson und Simon (1993) beschrieben, ist eine Interviewmethode, bei der die Teilnehmer:innen gebeten werden, ihre Gedanken und Entscheidungsprozesse zu verbalisieren, während sie eine Aufgabe ausführen oder Fragen beantworten. Die Interviews ($N = 24$) wurden von zwei geschulten Mitgliedern des Projektteams durchgeführt, transkribiert und nach dem inhalts- analytischen Vorgehen von

Mayring (2015) ausgewertet. Die Kategorienbildung und anschließende Kategorisierung der Aussagen erfolgte mittels MAXQDA (2022) induktiv konsensuell (Mayring 2015). Dieser Ansatz ermöglichte, die Rückmeldungen der Teilnehmenden im Kontext aktueller mediendidaktischer Überlegungen zu analysieren. Dabei wurden folgende Aspekte (siehe Kategoriensystem in Tabelle 1) besonders berücksichtigt:

1. Strukturierter Lernpfad: Aussagen zur Sequenzierung und Organisation der Lerninhalte nach dem Segmentierungs-Prinzip (Mayer 2021) und Überlegungen zur optimalen Lerndauer (Kerres 2024, 117).
2. Multimediale Gestaltung: Feedback zur Verwendung verschiedener Medienformate (Text, Bild, Audio, Video) unter Berücksichtigung des Multimediaprinzip und des Modalitäts-Prinzip (Mayer 2024; Kerres 2024, 199f.).
3. Interaktivität und Selbststeuerung: Kommentare zur Benutzerfreundlichkeit und zu interaktiven Elementen nach dem Generativen Aktivitäts-Prinzip und Verkörperungs-Prinzip (Mayer 2024) sowie an Prinzipien der direkten Instruktion (Kerres 2024, 341).
4. Kognitive Belastung: Rückmeldungen zur Informationsdichte und Verständlichkeit nach dem Kohärenz-Prinzip (Mayer 2024) und Überlegungen zur Optimierung kognitiver Beanspruchung (Kerres 2024, 192).
5. Authentische Problemstellungen: Aussagen zur Praxisrelevanz und Anwendbarkeit der Inhalte in Anlehnung an konstruktivistische Lernansätze (Reinmann- Rothmeier und Mandl 2006; Kerres 2018).
6. Reflexion und Selbstdiagnose: Feedback zu integrierten Reflexionsaufgaben und Selbsteinschätzungsmöglichkeiten, orientiert an Prinzipien zur Förderung von Selbstregulation und Metakognition (Simons 1992; Kerres 2024).

Durch diesen erweiterten Ansatz wurde sichergestellt, dass die Kategorienbildung nicht nur die inhaltlichen Aspekte der Rückmeldungen erfasst, sondern auch deren Bezug zu

zentralen mediendidaktischen Konzepten und Praktiken berücksichtigt. Dies ermöglichte eine differenzierte Analyse der Lernplattform und lieferte wertvolle Erkenntnisse für deren Weiterentwicklung im Sinne einer gestaltungsorientierten Mediendidaktik (Kerres 2024). Die Aussagen der Studierenden und Lehrpersonen wurden mit Buchstaben und Zahlen anonymisiert, z. B. FP10, wobei F für «Feedback» und P für «Participant» steht, mit entsprechender Nummerierung für Studierende: 1–11, und Lehrpersonen: 12–24.

In Teilstudie 2 konzentrierten wir uns auf die formative Bewertung des überarbeiteten Prototyps. In dieser Phase wurde die Lernplattform mit einer Gruppe von angehenden Lehrpersonen (N = 145) der PH Bern getestet, welche das Seminar «Berufsbiografische Entwicklung und personale Ressourcen» im Herbstsemester 2022 besuchten. Methodisch wurde eine Kartenabfrage verwendet: Bei der Kartenabfrage wurden den Teilnehmer:innen Karten zu den Inhalten, zur technischen Design und zur Implementierung ins Seminar präsentiert (siehe Tabelle 2, Teilstudie 2). Die Teilnehmer:innen wurden gebeten, jede Karte zu bewerten und ihre Eindrücke, Kommentare oder Verbesserungsvorschläge darauf zu notieren (Albert und Tullis 2013). Diese Methode ermöglichte den Teilnehmer:innen, ihre Meinungen und Bewertungen zu verschiedenen Aspekten des Prototyps strukturiert und anonym zu äussern. In einem nächsten Schritt wurde dieses Feedback mithilfe von MAXQDA (2022) deduktiv kategorisiert, wobei die in Teilstudie 1 induktiv entwickelten Kategorien als Grundlage dienten. Die Ergebnisse wurden analysiert und zur weiteren Verfeinerung der Lernplattform genutzt. Die Kartenabfrage erwies sich als effektives Instrument zur Erfassung einer Vielzahl von Meinungen und zur Identifizierung von gemeinsamen Trends und Problembereichen im Prototyp.

Tabelle 2*Haupt- und Subkategorien der Optimierungsvorschläge in Phase 2*

Hauptkategorien	Subkategorien	Teilstudie 1	Teilstudie 2
Inhalte (Ressourcen und Tools)	Audios	22 (10.1%)	1 (0.8%)
	Fallbeispiele	24 (11.0%)	7 (5.6%)
	Reflexionsaufgaben	20 (9.2%)	14 (11.1%)
	Videos	3 (1.4%)	17 (13.5%)
	Wiederholende Inhalte	52 (23.9%)	6 (4.8%)
Inhalte (Didaktische Aspekte)	Länge	56 (25.7%)	46 (36.5%)
	Grafisches Design	21 (9.6%)	0 (0.0%)
	Motivation für die Auseinandersetzung	12 (5.5%)	13 (10.3%)
	Vorwissen	29 (13.3%)	2 (1.6%)
	Zusammenfassungen	0 (0.0%)	8 (6.3%)
	Zeitmanagement	0 (0.0%)	12 (9.5%)
	Videos	3 (1.4%)	17 (13.5%)
	<i>Total</i>	<i>218 (75.2%)</i>	<i>126 (47.7%)</i>
Technisches Design	Loginerfahrung	16 (26.4%)	4 (7.7%)
	Dashboard	15 (20.8%)	4 (7.7%)
	Module	26 (36.1%)	12 (23.1%)
	Fortschrittstracking	0 (0.0%)	7 (13.5%)
	Lerninteraktion	15 (20.8%)	5 (9.6%)
	Zusätzliche Ressourcen	0 (0.0%)	15 (28.8%)
	Organisation der Themen	0 (0.0%)	5 (9.6%)
	<i>Total</i>	<i>72 (24.8%)</i>	<i>52 (19.7%)</i>

Hauptkategorien	Subkategorien	Teilstudie 1	Teilstudie 2
Integration im Seminar Nur Teilstudie 2	Kommunikation der Dozierenden	–	22 (25.6%)
	Trennschärfe	–	12 (13.9%)
	Bezug zu den Modulen	–	24 (27.9%)
	Zeitpunkt	–	12 (13.9%)
	Workload	–	16 (18.6%)
	<i>Total</i>	–	<i>86 (32.6%)</i>
	<i>Total Nennungen insgesamt</i>	<i>290</i>	<i>264 (100%)</i>

Anmerkung: Die Prozentangaben der Subkategorien beziehen sich auf die Gesamtanzahl der Nennungen in den jeweiligen Hauptkategorien (z. B. Annäherung vorausschauende Planung: 49 = 34.5 %, wenn 142 = 100 %). Die Prozentangaben der Totale sind in Bezug zu den Total Nennungen insgesamt in der jeweiligen Teilstudie (z. B. 142 = 54.2 %, wenn 262 = 100 %).

Die Ergebnisse deuten darauf hin, dass die Studierenden die Thematik als äusserst relevant erachten und die Lehrpersonen die Integration in die Ausbildung wertschätzen. In den Interviews wurde betont, wie relevant es sei, die eigenen Belastungen zu erkennen und aktiv darüber zu kommunizieren oder hierzu Unterstützung zu suchen: «Hier finde ich es besonders positiv, dass angegeben wird, wo man Hilfe oder Unterstützung erhalten kann» (FP06). Die Sensibilisierung für diese Thematik wurde als bedeutend erachtet, wobei die Relevanz des offenen Austauschs über Herausforderungen und die Pflege sozialer Kontakte unterstrichen wurde. Gleichzeitig wurde darauf hingewiesen, dass die Hervorhebung sozialer Unterstützung bedeutend sei: «Aber auch zu wissen, dass ich nicht allein bin, ist wichtig. Die Vielfalt an Unterstützungsmöglichkeiten ist beeindruckend» (FP02). Lehrpersonen pflichteten diesem Eindruck bei: «Das erinnert mich selbst an Situationen, die ich hier im Kollegium hatte oder auch mit meiner Familie, bei der ich gemerkt habe, die Beziehung hilft mir enorm in diesem ersten Berufsjahr» (FP12). Studierende hoben in den Interviews hervor, dass sie sich durch die Module gut unterstützt fühlten und der Ablauf klar strukturiert war. Ausserdem wurde wertgeschätzt, dass verschiedene Sinne angesprochen wurden: «Ja, was mir noch gefällt, vielleicht, ist dass es so mehrere Sinne anspricht. Einerseits lesen, hören und auch audiovisuell mit dem Video, das finde ich gut» (FP21).

Da es in dieser Phase um die Verbesserung der Lernplattform ging, wurden die Optimierungsvorschläge der Studierenden und Lehrpersonen in weitere Hauptkategorien und Subkategorien gegliedert (s. Tabelle 2). In der Hauptkategorie «Inhalte» waren die drei meistgenannten Subkategorien die Länge (25.7 %): «Ich finde einfach, man könnte es kürzen» (FP01), die wiederholenden Inhalte (23.9 %): «das habe ich jetzt schon oft gelesen» und das Vorwissen (13.3 %): «dann müsste man das vielleicht mit Erstsemesterstudierenden besprechen, die vielleicht noch keine Vorstellung davon haben, wie sie sich fühlen würden, wenn Eltern anrufen» (FP23). Beim technischen Design waren es die Module (36.1 %): «die Navigation der Module ist irgendwie nicht klar» (FP09), die Loginerfahrung (26.4 %): «ich

verstehe nicht, wie ich mich hier anmelden kann» (FP24), und mit 20.8 % sowohl das Dashboard: «vielleicht könnte das Dashboard anzeigen, wo ich gerade stehe» (FP15) als auch die Lerninteraktion: «ich würde mir noch mehr Gamificationelemente wünschen» (FP08).

Phase 3: Implementierung und summative Evaluation

Die dritte Phase umfasste die Implementierung der in Phase 2 weiterentwickelten Lernplattform in einer realen Bildungsumgebung und die Durchführung einer summativen Evaluation (McKenney und Reeves 2013). Die Weiterentwicklung und Implementierung der Lernplattform basierte auf den Erkenntnissen aus den beiden Teilstudien der zweiten Projektphase und folgte systematisch definierten Kriterien:

1. Häufigkeit und Konsistenz der Rückmeldungen (Genova und Gassel 2024): Die quantitativen und qualitativen Daten wurden analysiert, um häufig auftretende und konsistente Muster in den Nutzerkommentaren zu identifizieren und zu priorisieren.

2. Übereinstimmung mit mediendidaktischen Überlegungen (Kerres 2021):

Die Vorschläge wurden daraufhin geprüft, ob sie mit etablierten mediendidaktischen Überlegungen übereinstimmen, insbesondere im Hinblick darauf, ob das Zusammenwirken der einzelnen Elemente in einem Lernarrangement eine stimmige Komposition ergibt und ein spezifisches didaktisches Anliegen erfüllt. Dabei wurden Änderungen bevorzugt, die das selbstgesteuerte Lernen fördern und die Interaktivität erhöhen (Kerres 2024; Mayer 2024).

Konkret bedeutete dies die Anwendung folgender mediendidaktischer Prinzipien:

- a. *Gestaltungsorientierung*: Der Fokus lag auf der effektiven Lösung von Bildungsproblemen und einem wirkungsvollen und nachhaltigen Einsatz der eingesetzten Mittel (Kerres 2021).
- b. *Berücksichtigung des didaktischen Felds*: Bei der Konzeption wurden Merkmale der Zielgruppe, Spezifikation von Lehrinhalten und -zielen, didaktische Methoden, didaktische Transformation und Strukturierung der Lernangebote, Merkmale der Lernsituation und Spezifikation der Lernorganisation sowie Merkmale und Funktionen der gewählten Medien und Hilfsmittel einbezogen (Kerres 2021).

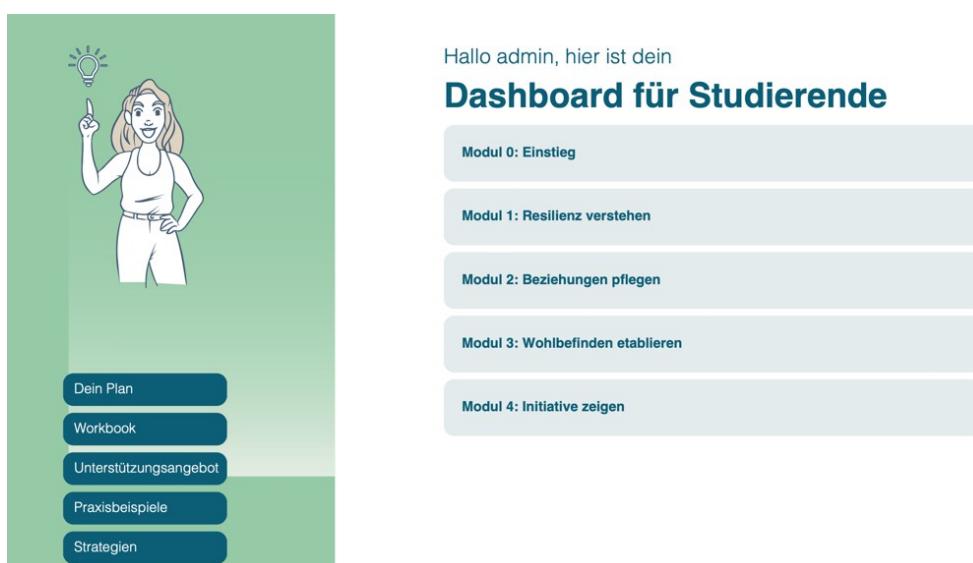
- c. *Multimediales Lernen*: Die Lernplattform wurde so gestaltet, dass sie verschiedene Medienformate (Text, Bild, Video) nutzt, um das Verständnis und die Behaltensleistung zu fördern.
 - d. *Interaktivität*: Es wurden interaktive Elemente wie Quiz oder Simulationen integriert, um die aktive Beteiligung der Lernenden zu erhöhen.
 - e. *Kognitive Belastung*: Bei der Gestaltung wurde darauf geachtet, die kognitive Belastung der Lernenden zu minimieren, indem die Menge der gleichzeitig zu verarbeitenden Informationen begrenzt wurde.
 - f. *Kontextsensibilität*: Die Mediendidaktik wurde reflexiv und kontextsensibel angewandt, indem das Vorwissen, die Kompetenzen und Gewohnheiten der Teilnehmenden und Lehrenden sowie gesellschaftliche Konventionen und Praktiken berücksichtigt wurden.
3. Technische und ressourcenbezogene Umsetzbarkeit (Dignaß 2024): Jede potenzielle Änderung wurde hinsichtlich ihrer technischen Machbarkeit und des erforderlichen Ressourceneinsatzes bewertet, um eine effiziente Umsetzung zu gewährleisten.
4. Potenzial zur Verbesserung des Lernerfolgs und der Nutzer:innenerfahrung (Wetzel 2024): Besonderes Augenmerk lag auf Änderungen, die das Potenzial hatten, den Lernerfolg zu steigern und die Nutzererfahrung signifikant zu verbessern.

Um die Qualität der Lernplattform zu optimieren, wurden zunächst die häufigsten Rückmeldungen aus den Nutzerkommentaren analysiert. Dabei wurde besonderes Augenmerk auf die Übereinstimmung mit etablierten mediendidaktischen Überlegungen gelegt, um sicherzustellen, dass die Änderungen das selbstgesteuerte Lernen förderten und die Interaktivität erhöhten (Kerres 2024; Mayer 2024). Auf dieser Grundlage wurden mehrere konkrete Verbesserungen implementiert. Zunächst wurden die Modulinhalte um durchschnittlich 10 Prozent gekürzt, um den von den Nutzer:innen geäußerten Wunsch nach kürzeren und prägnanteren Inhalten zu erfüllen. Gleichzeitig wurde darauf geachtet, Wiederholungen zu vermeiden und Inhalte stärker an das Vorwissen der Studierenden anzupassen. Dies geschah in Übereinstimmung mit dem Prinzip der kognitiven Belastung, das darauf zielt, die Informationsdichte zu optimieren. Zudem wurden für jedes Modul mögliche

Strategien aufgezeigt, um den Lernenden konkrete Handlungsoptionen zu bieten und den Transfer in die Praxis zu erleichtern. Im Hinblick auf das technische Design wurde ein adaptives Navigationssystem implementiert, das den Fortschritt der Nutzer:innen visualisiert und ihnen hilft, ihre nächsten Schritte besser zu planen. Diese Massnahme reagierte direkt auf das Feedback zur Navigation innerhalb der Module. Darüber hinaus wurde die Login-Funktion überarbeitet, um die intuitive Benutzerführung zu verbessern. Auch das Dashboard wurde neu gestaltet, um eine bessere Fortschrittsvisualisierung zu bieten. Um die Interaktivität zu erhöhen und das Engagement der Lernenden zu fördern, wurden integrierte Selbstreflexionstools eingeführt. Diese Massnahmen zielen darauf ab, die aktive Beteiligung der Lernenden zu steigern und ein motivierendes Lernumfeld zu schaffen. Zudem wurde die Modulstruktur überarbeitet, um eine bessere Abstimmung auf unterschiedliche Lerngeschwindigkeiten zu gewährleisten. Die detaillierte summative Evaluation dieser Implementierung und deren Ergebnisse werden in einem separaten Artikel (Krummenacher et al., i. Vorbereitung) behandelt.

Abbildung 2

Dashboard mit adaptivem Navigationssystem



Evaluation

Die Evaluation der sechs FoResT-Module erfolgte einerseits quantitativ mittels Fragebogen und einer offenen Frage, welche qualitativ ausgewertet wurde. Die teilnehmenden Studierenden bewerteten die Module hinsichtlich ihres Inhalts und Designs. Zum besseren Verständnis der Ergebnisse wurden andererseits vier Gruppeninterviews durchgeführt und ausgewertet. Anhand von Interviews wurden vor allem Änderungsvorschläge zur didaktischen und technischen Gestaltung der Module eingeholt.

Stichprobe und Vorgehen

Quantitative Stichproben und Vorgehen

Die Stichprobe umfasst 136 Studierende der PH Bern (77.5 % weiblich; 22 % männlich, 0.5 % keine Angabe). Die Mehrheit der befragten Studierenden befand sich im dritten Semester (83 %), gefolgt von Studierenden im fünften Semester (11 %) und höheren Semestern (6 %). Das Durchschnittsalter lag bei 23.47 Jahren ($SD = 5.46$) mit einer Spannweite von 19 bis 51 Jahren. Neben dem Studium war ein Grossteil der angehenden Lehrpersonen erwerbstätig (80.1 %), die Mehrheit (69.9 %) mit einem Pensum in der Schule von bis zu 50 %. Ein Viertel unterrichtete neben dem Studium in einer Festanstellung mit sechs oder mehr Lektionen pro Woche (25.7 %), jede sechste Person unterrichtete weniger als sechs Lektionen (16.9 %). Rund ein Viertel der Befragten (27.2 %) ging zudem einer zeitintensiven Betreuungsarbeit (Care-Arbeit) oder einem zeitintensiven ehrenamtlichen Engagement nach.

Die Implementierung der FoResT-Lernplattform fand im Herbstsemester 2023 von September 2023 (Kalenderwoche 39) bis November 2023 (KW 46) im Rahmen des obligatorischen Seminars «Berufsbiografische Entwicklung und personale Ressourcen» statt. Das hybride modulare Setting wurde während des Studiensemesters im Umfang von 12 mal 45 Minuten über acht Wochen durchgeführt. Der Online-Fragebogen zur Evaluation der sechs Module wurde den teilnehmenden Studierenden im Rahmen des Seminars per Link zur Verfügung

gestellt. Die Datenanalyse basiert auf einem vollständigen Datensatz ohne fehlende Werte in den Antworten, wobei die Stichprobe alle Studierenden umfasst, die zum Erhebungszeitpunkt anwesend waren und an der Befragung teilnahmen. Die Studierenden stimmten ihrer Teilnahme mittels Einverständniserklärung zu und die Daten wurden durch verschlüsselte IDs anonymisiert. Die durchschnittliche Bearbeitungsdauer des Fragebogens betrug 21 Minuten (SD = 11.24) mit einer Spannweite von 11 bis 97 Minuten.

Qualitative Stichprobe und Vorgehen

Die leitfadengestützten Gruppeninterviews fanden im Anschluss an die Implementierung der FoResT-Lernplattform im November 2023 statt (KW 47–48). Es wurden semi-strukturierte Interviews durchgeführt, um Änderungswünsche und -vorschläge zu didaktischen und technischen Aspekten der Module zu erhalten. Die Studierenden wurden zufällig ausgewählt, per E-Mail benachrichtigt und willigten zur Teilnahme mit einer Einverständniserklärung ein. An den vier Gruppendiskussionen à drei bis fünf Personen nahmen insgesamt 15 Studierende teil (11 weiblich, 4 männlich). Weitere demografische Daten der Teilnehmenden wurden nicht erhoben. Drei der 45-minütigen Interviews fanden vor Ort in den Räumlichkeiten der PHBern statt, eines wurde online durchgeführt. Die Datenerhebung erfolgte durch vier Personen aus dem Projektteam der Universität Bern, welche vorgängig geschult wurden. Nach Abschluss der Interviews wurden die Aufzeichnungen transkribiert und gemäss dem inhaltsanalytischen Ansatz von Mayring (2015) analysiert. Zur Wahrung der Anonymität wurden die Daten mittels verschlüsselter IDs ausgewertet. Die Kategorisierung erfolgte deduktiv anhand der im Anhang dargestellten Kategorien, die während der zweiten Phase induktiv erarbeitet wurden (siehe auch Tabelle 3). Die Inter-Rater-Übereinstimmung nach Doppelkodierung zweier Interviews wurde mittels Cohens Kappa ($\kappa = 0,90$) gemessen und nach den Standards von Döring und Bortz (2016) als sehr gut bewertet.

Erhebungsinstrumente

Quantitative Erhebung

Nach Abschluss der Bearbeitung der Module bewerteten die angehenden Lehrpersonen den Inhalt und die Gestaltung (Design) der FoResT-Lernplattform anhand eines 12-Item-Fragebogens. Die Studierenden gaben auf einer fünfstufigen Likert- Skala an, inwieweit sie den Aussagen zustimmen (1 = «stimme überhaupt nicht zu» bis 5 = «stimme vollkommen zu»). Die Skala misst die Bewertung der Inhalte der Lernplattform (INH, 8 Items, z. B. «Die Inhalte haben mich in meiner Reflexion unterstützt») und des Designs der Lernplattform (DES, 4 Items, z. B. «Ich finde mich gut auf der Plattform zurecht»). Die interne Konsistenz (Cronbachs α) der Subskalen erwies sich als gut bis exzellent (INH: $\alpha = .92$; DES: $\alpha = .82$). Alle Reliabilitätswerte sind ebenfalls in Tabelle 3 aufgeführt.

Qualitative Erhebung

Die qualitative Datenerhebung erfolgte in einem zweistufigen Prozess. Zunächst enthielt der Fragebogen eine offene Frage («Gibt es noch etwas, das ihr zu den Modulen sagen möchtet?»), um den Teilnehmenden die Möglichkeit für zusätzliche Rückmeldungen zu geben. Um diese Antworten besser interpretieren und vertiefen zu können, wurden anschliessend semi-strukturierte Gruppeninterviews durchgeführt. Diese Gruppeninterviews waren in vier thematische Blöcke gegliedert: Einleitung, didaktische Aspekte, technische Aspekte und Änderungsvorschläge zur Plattform. Der didaktische Block umfasste Fragen zur Lernmotivation, zum Verhältnis von Fallbeispielen und Input, zur Wissensvermittlung durch Videos, zum Zeitmanagement und zu Reflexionsaufgaben. Der technische Block fokussierte auf die Benutzer:innenfreundlichkeit, die Navigation und das visuelle Design der Plattform. Im letzten Block wurden konkrete Änderungsvorschläge erfragt. Die Interviews wurden mit der Frage «Welche Optimierungs- und Änderungsvorschläge habt ihr?» eingeleitet, gefolgt von vertiefenden Fragen zu den persönlichen Erfahrungen der Teilnehmenden. Aufrechterhaltungsfragen wie «Könnt ihr mir noch andere Dinge sagen?» oder «Habt ihr ein

Beispiel, damit ich es mir besser vorstellen kann?» wurden verwendet, um detailliertere Einblicke zu gewinnen. Während der gesamten Durchführung wurde eine vertrauensvolle Atmosphäre geschaffen, in der sich die Teilnehmer:innen sicher und wertgeschätzt fühlten, um ihr Feedback und ihre Verbesserungsvorschläge offen mitzuteilen. Dieser umfassende Ansatz ermöglichte, ein breites Spektrum an Perspektiven und detaillierten Vorschlägen zur Optimierung der Lernplattform zu sammeln, die sowohl für die Qualitätssicherung als auch für die Weiterentwicklung des didaktischen Designs und der technischen Umsetzung genutzt werden können.

Ergebnisse

Deskriptive Ergebnisse

Die deskriptiven Kennwerte (N, M, SD) und die bivariaten Korrelationen zwischen den beiden Subskalen sind in Tabelle 3 dargestellt. Die Mittelwerte zeigten eine insgesamt positive Bewertung der FoResT-Module, wobei die durchschnittliche Bewertung für den Inhalt bei $M = 3.50$ und für das Design bei $M = 4.02$ lag. Die bivariaten Korrelationen zwischen Inhalt und Design wiesen einen hoch signifikanten und nach Cohen (1998) mittleren positiven Zusammenhang ($r = .42, p < .001$) auf.

Tabelle 3

Deskriptive Übersicht und bivariaten Korrelationen der Lernplattform-Bewertungen zu Inhalten und Design

Variable	Items	Beispielitem	Deskriptive Statistik				Korrelationen	
			N	M	SD	α	1	2
1. Inhalte (INH)	8	Die Inhalte sind nützlich für mich.	134	3.50	.863	.926	—	
2. Design (DES)	4	Das Design finde ich ansprechend.	134	4.02	.779	.820	.421**	—

Anmerkungen. α = Cronbachs alpha. Skalierung: 1 = «stimme überhaupt nicht zu» bis 5 = «stimme überhaupt nicht zu». * $p < .01$, ** $p < .001$ (zweiseitig)

Tabelle 3 zeigt die durchschnittliche Bewertung pro Item bzw. Frage. Alle Mittelwerte für die Inhalte lagen über $M = 3.35$ und für das Design über $M = 3.78$. Die Durchschnittswerte für die Grafiken und das Design lagen mit $M = 4.11$ und $M = 4.28$ deutlich am höchsten. Die Studierenden empfanden die Module und Grafiken als sehr ansprechend und angemessen gestaltet. Es lässt sich feststellen, dass die Bewertungen der übrigen Items nahezu einheitlich ausfielen. Der höchste Wert für die inhaltlichen Aspekte bezog sich auf die Relevanz ($M = 3.76$), der niedrigste auf die Weiterempfehlung ($M = 3.35$).

Tabelle 4

Häufigkeiten (%) der Ausprägungen und Mittelwerte pro Item/Frage

Items / Fragen	1	2	3	4	5	Gesamt-Mittelwert
Inhalt (INH)						
Nützlich	1 (0.7)	18 (13.4)	40 (29.9)	48 (35.8)	27 (20.1)	3.61
Interessant	3 (2.2)	22 (16.4)	33 (24.6)	56 (41.8)	20 (14.9)	3.51
Relevant	2 (1.5)	18 (13.4)	25 (18.7)	54 (40.3)	35 (26.1)	3.76
Unterstützt Reflexion	4 (3.0)	23 (17.2)	43 (32.1)	43 (32.1)	21 (15.7)	3.40
Ermöglicht Wissens-entwicklung	8 (6.0)	18 (13.4)	41 (30.6)	49 (36.6)	18 (13.4)	3.38
Zukünftige Verwendung im Berufsalltag	4 (3.0)	14 (10.4)	38 (28.4)	52 (38.8)	26 (19.4)	3.61
Zukünftiges Zurückgreifen auf Inhalte	7 (5.2)	19 (14.2)	47 (35.1)	40 (29.9)	21 (15.7)	3.37
Weiterempfehlung	13 (9.7)	22 (16.4)	34 (25.4)	35 (26.1)	30 (22.4)	3.35
Gesamtmittelwert						3.50
Design (DES)						
Ansprechendes Design	2 (1.5)	8 (6.0)	21 (15.7)	45 (33.6)	58 (43.3)	4.11
Angemessene Grafiken	1 (0.7)	5 (3.7)	13 (9.7)	51 (38.1)	64 (47.8)	4.28
Gutes Zurechtfinden auf Lern-plattform	3 (2.2)	14 (10.4)	32 (23.9)	46 (34.3)	39 (29.1)	3.78
Gute Struktur	1 (0.7)	12 (9.0)	29 (21.6)	50 (37.3)	42 (31.3)	3.90
Gesamtmittelwert						4.02

Anmerkungen: N = 134. Range: 4. Skalierung: 1 = «stimme überhaupt nicht zu» bis 5 = «stimme überhaupt nicht zu»

Qualitative Ergebnisse

In diesem Kapitel werden zunächst die qualitativen Ergebnisse aus dem Fragebogen dargestellt. Die Aussagen der Studierenden im Fragebogen werden mit Buchstaben und Zahlen anonymisiert, z. B. QP10, wobei Q für «Questionnaire» und P für «Participant» steht, gefolgt von einer Nummerierung. Ergänzend werden daran anschließend die Ergebnisse der Gruppendiskussionen präsentiert. Für Aussagen in den Gruppendiskussionen werden zusätzlich Absatzangaben gemacht, z. B. G1P1, Absatz 82: G steht für «Group discussion», 1 für die erste Gruppendiskussion, P für «Participant» mit der jeweiligen Nummerierung und Absatznummer im Interviewtranskript.

Auswertungen der offenen Frage im Fragebogen

Mit der offenen Frage («Möchtest du noch etwas zu den Modulen sagen?») am Ende des Fragebogens wurden die Studierenden angeregt, weitere Kommentare oder Verbesserungsvorschläge zu formulieren. Von den insgesamt 136 Studierenden gab gut die Hälfte (n = 69) eine Rückmeldung. Die Rückmeldungen der Studierenden lassen sich in zwei übergeordnete Kategorien einteilen: (A) Positives und Stärken, (B) Verbesserungsvorschläge.

A Positives und Stärken der Module

Die Studierenden äusserten sich im Allgemeinen positiv und wertschätzend zu den Inhalten der Module. Viele sahen den Nutzen und die Relevanz der Lernplattform. Die Inhalte regten zur Reflexion an.

Dankbarkeit, Lob und positive Kommentare. Die Studierenden (n = 17) brachten Dank, Lob, Wertschätzung oder sonstige positive Kommentare zu den Modulen an. Einige hielten sich kurz mit «Danke» (QP10), «Gute Arbeit» (QP39) oder «Vielen Dank für den Aufwand ;-))» (QP70).

Andere führten länger aus: «Danke, dass euch die Gesundheit der Lehrpersonen am Herzen liegt!» (QP11) oder «Merci für das Engagement und für die Möglichkeit, euer tolles Modul benutzt haben zu dürfen!» (QP55). Auch allgemeine positive Kommentare wie «War eine tolle Erfahrung» (QP73), «Juhuu» (QP51) oder als grafisches Zeichen wie «:)» für ein Lächeln (QP4), um Freude auszudrücken.

Nutzen und Relevanz. Die Inhalte der Module wurden von den Studierenden (n = 15) als hilfreich, nützlich, relevant und spannend beschrieben: «Für mich war diese Plattform sehr hilfreich und interessant, [...] ich werde sehr gerne später darauf zurückgreifen.» (QP38), «sehr hilfreich!» (QP65). Sie konnten einen persönlichen Nutzen daraus ziehen (n = 7): «Das Modul hat mir sehr gefallen und ich konnte viel daraus mitnehmen! Vielen Dank» (QP13) oder «Mir persönlich hat es sehr geholfen, da ich anfangs Schuljahr etwas Mühe mit dem Unterrichten hatte» (QP58). Die Module konnten auch zur Stressreduktion und zur Stärkung des eigenen Selbstvertrauens beitragen (n = 4):

«Das Modul hat mir geholfen, mit Stress umzugehen und mir selber zu vertrauen.» (QP12). Die Modulinhalt wurden zudem als relevant für das Studium und die weitere Berufspraxis erachtet (n = 2): «Der Fokus auf die LP war erfrischend, das kommt im Studium zu kurz» (QP16), «Bitte dieses Projekt lange fortsetzen. Viele Lehrpersonen können davon profitieren» (QP8) und «Mit dieser Lernplattform wurden sehr wichtige Themen zusammengefasst, welche an einer PH behandelt werden sollten.» (QP59).

Die Studierenden erwähnten Positives und gleichzeitig Aspekte, welche ihnen weniger relevant erschienen (n = 2): «Es hat Themen gegeben, welche mich angesprochen haben, und Themen mit denen ich mich wenig identifizieren konnte» (QP31).

Anregung zur Reflexion. Als weitere Stärke der Module wurde der Reflexionsgehalt der Inhalte genannt. Die Inhalte boten Anlass zur Reflexion: «Die Inhalte waren interessant und

haben mich zur Reflexion angeregt. Von den Tipps werde ich einiges mitnehmen können.» (QP19). Sie gaben Anlass zur Auseinandersetzung mit sich selbst: «Mir hat FoResT sehr gut gefallen. Ich kenne mich zwar gut, aber ich habe mich noch nie so richtig reflektiert und das habe ich durch FoResT das erste Mal gemacht und das hat mir sehr geholfen und habe ich als nützlich erachtet.» (QP57)

B Verbesserungs- und Optimierungsvorschläge

Neben den Stärken nannten die Studierenden auch Verbesserungs- und Optimierungsvorschläge. Diese lassen sich sechs Kategorien zuordnen: Länge und Inhalte der Module, Zeitaufwand und Implementierung im Seminar, Zeitpunkt der Freischaltung, Handling und Übersicht, Fallbeispiele sowie Bezüge zur eigenen Lebenswelt und Vorwissen.

Zeitaufwand und Implementierung im Seminar. Aussagen (n = 7) bezogen sich auf den zeitlichen Mehraufwand durch die FoResT-Module. Insbesondere wurde der Zeitaufwand im Zusammenhang mit der Integration von FoResT in das reguläre Seminar angesprochen:

«FoResT ist grundsätzlich eine gute Sache. Beim Einbezug ins Modul BBE gibt es aber noch Optimierungsmöglichkeiten. Der Aufwand von Forest ist sehr gross, um alle Texte zu lesen und die Fragen zu beantworten. Wenn man gleichzeitig noch Texte für die Seminarinhalte lesen muss, gerät FoResT in den Hintergrund ...». (QP37).

Bezüglich der Implementierung im Seminar erfolgten Optimierungsvorschläge (n = 3): «Eine feste Integration in ein Modul würde mehr Sinn machen. So würde die Beschäftigungsbereitschaft und die Ernsthaftigkeit in der Bearbeitung nochmals steigen.» (QP29). Weitere Vorschläge wurden im Zusammenhang mit den vorgegebenen Zeitangaben zur Bearbeitungsdauer gemacht (n = 4), z. B. «Es wäre toll gewesen, wenn es für die einzelnen Lernmodule ungefähre Zeitangaben hätte.» (QP36).

Zeitpunkt der Freischaltung. Weitere Rückmeldungen (n = 8) betrafen den Zeitpunkt der Freischaltung bzw. die wöchentliche Freischaltung der Module: «Es wäre gut, wenn man nicht immer drei Tage warten muss, bis das neue Modul freigeschaltet wird.» (QP35), oder «Ich finde es schade, dass man am Anfang nur ein Modul pro Woche bearbeiten konnte, danach waren die Abstände kürzer» (QP47)). Diese fixe Freischaltung führe zu Schwierigkeiten beim Aufholen von verpassten Modulen (n = 2):

«Die Idee, dass man nur 1 Modul all drei Tage bearbeiten kann, ist zwar im Grunde genommen sinnvoll, jedoch wenn man eine Woche eines verpasst, verliert man schnell den Anschluss und muss dann lange warten, bis man weiter machen kann.» (QP18).

Handling und Übersicht. Die Rückmeldungen (n = 5) bezogen sich auch auf die Handhabung der Lernplatt- form, der Antwortübersicht und das Lernjournal (WOOP bzw. Dein Plan). Dabei wurden Optimierungsvorschläge im Zusammenhang mit einer Übersicht über die eigenen Antworten gemacht: «ich würde eine bessere Übersicht schätzen bezüglich der bereits erbrachten Leistungen und persönlichen Antworten [...]» (QP49) und zum Lernjournal (WOOP bzw. Dein Plan): «[...] es wäre schön gewesen, eine Seite zu haben, wo man seine Erkenntnisse bündeln könnte. Hier hätte man mein Plan besser ausbauen können.» (QP17).

Fallbeispiele. Die Rückmeldungen (n = 3) zu den Fallbeispielen zeigten ein unterschiedliches Bild. Einerseits halfen die Beispiele, die Modulthemen zu konkretisieren («Durch die Praxisbeispiele wurden die Themen konkret.» (QP28). Andererseits war die Konfrontation mit den Fallbeispielen für eine Person schwierig:

(«[...] für mich persönlich war manchmal die Konfrontation mit <schwierigen> Situationsbeschreibungen, wie sie im Schulalltag vorkommen können, sehr abschreckend, weil ich mir sowieso schon viele Gedanken mache über die schwierigen Situationen/Herausforderungen im Schulalltag. [...]» (QP20)).

Wieder andere wünschten sich mehr Fallbeispiele: «Es sollte mehr Fallbeispiele zum Lösen haben, zu welchen später Musterlösungen ersichtlich sind.» (QP33).

Bezüge zur eigenen Lebenswelt und Vorwissen

Wünsche betrafen zudem einen stärkeren Bezug der Modulinhalte zur eigenen Lebenswelt bzw. zum Vorwissen (n = 3). Einige Teilnehmende (n = 3) äusserten den Wunsch nach einem stärkeren Bezug der Modulinhalte zur eigenen Lebenswelt bzw. zu ihrem Vorwissen. Dies wurde sowohl von Studierenden als auch von Quereinsteiger:innen angemerkt. Eine studentische Rückmeldung lautete beispielsweise:

«Ich fand es teilweise noch schwierig, einen Transfer zu der Arbeit als Lehrperson zu machen. Für mich persönlich wären viele Aspekte in meinem Alltag sinnvoll gewesen – genauere Anwendungen für Student:innen wären noch interessant gewesen. Angefangen zu Arbeiten habe ich erst, während den Modulen» (QP43).

oder als Quereinsteiger:in mit Familie:

«Die Beispiele sind sehr auf junge alleinlebende Berufseinsteiger:innen ausgerichtet. Als Quereinsteigerin mit Familie fühlte ich mich oft durch keine der drei Personen wirklich angesprochen. Viele Fragen/Punkte sind seltsam/irrelevant, wenn man neben dem Beruf noch einen anspruchsvollen Familienalltag organisieren muss» (QP17).

Auswertungen der Gruppendiskussion

In diesem Unterkapitel werden die Ergebnisse der Gruppeninterviews dargestellt. Die kodierten Analyseeinheiten bildeten die genannten Änderungswünsche und -vorschläge, um die Lernplattform weiter zu verfeinern. In den Gruppendiskussionen wurde der Frage nachgegangen, wie FoResT für den Einsatz an der PH Bern optimiert werden könnte. Die Aussagen der angehenden Lehrpersonen wurden nach den gleichen Unterkategorien wie im vorherigen Kapitel geordnet, da die Interview- daten zur Vertiefung der Ergebnisse der offenen Frage dienten. Die übergeordnete Kategorie «Positives und Stärken der Module» wurde in der

Analyse der Interview- daten nicht berücksichtigt, da der Fokus der Kodierung ausschliesslich auf Verbesserungsvorschlägen lag. Folglich enthielten die kodierten Segmente nur Informationen zu möglichen Optimierungen.

Verbesserungs- und Optimierungsvorschläge

Die Studierenden nannten Verbesserungs- und Optimierungsvorschläge in sieben Kategorien: Reflexionsaufgaben, Implementierung im Seminar, Handling und Übersicht, sowie Bezüge zur eigenen Lebenswelt und Vorwissen.

Reflexionsaufgaben. Während in der offenen Frage unter «Positives und Stärken» die Reflexion erwähnt wurde, wurde diese in den Gruppeninterviews unter Schwächen genannt (n = 4). Die Rückmeldungen bezogen sich zum einen auf den Sinn und die Art der Reflexionsaufgaben: «was bringt's mir jetzt, ein Streitgespräch oder eine Diskussion nochmals hervorzuholen, die ich eigentlich schon abgeschlossen habe. Und ich fand das dann etwas künstlich und auch etwas erzwungen» (G1P1, Absatz 82). Zum anderen wurde die Menge der Reflexionsfragen kritisiert: «Aber ab und zu wurde es mir dann fast etwas zu viel, weil ja dann, es geht immer überall so ums Reflektieren und in den Seminaren muss immer alles reflektiert werden. Dann war es mir ab und zu etwas zu viel.» (G2P2, Absatz 37). Schliesslich erfolgten konkrete Verbesserungsvorschläge, beispielsweise mehr konkrete Fallbeispiele statt Fragen zu nehmen, wie diese Aussage verdeutlicht:

«Bei vielen Fragen ging's darum, wie hast du das damals erlebt (..) ich hatte nicht viele so Momente und da wäre es vielleicht sinnvoll gewesen, das so zu formulieren (..) eh wie würdest du da- ein konkretes Fallbeispiel und wie würdest du darauf reagieren (..)» (G4P1, Absatz 22).

Implementierung im Seminar. Im Vergleich zu den Antworten auf die offene Frage bezogen sich die meisten Nennungen in den Gruppeninterviews nicht auf den Zeitaufwand, sondern auf die Implementierung. In den Interviews gab es nur eine Nennung, welche sich direkt auf den Zeitaufwand der Module bezog:

«[A]ndererseits war es halt einfach mehr Aufwand (.) also ich finde, so wie's jetzt – so wie's jetzt ist und im Modul [BEE-Modul] integriert wurde (.) [...] einfach ein Modul, was eigentlich fünf ECTS und nicht drei geben müsste» (G3P4, Absatz 44).

Diese Aussage beinhaltete gleichzeitig das Thema der Implementierung der Module im BBE-Seminar, was von mehreren Studierenden (n = 13) erwähnt wurde. Die Studierenden wünschten sich eine stärkere «Vernetzung mit dem Modul BBE» (G1P2, Absatz 65), «eine Brücke zwischen den beiden» (G1P4, Absatz 41) oder FoResT als eigenes, separates Modul (G3P4, Absatz 51; G3P1, Absatz 66).

Ein stärkerer Bezug zu FoResT-Inhalten in den Seminaren könnte gemäss den Studierenden auf verschiedene Weise hergestellt werden: Bei der Evaluation der Lernplattform äusserten die Studierenden den Wunsch nach einer Erweiterung der Reflexions- und Interaktionsmöglichkeiten in Bezug auf die Modulinhalte. Sie regten einen stärkeren gemeinsamen Austausch im Seminar an und wünschten sich mehr Reflexionsaufgaben, um ihre Lernprozesse besser zu unterstützen (G1P2, Absatz 43). Zudem wurde der Wunsch geäussert, gemeinsam mögliche Strategien anhand von Fallbeispielen zu sammeln (G3P1, Absatz 104) und Gruppenarbeiten zu ermöglichen (G3P3, Absatz 145). Ein regelmässiges Aufgreifen, Besprechen und Festhalten der Modulinhalte im Seminar wurde ebenfalls als hilfreich erachtet (G1P2, Absatz 141). Diese Rückmeldungen deuten auf den Wunsch nach einer stärkeren Verzahnung von individueller Online-Arbeit und kollaborativen Präsenzelementen hin und lassen sich als Anregung zur Weiterentwicklung des didaktischen Designs der Lernplattform interpretieren, insbesondere im Hinblick auf die Integration zusätzlicher metakognitiver und

sozialer Lernerfahrungen. Die Ergebnisse deuten darauf hin, dass eine stärkere Vernetzung der Inhalte auch positive Auswirkungen auf die Motivation der Studierenden haben könnte, wie folgende exemplarische Aussage veranschaulicht:

«Ich glaub, wenn ich (.) einen Grund habe, das auf das Seminar zu machen, eh dann habe ich automatisch Ansporn, mich darum zu kümmern, damit ich auch mitreden kann, weil sonst kann ich grad' genauso gut zu Hause bleiben. Wenn ich da nicht mitsprechen kann. Ehm und daher finde ich es schon, wenn diese Verbindung etwas enger wäre mit dem Modul BBE, dann wär' das wahrscheinlich für mich genug, ah, also Ansporn genug, mich wöchentlich darum zu kümmern.» (G1P2, Absatz 65).

Handling und Übersicht. In dieser Kategorie wurden Aussagen betreffend Handling, Übersicht und Anmeldung gemacht. Die Auswahl von drei Farbpaletten führte bei einigen Studierenden (n = 3) zu Verwirrung (G2P1, Absatz 103; G2P4, Absatz 95; G4P3, Absatz 78), insbesondere «dass die Farbpaletten mit dem Namen [den Charakteren] gekoppelt sind» (G2P4, Absatz 93). Zur Optimierung wurde eine Individualisierung der Oberfläche vorgeschlagen:

«Wenn man's vielleicht anpassen würde (.) eh mit einem Fragebogen und individualisieren könnte, würde sich dann vielleicht auch die Oberfläche anpassen und das wäre so seine Idee, dann wäre es ja wieder cool, wenn es verschiedene Figuren hat.» (G4P3, Absatz 81).

Bezüge zur eigenen Lebenswelt und Vorwissen. Während die Rückmeldungen zur offenen Frage einen stärkeren Bezug der Module zur eigenen Lebenswelt (als Student:in bzw. Quereinsteiger:in) betrafen, nannten die Studierenden in den Interviews vor allem Optimierungsmöglichkeiten hinsichtlich einer Vertiefung und Individualisierung der Inhalte. Eine studierende Person schlug eine Vertiefung wie folgt vor:

«Ja, dass die Inhalte in Stufen angeboten werden. Da habe ich Achtsamkeit üben, okay, das finde ich jetzt weniger interessant oder kenne ich mich schon besser aus. Mache ich nur

vielleicht Stufe eins und wo ich nicht mehr vertiefen möchte, Stufe zwei oder so.» (G1P2, Absatz 78).

Nennungen betrafen ebenfalls eine Individualisierung der Inhalte, indem beispielsweise «am Anfang ist, so ein, zwei drei Fragen» stehen und entsprechend den Antworten Modulinhalte vorgeschlagen werden, «sodass man so auch ein bisschen verlängern oder verkürzen kann und so an die Person anpassen» (G4P3, Absatz 50). Eine Person würde gerne selbst entscheiden wollen, in welcher Reihenfolge sie die Module erledigt: «dass es nicht so vorgegeben ist» (G4P1, Absatz 120).

Hinsichtlich des Zeitpunkts der Module im Studium gab es unterschiedliche Stimmen, z. B. in Bezug auf die Verbindung mit einem Praktikum, der Verschiebung ans Ende der Ausbildung oder die Implementierung beim Berufseinstieg. Es wurde aber auch die Wichtigkeit des im Projekt gewählten Zeitpunkts betont:

«Aber ich bin eigentlich trotzdem froh, wenn ich's jetzt schon im dritten Semester gemacht habe, weil für mich hat's trotzdem jetzt viel schon auch geholfen, ich fühl' mich auch schon ein bisschen sicherer (...) wenn ich dann arbeite, weiss ich, auf was ich achten muss» (G4P3, Absatz 155).

Diskussion

In diesem Beitrag wurde der Prozess eines designbasierten Forschungsansatzes (Nieveen 1999; Nieveen und Folmer 2013) vorgestellt, der zur Entwicklung und Optimierung der FoResT-Lernplattform verwendet wurde. Diese wurde erarbeitet, um Studierenden der Lehrer:innenbildung ein Online-Tool zur Förderung der Resilienz-entwicklung zur Verfügung zu stellen. In Zusammenarbeit mit (angehenden) Lehrpersonen in einem realen Bildungskontext wurde die Lernplattform sowohl einer formativen als auch summativen Evaluation unterzogen. Durch den konstruktiven Austausch und dem Einbezug medienpädagogischer und -didaktischer Grundlagen wurde die Lernplattform weiterentwickelt, um neben theoretischen auch den technischen und pragmatischen Ansprüchen der Nutzer:innen gerecht zu werden. Die

Lernplattform konnte im Rahmen eines hochschulischen Lernsettings genutzt werden, um die Resilienz angehender Lehrpersonen zu fördern. Die FoResT-Lernplattform hat sich als effektives Instrument zur Förderung der Resilienz bei angehenden Lehrpersonen erwiesen (Krummenacher et al., Manuskript in Vorbereitung). Durch die Bearbeitung der Module erhielten die Studierenden nicht nur theoretisches Wissen, sondern auch praktische Strategien zur Bewältigung beruflicher Herausforderungen. Die Plattform unterstützt somit direkt die Entwicklung von Resilienz, indem sie Lehramtsstudierende befähigt, personelle und kontextuelle Ressourcen aufzubauen und ein Repertoire an Bewältigungsstrategien zu entwickeln. Dabei erkannten angehende Lehrpersonen die Bedeutung einer bewussten Auseinandersetzung mit Herausforderungen im Lehrberuf. Einerseits erlernten sie, aktiv personelle und kontextuelle Ressourcen aufzubauen, beispielsweise indem sie Beziehungen pflegen. Andererseits erhielten sie durch die Bearbeitung aller Module der Lernplattform ein persönliches Repertoire an Strategien, um in ihrer zukünftigen Berufstätigkeit möglichst professionell agieren zu können. Diese direkte Verbindung zwischen der Lernplattform und der Resilienzentwicklung unterstreicht die praktische Relevanz unseres Ansatzes für die Lehrpersonenbildung. Dabei wurden verschiedene medienpädagogische Prinzipien berücksichtigt, wie sie etwa von Baacke (2013) und de Witt (2022) formuliert wurden, um eine ganzheitliche Lernumgebung zu schaffen.

Einer der wichtigsten Erträge dieser Studie ist die Identifizierung von Verbesserung- und Optimierungsvorschlägen in verschiedenen Bereichen der FoResT- Lernplattform. Die Auswertung aller Ergebnisse, die von der Länge und dem Inhalt der Module bis hin zum Zeitpunkt der Veröffentlichung und der Integration in Seminare reichen, verdeutlicht die Auswertung die Komplexität von digitalem Lernen, das den unterschiedlichen Bedürfnissen von Lernenden und Lehrenden gerecht werden muss (Scherer et al. 2021; Budde 2021; Petko 2010; 2020). Dies spiegelt die von Hüther und Schorb (2005) betonte Notwendigkeit wider, Medienpädagogik mit einer ganzheitlichen Fragestellung anzugehen und Erkenntnisse

verschiedener Wissenschaften einzubeziehen. Durch die Einbeziehung des direkten Feedbacks der Endnutzer:innen konnten wir spezifische Bereiche für Verbesserungen identifizieren und iterative Designentscheidungen treffen. Basierend auf diesen Erkenntnissen sind sowohl ein Rebrush der Nutzer:innenoberfläche als auch eine inhaltliche Überarbeitung der Module geplant. Basierend auf den Erkenntnissen unserer Studie sind folgende Weiterentwicklungen der FoResT-Lernplattform geplant: (1) Ein Rebrush der Nutzer:innenoberfläche zur Verbesserung der Benutzerfreundlichkeit und des visuellen Erscheinungsbilds; (2) eine inhaltliche Überarbeitung der Module, um diese noch besser an die Bedürfnisse der Quereinsteigenden anzupassen und die Resilienzförderung zu optimieren; (3) technische Verbesserungen, insbesondere im Bereich der Interaktivität und der Integration von Multimedia-Elementen, (4) eine Anpassung der Modullängen und -inhalte basierend auf dem Feedback der Nutzer:innen, (5) die Entwicklung neuer Praxisbeispiele, die spezifisch auf aktuelle Herausforderungen im Lehrberuf eingehen.

Diese Weiterentwicklungen zielen darauf, die Effektivität der Plattform bei der Resilienzförderung weiter zu steigern und sie noch besser in die Lehramtsausbildung zu integrieren. Zusätzlich stehen technische Verbesserungen an, insbesondere im Bereich der Benutzerfreundlichkeit und Interaktivität, um die Lernplattform kontinuierlich an die Bedürfnisse der Nutzer:innen anzupassen.

Unsere Studie betont die Notwendigkeit, sowohl technologische als auch pädagogische Aspekte von Bildungsmassnahmen zu berücksichtigen (Seufert und Scheffler 2018). Die medienpädagogischen Überlegungen wurden gezielt in die Entwicklung der Lernplattform integriert. Für einen optimalen Aufbau der Module wurden Lerninhalte anhand eines strukturierten Lernpfads organisiert, der den Lernprozess über mehrere Schritte hinweg systematisch begleitet (Kerres 2024). Die Berücksichtigung der Multimedialität führte zu einer bewusst abwechslungsreichen Gestaltung mit Texten, Grafiken, Videos und Audiobeiträgen, um das Lernen der Studierenden gemäss Mayers (2024) Theorie des multimedialen Lernens zu

fördern. Mayer geht dabei von einem dualen Verarbeitungssystem aus, bestehend aus einem visuellen und einem verbalen Kanal, während Kerres (2024) dies auf verschiedene Sinneskanäle bezieht. Technologische Aspekte wurden durch die Optimierung der Benutzer:innenoberfläche adressiert, was die Benutzer:innenfreundlichkeit erheblich verbesserte. Pädagogische Konzepte fanden Eingang durch die Integration von Reflexionsaufgaben und Fallstudien, die darauf zielen, das Engagement der Lernenden zu steigern und die Praxisrelevanz des Gelernten zu verdeutlichen (Kerres 2024; Mayer 2024).

Diese Kombination aus strukturiertem Lernpfad, multimedialer Gestaltung, technischer Optimierung und pädagogisch fundierten Aufgaben schaffte eine ganzheitliche Lernumgebung, die auf die Bedürfnisse moderner Bildungskontexte zugeschnitten ist. Dabei wurden neben den Ansätzen von Kerres (2024) und Mayer (2024) auch die Prinzipien konstruktivistischer Lernangebote nach Reinmann-Rothmeier und Mandl (2001) berücksichtigt, die das Lernen mit authentischen Problemen und in multiplen Kontexten betonen. Dieser Ansatz entspricht den Grundsätzen design- basierter Forschung, die sich für die Integration von Designprinzipien, Bildungstheorie und empirischer Evaluation einsetzt, um wirkungsvolle Bildungsinnovationen zu schaffen (Nieveen 1999; Nieveen und Folmer 2013). Für die Zukunft sind Langzeitstudien geplant, um die nachhaltige Wirkung der FoResT-Lernplattform auf die Resilienzentwicklung von Lehrpersonen zu untersuchen. Darin soll auch erforscht werden, welche spezifischen Module besonders effektiv sind und wie die Plattform für verschiedene Zielgruppen optimiert werden kann. Zudem streben wir eine breitere Implementierung der Plattform in die Lehramtsausbildung an, um ihre Wirksamkeit in verschiedenen Bildungskontexten zu evaluieren. Während unsere Plattform effektiv Resilienzstrategien vermittelt, ist es wichtig, Rummlers (2018) Warnung zu beachten, dass Medienbildung nicht auf blosse «Skills» und Anwendungskompetenzen reduziert werden sollte.

Darüber hinaus unterstreichen unsere Ergebnisse die dynamische Natur von Bildungsinterventionen in komplexen Lernumgebungen (Nieveen 1999; Nieveen und Folmer

2013). Dieser Ansatz entspricht dem von Aufenanger und Bigos (2023) formulierten Ziel der Medienerziehung, kompetentes und selbstbestimmtes Handeln in einer durch Medien geprägten Welt zu fördern. Der iterative Charakter design- basierter Forschung ermöglichte uns, die FoResT-Lernplattform auf der Grundlage von laufendem Feedback und Evaluierung anzupassen und zu verfeinern. Durch die kontinuierliche Beobachtung der Erfahrungen der Endnutzer:innen und die entsprechende Anpassung der Lernplattform waren wir in der Lage, aufkommende Herausforderungen anzugehen und Verbesserungsmöglichkeiten umzusetzen. Die Anwendung mediendidaktischer Prinzipien (Kerres 2024; Mayer 2024) in der Entwicklung der FoResT-Plattform hat sich als wertvoll erwiesen. Dennoch zeigt unsere Studie, dass die bloße Anwendung dieser Prinzipien nicht ausreicht, um die komplexen Herausforderungen der Resilienzförderung im digitalen Raum vollständig zu adressieren.

Bei unserem Design-Based-Research Ansatz standen weniger Fragen nach Repräsentativität und kausalen Wirkannahmen im Fokus. Stattdessen lag unser Schwerpunkt auf der iterativen Entwicklung und Verbesserung der Lernplattform in einem realen Bildungskontext. Dieser spezifische Bildungskontext schränkt die Übertragbarkeit unserer Ergebnisse auf andere Umgebungen ein. Darüber hinaus können die subjektive Natur des Nutzer:innenfeedbacks in Kombination mit der geringen Stichprobengröße zu Verzerrungen geführt haben. Eine zentrale Limitation unserer Studie besteht in der Ungewissheit über die praktische Anwendbarkeit des erlernten Wissens im beruflichen Alltag der Lehrpersonen. Obwohl die Lernplattform Strategien zur Bewältigung von Herausforderungen und zum Aufbau von Resilienz vermittelt, bleibt die Frage nach der langfristigen Wirksamkeit und nachhaltigen Anwendung dieses Wissens offen.

Während unsere Studie die Potenziale digitaler Lernplattformen zur Resilienzförderung aufzeigt, ist es wichtig, eine kritische Perspektive auf die oft unreflektierte Verwendung der Begriffe «Resilienz» und «Digitalisierung» als Allheilmittel für individuelle und strukturelle Herausforderungen im Bildungsbereich zu wahren (Braun et al. 2021; Fröhlich-Gildhoff und

Rönnau-Böse 2020). In Übereinstimmung mit Braun et al. (2021) berücksichtigt unser Ansatz deshalb nicht nur technische Aspekte, sondern auch ethische, soziale und kulturelle Dimensionen der Digitalisierung. Dies spiegelt sich beispielsweise in der Gestaltung unserer Reflexionsaufgaben und Fallstudien wider.

Die Verbindung von Resilienzförderung, Mediendidaktik und digitaler Lernplattform könnte neue Möglichkeiten für die Ausbildung in einer zunehmend digitalisierten Bildungslandschaft aufzeigen. Weitere Forschung ist jedoch notwendig, um die Effektivität und Nachhaltigkeit dieses Ansatzes im Kontext der sich wandelnden Anforderungen an Lehrpersonen und der fortschreitenden Integration digitaler Technologien in Bildungsprozesse umfassend zu evaluieren.

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Chapter 11: Discussion

This dissertation has explored the dynamic interplay between health, resilience, and the professional challenges faced by teachers, following a deliberate trajectory that begins with pre-service teacher health, extends to in-service challenges, and culminates in the development of a resilience-building platform. While this narrative underscores the importance of early intervention in teacher education and connects it to systemic and practical solutions, it is not without its limitations. This chapter critically examines the contributions and shortcomings of the dissertation, reflecting on methodological and conceptual challenges while situating the findings within broader theoretical frameworks.

Teaching is increasingly recognized as a high-stress and high-demand profession, exacerbated by societal and educational changes that have increased the complexities faced by educators (Gu, 2018; Mansfield et al., 2021). Recruitment and retention challenges are further intensified during the critical transition from teacher education to professional practice when pre-service teachers encounter significant stressors (Mansfield et al., 2016). Burnout rates, which were already of concern prior to the COVID-19 pandemic, have since escalated, highlighting the urgent need for strategies that mitigate stress while promoting resilience (Crosby et al., 2020; de Einav et al., 2024).

Amidst these challenges, resilience has emerged as a central concept for understanding and promoting teacher well-being. For these teachers, resilience serves not only as a mechanism for coping with stress but also as a cornerstone for building sustainable and thriving careers in education.

This chapter critically reflects on the findings of this dissertation, positioning them within the broader theoretical frameworks presented throughout. By engaging with key constructs such as resilience, well-being, and coping, the chapter explores how empirical evidence links with existing theories to inform and expand contemporary understandings of teacher resilience. Central to this discussion are appraisal processes, resource availability, and strategy selection –

elements that are critical in shaping resilience outcomes. The AWaRE model, with its emphasis on the resilience process as part of a broader well-being framework, provides a conceptual anchor for this analysis (Hascher et al., 2021).

The Evolving Conceptualization of Resilience

The reconceptualization of resilience as a dynamic, interactive process rather than a fixed trait marks a pivotal shift in teacher education (Mansfield et al., 2016; Ungar, 2018). This perspective recognizes resilience as a function of individual characteristics, relational networks, and systemic contexts. Such an approach challenges traditional deficit-based models that focus on vulnerability and remediation, calling instead for proactive strategies that cultivate resilience as a fundamental component of teacher preparation.

For pre-service teachers, this shift necessitates embedding resilience-building into teacher education programmes. Strategies such as emotional regulation training, reflective practices, and structured coping mechanisms can empower teachers to navigate the complexities of professional practice. Programmes like the BRiTE framework exemplify this approach, integrating resilience-building modules with experiential learning activities to foster adaptive strategies and reflective capacities (Mansfield et al., 2021).

However, the evolving conceptualization of resilience has not been without its critics. Scholars have cautioned against the individualization of resilience, highlighting the risk of neglecting the systemic and structural factors that exacerbate teacher stress (Beltman, 2021; Gu & Day, 2007). Heavy workloads, insufficient resources, and unsupportive institutional climates are stressors that cannot be mitigated by individual resilience alone. If these systemic issues remain unaddressed, resilience-building efforts may fall disproportionately on teachers, further exacerbating burnout and attrition rates (Boon, 2021).

Moving Beyond Deficit Models

Addressing the multifaceted challenges of the teaching profession requires a paradigm shift from deficit-focused approaches to resource-oriented frameworks that emphasize resilience

as a cornerstone of professional sustainability (Fredrickson, 2001). Traditional models often address burnout reactively by identifying and mitigating vulnerabilities. In contrast, resilience-based strategies adopt a proactive stance, equipping teachers with the tools and resources they need not only to manage stress but also to grow and thrive in their professional roles (Seligman & Csikszentmihalyi, 2000).

This resource-oriented perspective aligns with positive psychology, which prioritizes the cultivation of strengths, well-being, and protective factors over the remediation of deficits (Fredrickson, 2001; Seligman & Csikszentmihalyi, 2000). Teachers who can draw on both internal resources, such as emotional regulation and self-efficacy, and external support mechanisms, such as collegial networks and a supportive school climate, are better equipped to navigate the complex demands of their profession (Gu & Day, 2007).

Resilience-based approaches go beyond the individual to encompass systemic and cultural factors. Sustainable teaching practices require environments that support teacher well-being, including equitable workload distribution, mentorship opportunities, and institutional policies that prioritize mental health. This holistic approach confirms that resilience is not just an individual attribute but a process embedded in relational and organizational contexts (Mansfield et al., 2016; Ungar, 2018).

To understand student health for better contextualizing resilience in higher education, the first article examines health and resilience among pre-service teachers. The article aligns with evolving conceptualizations of resilience as a dynamic process shaped by individual, relational, and systemic factors (Bagdžiūnienė et al., 2023; Beltman, 2021; Mansfield et al., 2016; Ungar, 2018). The article establishes a theoretical framework by integrating the biopsychosocial health model with current resilience concepts, reflecting the shift from trait-based to process-oriented understanding of teacher resilience.

The empirical foundation of the article draws primarily from AVEM studies in German-speaking regions, revealing significant risk patterns during teacher education. The Swiss context presents unique characteristics, particularly through its single-phase teacher education system and the prevalence of concurrent employment during studies. This aligns with research showing that institutional support through mentors, schools, and teacher education institutions plays a crucial role in developing teacher resilience (Heck & Ambrosetti, 2018; Izadinia, 2018).

A strength of the article lies in its examination of resilience programs, particularly BRiTE and ENTREE. These initiatives demonstrate the importance of formal support structures in enhancing pedagogical reflection (Nesje & Lejonberg, 2022) and building professional confidence. Recent research indicates that such structured support significantly influences student teachers' confidence and practicum satisfaction, contributing to their overall well-being (García-Lázaro et al., 2022).

The institutional context receives careful consideration, with particular attention to the challenges arising from the Swiss educational system. The analysis could benefit from exploring potential tensions between schools and universities through the lens of the Job Demands-Resources (JD-R) model (Bakker et al., 2023). Such an approach might provide additional insights into resource allocation and support mechanisms.

Research by Owan et al. (2024) emphasizes the importance of support mechanisms in helping pre-service teachers cope with reality shock and emotional strain during practicum phases. The article reflects this understanding while highlighting the limited explicit health offerings in current curricula. Parker et al. (2022) demonstrate that strong relationships and two-way learning benefit professional development outcomes, a finding that resonates with the article's emphasis on integrated support systems.

The article's main limitations include its geographic focus on German-speaking regions and the need for more systematic literature review. It would have been valuable if the first study's literature review had been conducted systematically, as this might have revealed, in line

with Figure 1, varying emphases across studies that could have contributed to a more holistic understanding of resilience. Future research would benefit from examining the role of digital media in resilience promotion and investigating the interactions between institutional and individual factors more thoroughly. Additionally, as suggested by current research trends, exploring the application of theoretical models like JD-R could enhance understanding of resource allocation in teacher education settings (Bakker et al., 2023).

Looking forward, the article suggests several research directions. These include the need for longitudinal studies tracking resilience development, systematic evaluation of promotion programs, and comparative analysis of different training contexts. The FoResT project promises to contribute valuable data on integrative resilience promotion. As Matsko et al. (2023) note, relationships grounded in teaching expertise and dedication prove particularly valuable in professional development contexts.

To delve into the daily challenges faced by teachers and the strategies they employ, the next article offers perspectives on how future teachers navigate professional demands while maintaining their wellbeing.

The second article explores the paradox of high professional challenges and moderate-to-high well-being among teachers by examining strategies employed in Swiss secondary schools. It employs a cross-sectional design to provide insights into the nature of these strategies, highlighting key adaptive mechanisms such as relational problem-solving and instrumental support-seeking. These findings underscore the importance of collegial collaboration and supportive school climates as critical factors in fostering teacher resilience.

The relational problem-solving identified in the study is consistent with broader research emphasizing the relational dimension of resilience (Beltman, 2021). Teachers who actively seek peer support or collaborate with colleagues demonstrate the protective value of professional networks that help them navigate the complexities of their roles. Similarly, instrumental support-seeking – where teachers rely on tangible resources or guidance from mentors and administrators

– reinforces the role of systemic support mechanisms in enhancing coping efficacy (Bagdžiūnienė et al., 2023; Gu & Day, 2007).

Research emphasizes how interpersonal connections and environmental factors build resilience in pre-service teachers. Studies confirm that institutional support, mentoring, and a collaborative environment are key drivers of resilience (Ainsworth & Oldfield, 2019; García-Martínez et al., 2021). The combination of relational support with self-efficacy and emotional skills creates a comprehensive framework for teacher well-being. This framework aligns with evidence showing supportive networks help reduce stress and enhance professional development (Gu & Day, 2007; Ledger, 2021).

While relational support is valuable, focusing on it alone may overlook key structural elements. Resilience development also depends on systemic factors like workload, policies, and institutional context (Bagdžiūnienė et al., 2023; Beltman, 2021). Additionally, cross-sectional approaches limit understanding of how resilience evolves over time (Chen, 2024), suggesting the need for longitudinal research, as discussed in Chapter 10.

Research suggests integrating relational resilience into teacher education through structured mentoring, reflection, and SEL approaches (Shi & Cheung, 2024). Programmes like BRiTE-AR demonstrate how combining mentorship with hands-on learning can support pre-service teachers' development (Ledger, 2021). Future research should track resilience development from training to practice, explore cross-cultural contexts, and examine institutional factors to better understand pre-service teacher resilience (Peixoto et al., 2018).

The third article provides a longitudinal perspective on how resilience evolves in response to professional challenges, emphasizing the role of adaptive strategies in fostering well-being. By identifying self-help, approach-oriented strategies, and relational support mechanisms as critical components of resilience, the study contributes to its dynamic understanding as an interplay between personal, relational, and systemic factors (Beltman, 2021; Ungar, 2018). A supportive school climate and peer communication enable teachers to handle challenges effectively,

complementing personal resilience factors like self-efficacy and emotional control (Beltman et al., 2016; Jentsch et al., 2022; Wang et al., 2023).

The study demonstrates how professional environments shape teacher resilience, moving beyond individual traits to examine systemic and relational factors. Our findings reveal differences in coping strategies across career stages. Similarly, Entesari et al.'s (2020) observations that experienced teachers develop more sophisticated approaches to professional challenges. Their work complements our results by showing how experiential learning shapes both strategy selection and how teachers interpret challenges themselves.

However, this study's findings reveal the persistence of maladaptive coping mechanisms, such as avoidance and self-punishment, particularly in unsupportive environments. This reflects a recurring theme in the literature on teacher well-being: while individual agency is essential, its impact is limited by systemic barriers. For example, heavy workloads, insufficient resources, and unsupportive leadership often hinder the adoption of adaptive strategies, exacerbating stress and burnout (Beltman, 2021; Gu, 2018; Mansfield, 2021). These systemic stressors highlight the need for reform beyond individual-level interventions, as emphasized by Li et al. (2024). Research emphasizes how interpersonal connections and environmental factors build resilience in pre-service teachers. Studies confirm that institutional support, mentoring, and a collaborative environment are key drivers of resilience (Ainsworth & Oldfield, 2019; García-Martínez et al., 2021). The combination of relational support with self-efficacy and emotional skills creates a comprehensive framework for teacher well-being. This framework aligns with evidence showing supportive networks help reduce stress and enhance professional development (Gu & Day, 2007; Ledger, 2021).

The article's reliance on qualitative methods enriches current understandings of the nuanced experiences of teachers, offering detailed insights into the psychological and relational dynamics of coping strategies. However, this approach also has limitations in terms of generalizability. While the findings represent an in-depth exploration of individual and relational

coping mechanisms, they do not fully account for the systemic and institutional factors that shape these strategies. As Bagdžiūnienė et al. (2023) noted, organizational culture and leadership styles play pivotal roles in influencing how teachers respond to professional challenges. For instance, supportive school leadership that prioritizes teacher well-being can reduce the reliance on maladaptive coping strategies and foster a more sustainable work environment (Mansfield et al., 2021).

The two-wave design of the third article is a significant strength, allowing for a nuanced exploration of how coping strategies evolve over time. This approach provides insights into the contextual factors influencing teachers' responses to professional challenges, such as leadership style and organizational culture (Skaalvik & Skaalvik, 2015). The identification of relational support mechanisms as a cornerstone of adaptive coping further highlights the interplay between individual and systemic factors. This understanding of temporal development in coping strategies is further supported by Entesari et al.'s (2020) mixed-methods investigation of Iranian EFL teachers, which revealed that experienced teachers demonstrated higher resilience levels and possessed more sophisticated coping repertoires compared to their novice counterparts. Their findings illustrate how coping mechanisms become more nuanced and complex over extended career spans, not just between two time points.

However, the study's focus on coping strategies may underemphasize the cognitive appraisal processes that precede strategy selection (Hascher et al., 2021). Research suggests that teachers' interpretations of challenges significantly influence their coping behaviours, an area that could enrich the findings (Hong et al., 2017; Lindqvist et al., 2020). Additionally, the reliance on qualitative methods, while providing depth, limits the generalizability of the results. Expanding the methodology to include mixed methods could provide a more comprehensive understanding of coping dynamics.

Future research could benefit from mixed-methods approaches that examine how systemic and individual factors interact to influence coping strategies. Recent longitudinal studies have revealed nuanced patterns in teacher resilience development. For example, Gillet et al. (2022) identified three distinct burnout trajectories among teachers - moderate levels with slight decrease, low levels with slight increase, and high levels with slight decrease - which were influenced by factors like self-efficacy and principal's leadership. Similarly, Duan et al. (2023) documented a V-shaped developmental trajectory in early career English teachers' resilience, characterized by five phases ranging from active engagement to passive coping and eventual renewed determination. These findings, along with Entesari et al.'s (2020) observations about the developmental progression from novice to experienced teacher resilience, highlight the need for further investigation into how institutional policies, workload distribution, and cultural norms shape these trajectories. Future longitudinal research should explore the long-term effects of adaptive and maladaptive coping on teacher retention and student outcomes, with particular attention to how professional development programs can be tailored to support teachers at different career stages through structured mentorship and guided reflection.

The fourth article represents a contribution to the discourse on resilience promotion within teacher education. It investigates the integration of resilience training within teacher education using a digital learning platform. The study adopts a design-based research approach, iteratively developing and optimizing the FoResT platform through three phases: conception, adaptation, and implementation. These phases utilized media didactic principles to create a tailored, interactive, and supportive learning environment for pre-service teachers (Krummenacher et al., 2024b). By focusing on the development and implementation of the FoResT platform, the study addressed a crucial need in contemporary teacher preparation: equipping pre-service teachers with socio-emotional competencies to navigate professional challenges effectively.

The study's strengths lie in its theoretical grounding and methodical approach, integrating resilience research with media didactic principles to create a platform tailored to the needs of pre-

service teachers involved, ultimately providing framework for fostering resilience through applications. The iterative design process, incorporating feedback across multiple stages, ensures the platform's relevance and usability (van Kessel et al, 2021). The inclusion of authentic scenarios, reflective tasks, and interactive elements fosters a comprehensive and engaging learning environment, aligning with best practices in digital education (Ifenthalter, 2016). Furthermore, the study emphasizes the critical role of resilience in teacher well-being and retention, contributing meaningfully to the broader field of teacher education research.

However, the study stops short of empirically testing the platform's impact on resilience outcomes. This omission limits the ability to evaluate whether the intervention achieves its intended goals (Fokkens-Bruinsmaa et al., 2023; Geetha & Fathima, 2023; Sokal & Trudel, 2023). Additionally, the study's focus on the Swiss context, while contextually rich, raises questions about the generalizability of its findings to other educational systems (Hoferichter & Jentsch, 2024; O'Brien et al., 2019). The reliance on technological solutions, though innovative, could inadvertently exclude individuals with limited digital literacy or access to resources. To fully realise the potential of these approaches, it is essential to address the methodological and conceptual challenges that underpin their integration, ensuring a narrative that bridges the gaps between individual findings and overarching goals.

Methodological and Conceptual Challenges

The individual articles offer valuable perspectives and findings, but the overarching narrative could be strengthened to create a more unified contribution. While there is a progression from exploring pre-service teacher health – through in-service challenges – to the development of the FoResT platform, the connections between these elements could be made more explicit. A deeper synthesis of the findings across the articles would help illuminate how each study builds on and reinforces the others. This integration would particularly benefit the presentation of the AWaRE model, allowing readers to better understand how the research findings collectively

support and validate its framework. Strengthening these conceptual bridges would transform what are currently distinct research contributions into a more cohesive and powerful academic narrative.

Overemphasis on Relational Factors

A recurring theme across the articles is an emphasis on relational support mechanisms, such as mentorship (Owan et al., 2024) and collegial networks (Ledger, 2021). While these factors are undoubtedly important, they risk overshadowing systemic issues such as workload distribution (Wesselborg & Bauknecht, 2022; Wettstein, 2023), institutional policies (McDonough et al., 2021), and cultural norms (Rönnau-Böse, 2021). Without addressing these structural challenges, resilience-building efforts may inadvertently shift the burden onto individual teachers, thereby perpetuating stress and attrition.

Limited Scope or Systemic Reform

The dissertation acknowledges systemic barriers but often stops short of proposing actionable solutions. For example, while the second article identifies heavy workloads and insufficient support as barriers to resilience, it does not offer specific recommendations for addressing these issues. A stronger focus on policy implications would strengthen the practical relevance of the findings.

Lack of Cross-Cultural Perspectives

Given the global nature of the challenges to teacher resilience, the focus on Swiss teachers limits the generalizability of the findings. Future research could benefit from cross-cultural comparisons to explore how resilience processes manifest in different educational systems and cultural contexts.

This dissertation reflects a significant effort to advance the understanding of resilience in teacher education, yet it also serves as a reminder of the complexities inherent in resilience research. In terms of methodology, future studies should employ longitudinal and mixed-methods designs to capture the dynamic interplay between individual, relational, and systemic factors over time. Conceptually, resilience should be framed not only as a means of individual coping but also

as a catalyst for systemic change, advocating equitable policies and supportive educational environments.

By building on existing theoretical frameworks, particularly the AWaRE model, this dissertation examines resilience processes through the lens of iterative cycles involving appraisal, emotional regulation, strategy activation, and reappraisal (Hascher et al., 2021). This comprehensive framework offers valuable insights into how teachers adapt to professional challenges. Further research could explore the model's applicability across diverse cultural and systemic contexts, contributing to contemporary understandings of teacher resilience in varied educational settings.

Theoretical Implications

The findings of this dissertation align with and extend current theoretical understandings of resilience in teacher education. A key theoretical shift in resilience research is evident in the transition from viewing resilience as a fixed, individual trait to a dynamic, multidimensional process shaped by interactions between personal, relational, and systemic factors (Antonovsky, 1979; Hascher et al., 2021).

However, as Boon (2021) pointed out, conceptualizing resilience solely in terms of professional competencies risks overlooking the lived-in experiences of teachers. This observation is significant for framing resilience not only as the capacity to endure challenges but also as the ability to advocate for systemic change that promotes well-being and professional efficacy. For instance, Boon's (2021) argument that teacher resilience is sometimes conflated with compliance with unsustainable demands highlights the need for policies that balance individual agency with organizational accountability. Such reframing is essential for advancing resilience theories that integrate systemic dimensions, including school leadership, workload management, and cultural factors (OECD, 2020; Peixoto et al., 2018).

The studies reviewed here also identify gaps in academic understanding of how resilience evolves over time. Longitudinal research, such as Ma et al.'s (2024) growth mixture modelling of

pre-service teacher self-efficacy, provides a valuable methodological blueprint for examining the developmental trajectories of resilience. This approach complements the AWaRE model by revealing how situational and systemic factors shape resilience over time. These insights call for future research to integrate dynamic, longitudinal designs with cross-cultural perspectives to explore how resilience manifests and adapts across diverse educational settings (Beltman et al., 2011; Peixoto et al., 2018).

Practical Applications for Teacher Education and Professional Development

This research aimed to bridge the gap between theory and practice and provide insights into fostering resilience in teacher education and professional development. SEL programmes are emerging as a cornerstone in promoting teacher resilience. Meta-analyses (Oliveira et al., 2021; Shi & Cheung, 2024) have confirmed that SEL interventions enhance socio-emotional competencies, reduce emotional exhaustion, and increase personal accomplishment. These findings underscore the need to embed SEL training in teacher education, benefiting both pre-service and in-service teachers who face challenges like burnout and demoralization (Ledger, 2021; Oliveira et al., 2021).

A particularly promising strategy involves incorporating experiential and reflective practices into SEL frameworks. For instance, the BRiTE-AR model (Ledger, 2021), which integrates augmented reality and simulation-based learning, immerses pre-service teachers in complex scenarios and fosters resilience through hands-on experiences. Similarly, findings by Sandilos et al. (2023) indicated that SEL interventions improve classroom dynamics and enhance teacher well-being and organizational skills. Platforms like FoResT further illustrate how reflective journaling and scenario-based learning bridge the gap between theory and practice, providing educators with experiential insights that strengthen resilience.

The sustainability of such interventions requires addressing systemic barriers. Oliveira et al. (2021) highlighted the importance of appropriate programme dosage and tailored implementation, cautioning against short-term interventions that fail to address structural issues

such as heavy workloads and limited autonomy (Beltman et al., 2011; Boon, 2021). In order to ensure lasting impact, resilience-building initiatives need to be aligned with broader institutional reforms that support workload management, teacher autonomy, and collaborative learning environments.

Socio-Emotional Competencies and Their Role in Resilience

Socio-emotional abilities underpin a teacher's capacity to remain resilient and maintain well-being throughout their career. In particular, the teaching practicum represents an emotionally intense period that highlights why strong, trust-based relationships between student teachers and their mentors are so crucial. Current research shows that when teachers develop specific competencies – notably their ability to communicate effectively, show empathy, and regulate their emotions – they experience less emotional exhaustion and maintain better overall well-being (Carstensen & Klusmann, 2021; Holzberger et al., 2021).

Developing these essential skills requires a systematic approach within teacher education programmes. Simply placing student teachers in practicum settings and expecting these competencies to develop naturally is insufficient (Hascher et al., 2004). Instead, education programmes need to implement carefully structured interventions through dedicated modules. These should take the form of comprehensive seminars and year-long courses that weave together theoretical understanding with hands-on practice. The BRiTE project serves as an exemplary model, demonstrating how online platforms can effectively nurture both resilience and socio-emotional competencies (Beltman, 2018). However, it is worth noting that the success of such initiatives depends heavily on their consistent, long-term implementation rather than short-term interventions (Oliveira et al., 2021; Vesely et al., 2014).

Research suggests that sustained engagement with learning platforms, combined with the consistent development of protective factors, can significantly enhance pre-service teachers' resilience. This finding is consistent with longitudinal studies by Hobbs et al. (2022, 2024), which demonstrated lasting positive outcomes among participants who maintained regular

practice of recommended well-being exercises. Their research found that university courses focusing on positive psychology and the science of happiness create valuable opportunities to foster the overall well-being, life satisfaction, and happiness levels of pre-service teachers, ultimately strengthening their resilience capacity (Hobbs et al., 2022).

These findings underscore two crucial points: firstly, that resilience-building strategies require sustained, long-term implementation to be effective, and secondly, that institutions of teacher training should integrate resilience-promoting content and resources – such as the FoResT learning platform – across their curricula. By embedding these resources throughout the duration of teacher preparation programmes, universities can better support the development of resilient teachers.

Mentorship and Collaborative Practices

As discussed earlier in the examination of factors that support teacher resilience, mentorship emerges as another critical issue that merits deeper analysis. Research continues to demonstrate that supportive mentoring relationships serve as vital pillars for building resilience among educators (Bagdžiūnienė et al., 2023; Nesje & Lejonberg, 2022; Wullschleger et al., 2023). The foundation of effective mentoring relationships rests on several key elements: providing constructive feedback (Nguyen, 2022), maintaining open lines of communication (Kakazu & Kobayashi, 2022), and establishing mutual trust (García-Lázaro et al., 2022). When these elements are missing and support is insufficient, mentees may experience emotional challenges that can undermine their confidence in their professional abilities. In order to address these challenges, mentor training programmes should be designed with specific areas of focus. These programmes need to emphasize not just technical skills but also the art of relationship-building, emotional intelligence, and strategies for managing conflicts (Cabezas et al., 2023; Hagenauer et al., 2023; Reister, 2023). The goal is to strike a delicate balance in which mentees receive enough guidance while still developing their independence.

The research further builds on the earlier discussion of collaborative environments by exploring how team-based practical experiences contribute to teacher development. De Zordo et al. (2019) found that when peers work together effectively, it can significantly boost emotional resilience. However, this collaborative environment is sensitive to interpersonal dynamics – if team members struggle to communicate or if their expectations do not match, it can intensify rather than alleviate stress. In order to prepare future teachers for these challenges, specialized workshops focusing on essential interpersonal skills are recommended. These workshops should cover crucial areas such as resolving conflict, practising active listening, and developing problem-solving strategies. This preparation is particularly important as teachers will need to learn to work effectively in both self-selected teams and assigned group situations throughout their careers.

By building on these insights into mentoring and team dynamics, this practical implications section proposes potential implementations within digital interventions to foster resilience. Artificial intelligence-based mentoring systems could potentially simulate the fundamental aspects of effective mentoring relationships outlined above, particularly in terms of providing structured feedback provision and sustained dialogic engagement. One example is the chatbot-based coaching programme for pre-service teachers (Ulrich et al., 2023), which is being piloted in collaboration with the Lucerne University of Teacher Education to support teachers in resource management. Such digital platforms can serve as valuable supplementary resources when traditional mentoring is unavailable.

Furthermore, the development of virtual environments for practicum (Ledger, 2021; Moore & Hong, 2022), parent avatars (Rappa, 2019), and classroom management skills (Mouw et al., 2020) could facilitate pre-service teachers' acquisition of collaborative skills through controlled simulations. These environments could incorporate adaptive response systems to present various interpersonal scenarios, allowing for the development of conflict resolution and communication competencies in a low-risk setting. This technological framework could enhance

access to professional development resources while maintaining consistency in skill-building opportunities.

Systemic Approaches to Resilience

Building on the previous discussion of digital interventions, a comprehensive strategy for fostering teacher resilience must address systemic challenges at multiple levels. As previously mentioned, current research indicates that effective resilience development requires careful alignment between educational curricula, mentoring structures, and assessment methodologies, all working in concert towards resilience-building goals. This integrated approach is exemplified by platforms such as BRiTE and FoResT, which demonstrate how scenario-based learning can be meaningfully combined with reflective practice (Krummenacher et al., 2024b). Through this platform, teachers engage with realistic challenges while maintaining reflective journals, creating a powerful synthesis of experiential learning and metacognitive development that builds resilience through active engagement with professional situations.

Jensvoll and Lekang 's (2018) research further emphasized the critical role that institutional support plays in this systemic approach. Their work suggested that organizations must strategically prioritize three key areas: effective workload distribution to prevent burnout, preserving teacher autonomy to maintain professional agency, and cultivating collaborative learning spaces. PLCs emerge as a particularly effective framework for implementing these priorities, offering structured yet flexible environments where educators can receive ongoing support while building collective resilience through shared experiences and mutual learning. This framework acknowledges that resilience development is not just an individual journey but rather a product of intentionally designed institutional structures and support systems.

Resilience as a Core Component of Professionalization

This research highlights the fundamental role of reflective practice in fostering professional resilience, building on earlier discussions of institutional support mechanisms. Contemporary research (Ayoobiyan & Rashidi, 2021; Bradbury et al., 2020; Hendriwanto, 2021;

Russell, 2022) has established reflective practice as to both professional development and resilience cultivation. Russell's (2022) and Gadsby's (2022) work demonstrates how specific reflective activities, particularly self-reflection journaling and peer observation, enable teachers to meaningfully connect practical experience with theoretical frameworks. For pre-service teachers, Barnes and Caprino (2016) and Bradbury et al. (2020) demonstrated the efficacy of structured tools, such as conversation cards and critical writing assignments, in developing evaluative thinking capabilities that support engagement with professional challenges.

PLCs have become crucial collaborative mechanisms for building resilience. Research by Jensvoll and Lekang (2018) and Wood (2007) revealed how these communities strengthen teacher resilience through participatory learning cultures. Recent investigations by Lopes et al. (2024) have further illuminated the dual role of PLCs in advancing both resilience and professionalization objectives through shared accountability, critical discourse, and innovative pedagogical approaches.

The theoretical underpinning for resilience development aligns with Anderson and Krathwohl's (2001) revision of Bloom's taxonomy, which suggests a developmental progression from foundational understanding to the creation of sophisticated adaptive strategies (Wilson, 2016). This theoretical framework is practically manifested in platforms like BRiTE and FoResT, which exemplify Biggs and Tang's (2014) principles of constructive alignment through interactive, scenario-based learning approaches. Such integration of theoretical frameworks with practical applications demonstrates the systematic potential for implementing resilience-building within teacher education programmes.

This synthesis reveals the intricate interconnections between reflective practice, PLCs, and theoretical frameworks in fostering teacher resilience. Understanding these relationships enables educational institutions to design and implement comprehensive resilience-building programmes that support teachers throughout their professional trajectory. However, as the following chapter explores, these approaches must be considered within broader systemic

contexts that acknowledge both individual and institutional responsibilities in fostering sustainable educational environments.

Critical Perspectives and Future Directions

This dissertation's examination of resilience in educational contexts reveals critical limitations in current conceptualizations. Boon's (2021) critique compellingly demonstrated how focusing on individual resilience can mask deeper systemic problems within education. This insight takes on particular relevance when considered alongside Santoro's (2019) and Boon's (2021) research on teacher attrition and demoralization, which found that personal resilience-building was insufficient to address institutional factors that impact teacher well-being.

Ledger's (2021) ethical examination raised essential questions about framing resilience as an individual professional requirement rather than a collective responsibility. This perspective highlights how traditional conceptualizations may inadvertently burden individual teachers while absolving institutions of their role in creating sustainable working environments.

Cross-cultural research by Peixoto et al. (2018) demonstrated how resilience manifests differently across various contexts, challenging one-size-fits-all approaches to resilience-building. While Ma et al.'s (2024) longitudinal research provided a foundational understanding of resilience development over time, future studies need to explore deeper interactions between resilience processes and broader ecological systems, institutional structures, and societal factors.

Boon's (2021) concept of "lived-in resilience" offers a transformative framework for reconceptualizing resilience as a collective resource rather than an individual characteristic. This lens suggests moving beyond individual coping strategies towards systemic change and shared responsibility.

The research establishes resilience as a dynamic, relational process that emerges through the interplay of personal attributes and institutional support. While individual competencies like reflective capacity and adaptability remain crucial, they flourish most effectively within supportive institutional ecosystems characterized by collaborative cultures, meaningful

mentorship, and constructive feedback mechanisms. Teacher education programmes, particularly platforms such as BRiTE, play a vital role in developing these capabilities during the transition from pre-service to classroom practice.

Moving forward, the challenge lies in developing frameworks that support teacher well-being while addressing the structural conditions that necessitate resilience. Success will require a balanced approach that sees resilience development as a shared responsibility between educators, researchers, and policymakers, ultimately strengthening the profession's capacity to meet evolving educational demands while maintaining teacher well-being.

Chapter 12: Conclusion

This research journey, reflected in the title "Nurturing Resilience in Pre-Service Teachers: From Understanding Protective Factors to Implementing Adaptive Support Strategies", represents a progression from understanding how experienced teachers develop resilience to creating targeted support for pre-service teachers. The findings have implications for both theory and practice in teacher education, particularly in the context of developing resilience through digital learning environments.

Our qualitative research with experienced teachers revealed the dynamic nature of resilience development in educational settings. Teachers described the use of a wide range of strategies, with relational problem-solving emerging as a particularly significant approach to professional challenges. The longitudinal aspect of our third study suggested that teachers developed more adaptive strategies over time, often influenced by their engagement in reflective group discussions. This finding proved crucial in conceptualizing how interventions might accelerate the development of adaptive strategy use among pre-service teachers.

The observation that strategy selection was shaped by the school environment highlighted the contextual nature of resilience development. Although our research took place in the Swiss educational context, the findings suggest that the effectiveness of strategies is likely to differ between urban and rural schools, between high- and low-resource environments, and between different cultural contexts. For example, the accessibility and nature of professional development support may significantly influence which strategies teachers are able to implement effectively. A teacher in a well-resourced urban school might have ready access to formal mentoring programmes and professional learning communities, whereas a teacher in a rural or resource-constrained environment might have to rely more heavily on informal support networks and individual coping strategies.

These contextual variations informed the design of the FoResT platform, which creates protected spaces for pre-service teachers to experiment with and reflect on different resilience

strategies. The platform includes scenario-based learning that presents similar challenges within different contextual frameworks. For instance, a challenging parent interaction might be explored through multiple environmental lenses – in a well-resourced school with established support systems, in a setting where language barriers exist, or in contexts where administrative support varies. This approach helps pre-service teachers develop the analytical skills needed to assess their environment and adapt their strategies accordingly.

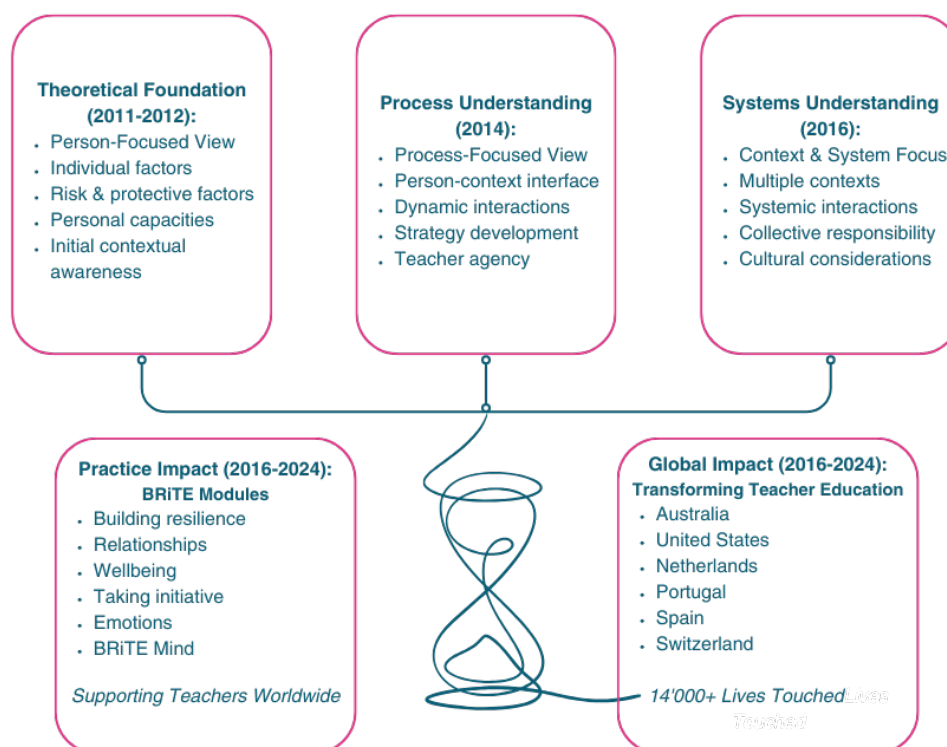
The platform's emphasis on reflection is directly linked to our understanding of contextual variation. Rather than simply presenting strategies as universal solutions, the learning environment encourages pre-service teachers to consider how their specific educational context might influence the effectiveness of the strategy. This reflective practice helps develop the adaptability that our research identified as crucial for sustained resilience. Furthermore, the protected space created by the platform serves as a laboratory for experimenting with different approaches within various simulated contexts, allowing pre-service teachers to explore how strategies might need to be modified based on resource availability, cultural considerations, or institutional structures.

Drawing together the key threads of this dissertation, a nuanced understanding of resilience in teaching emerges. While our research with experienced teachers revealed the dynamic nature of resilience development and informed the creation of the FoResT platform, it also highlighted how resilience manifests as both a personal capability and a professional imperative, particularly during the critical pre-service phase (Beltman et al., 2018; Beltman, 2021; Mansfield, 2021; Mansfield & Beltman, 2019; Mansfield et al., 2012b, 2014, 2015, 2016, 2020, 2021). The work of Professor Mansfield and Colleagues demonstrates how resilience has evolved through three distinct phases (see Figure 7). Beginning with theoretical foundations examining individual factors and personal capacities (2011-2012), the framework progresses to illuminate dynamic interactions between person and context (2014), ultimately expanding into a systems-level perspective encompassing multiple contexts, systemic interactions, and collective

responsibilities (2016). This theoretical progression enriches the understanding of how resilience operates across personal, social, and institutional dimensions. The practical impact is evident in the successful implementation of structured support programs across multiple countries, transforming teacher education globally and touching more than 14,000 lives through the BRiTE modules focusing on building resilience, relationships, well-being, initiative, emotions, and mindset. These modules' widespread adoption and impact have deepened the understanding of how resilience development operates as a multifaceted phenomenon.

Figure 5

Evolution of Teacher Resilience Understanding



The platform's development process illuminated how resilience operates at two essential levels. At the individual level, teachers need specific competencies – including reflective capacity, adaptability, and motivational awareness – to navigate their professional growth. However, these personal capabilities flourish most effectively within supportive institutional

ecosystems. The research underscores that systemic elements – from school culture and workload management to policies promoting professional autonomy – play an equally crucial role in enabling teachers to maintain their well-being and dedication to teaching.

This understanding has been critically deepened through engagement with recent theoretical perspectives. Boon's (2021) critique compellingly argues that resilience discourse can inadvertently obscure deeper systemic problems within education, while Ledger's (2021) work raises important moral questions about framing resilience as an individual professional requirement rather than a collective responsibility. These perspectives helped shape our conceptualization of "nurturing" resilience, which acknowledges both individual development and the crucial role of systemic support.

The FoResT platform represents an attempt to bridge these individual and systemic dimensions through a protected space for developing resilience strategies. However, following Peixoto et al. (2018), we recognize the importance of developing culturally sensitive and locally adapted interventions. The platform's emphasis on reflection and contextual variation acknowledges that the effectiveness of strategies will vary across educational settings, from well-resourced urban schools to rural environments with different support structures.

In terms of future development, Boon's (2021) concept of "lived-in resilience" offers a promising framework for evolving the platform to better address the complex interplay between individual teacher resilience and institutional support systems. This development could include expanding the platform's scope to incorporate more holistic, school-wide approaches and PLCs that support collective resilience development.

The broader implications of this research point to the importance of embedding resilience at the core of teacher education systems. This integration represents more than an investment in individual educators – it is a commitment to educational sustainability at a systemic level. By fostering conditions that enable teachers to adapt, innovate, and inspire, the profession's ability to meet evolving societal and educational demands can be strengthened as well.

As this research demonstrates, effectively nurturing resilience in pre-service teachers requires attention to both individual growth and systemic support. The challenge for educators, researchers, and policymakers is to develop frameworks that support teachers' well-being while actively working to address the structural conditions that necessitate resilience in the first place. This balanced approach holds the potential to create more sustainable and equitable educational environments that benefit both teachers and students while recognizing the development of resilience, a shared responsibility that requires sustained commitment in both theoretical understanding and practical implementation.

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Appendix

Appendix A.	Studies on (pre-service) teacher resilience programmes
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Appendix A: Table 1

Table 19

Overview of (Pre-Service) Teacher Resilience Programmes (2018-2014)

Author, Year, Programme	Study Goals	Design, Method, Sample	Operationalisation	Results and Implications
Schussler et al. (2018) 'CARE'	Examine how teachers develop resilience through mindfulness-based intervention using case studies from a larger randomized controlled trial	Qualitative collective case study analysis of 21 participants drawn from larger	Analysis of interview transcripts examining sources of stress	Increased emotional awareness and mindfulness reported post-intervention; Study revealed successful resilience development requires both emotional awareness and practical response strategies, not awareness alone
		RCT of 224 urban elementary teachers; In-depth analysis of three representative cases through 60-90 minute interviews	(student, curriculum, administration, school stressors) and mechanisms of change (practice, mindfulness, efficacy, self-care, community)	
Beltman et al. (2018) 'BRiTE'	Test effectiveness of BRiTE online modules	Quantitative pre-post test; 8-week intervention; N=49 students (Australia)	TRP/TRM/TRE/TRS dimensions; Teacher commitment; Coping scales	Significant improvements in 8/10 scales; Higher values in four subscales
O'Brien et al. (2019)	Evaluate wellbeing, resilience and physical activity levels of Irish pre-service teachers	Cross-sectional observational study; N=128 pre-service teachers (Ireland)	WHO-5 Wellbeing Index, WEMWBS, Brief Resilience Scale	Lower wellbeing and resilience vs population norms; Physical activity linked to higher wellbeing
Weatherby-Fell et al. (2020) 'BRiTE'	Identify challenging situations management and evaluate BRiTE modules effectiveness	Qualitative cross-sectional; Semi-structured interviews; Not specified		Teacher relationships crucial for resilience; Evolution from external to internal coping approaches; Positive module reception

		N=22 students across years (Australia)			
				Pre/post surveys measuring	
Lang et al. (2020)	Test impact of online intervention on early childhood educators' resilience	Pre-post, non-controlled intervention study with qualitative component	stress reduction, emotion regulation strategies, and responsiveness	Improved knowledge of stress management; Higher levels of personal stress reported post-intervention	
Sappa & Barabasch (2020)	Foster creative problem-solving and resilience through Forum-theatre technique	Mixed-methods research with dominant qualitative approach; N=230 in-service vocational teachers	Mixed-methods with observation grid and self-report questionnaire for data collection	Forum-theatre encouraged active problem-solving strategies; Participants learned new ways of understanding conflicts	
Eklund et al. (2021)	Evaluate Resilience Education Program for internalizing behaviour concerns	Multiple-baseline single-case design; non-randomized observational study	Teacher-collected daily behavior ratings	Moderate positive effect for 2/3 students; Program socially valid according to educators	
Zadok-Gurman et al. (2021)	Assess effects of IBSR blended intervention on teacher wellbeing during COVID-19 pandemic	Non-randomized prospective controlled trial; N=32 intervention, N=28 control (Israel)	Validated measuring psychological wellbeing, resilience, burnout, and stress	IBSR intervention enhanced resilience and wellbeing while control group showed increased resilience, burnout; Program beneficial even during pandemic stress	
Gratacós et al. (2020)	Develop and evaluate a Professional Assessment and Development induction program based on BRiTE to help novice teachers develop resilience strategies in Spain	Mixed-methods study with 112 novice teachers (65.2% female, 34.8% male) across early childhood, elementary, and secondary education; Pre-program resilience assessment and post-program satisfaction evaluation	Multidimensional Teacher Resilience Scale (MTRS) and Teacher Commitment Scale; Seven online modules with face-to-face seminars; Program satisfaction questionnaire with 5-point Likert scale	High teacher commitment scores (mean 4.7/5); Strong correlations between commitment and professional (r=0.252), social (r=0.179), and motivational (r=0.305) resilience dimensions; 77% reported improved school integration, 86% increased confidence, and 79% better stress management; Program particularly effective for professional development and mentor support	

Fernandes et al. (2021) 'Positive Education'	Implement and evaluate a professional learning programme designed to foster teacher resilience and wellbeing through a structured modular approach	Qualitative evaluation study; Semi-structured interviews with 23 Portuguese middle and secondary teachers; Content analysis with independent coding ($\kappa = 0.91$)	Five-dimension interview protocol examining program usefulness, personal/professional contributions, relationship impacts, resilience effects, and program evaluation	Program received strong positive evaluations (74% very positive, 26% positive); Teachers reported improved pedagogical relationships, enhanced resilience through personal empowerment, and better conflict management skills; Findings demonstrate effectiveness of integrating wellbeing activities with professional development for teacher resilience
		Exploratory study with 362 pre-service teachers across four-year Bachelor of Education program; Multiple data collection tools including surveys, simulations, and reflective practice	Framework based on Pedagogies of Practice; Data collected through BRiTE modules, simulation surveys, experiences, and Critical Learning Incidents reflections	Findings showed pedagogical practices need to be visible, immersive, and reflective for resilience development; Systematic BRiTE-AR integration successfully addressed graduate weaknesses; Critical learning incidents and structured reflection proved effective for improving practice
Ledger (2021) 'BRiTE-AR'	Evaluate integration of BRiTE modules, Micro-teaching 2.0, and SimLab™ experiences for developing pre-service teacher resilience through augmented reality	Implementation study with two groups: 67 new teachers from Franklin County and 10 Promise of Leadership Award recipients; Mixed-methods BRiTE-based professional evaluation through workshop development workshops for exit surveys and end-of-program surveys; 2017-2018 supporting beginning teacher resilience in the United States school year	Five professional development workshops aligned with BRiTE modules; Workshop exit surveys (1-5 ratings, open-ended questions); End-of-program evaluative survey for both groups	Teachers reported improved resilience, particularly in work-life balance and relationships; Smaller Promise of Leadership group developed strong professional learning community that continued beyond program; Program particularly valuable for rural teachers and those entering teaching through alternative pathways
Phrakhr & Limphaibool (2022)	Enhance teacher resilience through integration of Eastern	Mixed-methods design; Quantitative cross-sectional	Mindfulness Awareness Scale (MAAS)	Western mindfulness (LMS14) directly impacts teacher resilience; Eastern mindfulness (MAAS)

	and Western mindfulness practices	survey (N=330 teachers from 5 Thai universities) combined with qualitative focus group interviews (N=5 university teachers and executives)	Langer Mindfulness Scale (LMS14), and Employee Resilience (EmpRes) scale	affects resilience through Western mindfulness mediators of novelty seeking and producing; Both mindfulness perspectives crucial for enhancing teacher resilience; Findings suggest value of integrating both approaches in teacher development programs
Sokal & Trudel (2023)	Examine effects of school-based post-pandemic recovery intervention	Quasi-experimental with pre-post design and control group; N=621 intervention, N=86 control	School-based mental health intervention program measuring wellbeing, recovery, resilience	Intervention improved wellbeing, recovery, and resilience compared to control group
Datu et al. (2023)	Test PROSPER-based intervention for pre-service preschool teachers during COVID-19	Randomized parallel-group controlled trial with wait-list control; N=77	Survey measuring PROSPER wellbeing components pre/post intervention	No significant overall effect; Improved relationship component only
Nadeem et al. (2024)	Evaluate effectiveness of resilience training workshop for schoolteachers in Pakistan	Pre-post interventional design; 4 workshops over 6 months	Pre/post measures of self-efficacy and resilience using Wilcoxon Signed Rank Test	Training significantly improved self-efficacy and resilience; Mental health knowledge and peer support were key factors
Stewart-Ginsburg et al. (2024)	Test effects of self-care self-monitoring intervention on teacher candidates	Randomized controlled trial	Self-care goal setting and weekly progress monitoring	No significant effects on resilience or self-efficacy; Need to explore alternative approaches beyond self-care

Note: This table presents a non-exhaustive overview of teacher resilience programmes from 2018-2024

Appendix B: Scale Documentation

Table 2

Scale Documentation for the Interventions Study

FoResT: Fostering Resilience in Teacher Education		
Skalendokumentation		
Begrüssung		
Willkommen bei der Befragung des FoResT-Projekts! Im Projekt "Fostering Resilience in Teacher Education" (FoResT) geht es um die Resilienz von Lehrpersonen. Wir möchten mithelfen, die Resilienz von Lehrpersonen zu erforschen und weiter zu verbessern. Du hilfst uns mit deiner Meinung, da du für uns ein Experte oder eine Expertin bist, was Schule angeht. Bei allen Fragen interessiert uns daher deine persönliche Meinung - es gibt keine richtigen und falschen Antworten. Deine Antworten werden absolut anonym behandelt. Niemand ausser uns wird deinen Fragebogen einsehen können – auch die Dozierenden nicht. Die gesammelten Daten werden ausschliesslich zu Forschungszwecken verwendet. Wir bedanken uns herzlich bei dir für deine Mitarbeit und dass du an unserem Projekt teilnimmst.		
Identifikation LP (3)		
Um deine Daten aus dieser Befragung anonym erfassen zu können, bitten wir dich, die folgenden Fragen zu beantworten. Hieraus wird ein anonym Code gebildet, der keinen Rückschluss auf persönliche Daten zulässt.		
Die ersten beiden Buchstaben des Vornamens deiner Mutter, oder der Person, die für dich wie eine Mutter ist (z.B. catherine-> ca)		[idlp1]
Die beiden Ziffern deines Geburtstages (z.B. 07.01.1990-> 07)		[idlp2]
Die ersten beiden Buchstaben des Vornamens deines Vaters oder der Person, die für dich wie ein Vater ist (z.B. bernhard-> be)		[idlp3]
Deine fertige ID (z.B. ca07be)		[idlp4]
Soziodemografische Informationen		
Wie alt bist du? (in Jahren aufgerundet, z.B. 24)		[age]
Mit welchem Geschlecht identifizierst du dich? 1= weiblich 2= männlich 3= non-binär 4= transgender 5= intersex 6= ich weiss nicht 7= nichts von dem (agender, genderfluid, genderqueer, context-dependent)		[sex]
Welches ist dein höchster Bildungsabschluss? 1 = Maturität (Gymnasium, Fachmittelschule, Berufsmittelschule) 2 = Höhere Berufs-/Fachausbildung (z.B. eidg. Fachausweis, Meisterdiplom) 3 = Universität, ETH, Fachhochschule, Pädagogische Hochschule (abgeschlossen mit Lizenzat, Diplom, Master, Bachelor, Lehndiplom) 4 = Universität oder ETH mit Doktorat abgeschlossen 5 = Ein anderer, und zwar _____		[abs]
Semester	In welchem Semester an der PHBern studierst du? 1= 1. Semester 2= 2. Semester 3= 3. Semester 4= 4. Semester	[sem]

	5= 5. Semester 6= 6. Semester 7= höheres Semester	
Anstellung als Lehrperson	Bist du momentan in einer Anstellung als Lehrperson? 1= Ja, eine Festanstellung mit sechs oder mehr Lektionen 2= Ja, eine Festanstellung mit weniger als sechs Lektionen 3= Ja, eine Anstellung im Rahmen einer Stellvertretung 4= Nein, ich habe keine Festanstellung	[ans]
Wohlbefinden		
Positive Einstellungen zum Studium (PES) (4)	Wir möchten gerne erfahren, wie du dein Wohlbefinden im Lehramtsstudium einschätzt. Inwiefern treffen die folgenden Aussagen auf dich zu? 1 = nie 6 = sehr oft Bsp. Ich bin nie / sehr oft gerne an der PHBern.	
	1. Ich fühle mich in meinem Studium wohl.	[pes1]
	2. Ich absolviere mein Studium gerne.	[pes2]
	3. Was auch immer passiert, mein Studium hat etwas Gutes.	[pes3]
	4. Mein Studium scheint mir sinnvoll.	[pes4]
Freude im Studium (FIS) (4)	In den letzten Wochen habe ich mich im Studium gefreut, weil ... 1 = nie 6 = sehr oft Bsp. Ich habe mich in den vergangenen paar Wochen nie / sehr oft gefreut.	
	1. ... ich zeigen konnte, was ich kann bzw. was ich dazugelernt habe.	[fis1]
	2. ... ich das Gefühl hatte, wichtige Dinge im Studienalltag beeinflussen zu können.	[fis2]
	3. ... mir ein Leistungsnachweis / eine Studienleistung gut gelungen ist.	[fis3]
	4. ... ich von anderen (z.B. Studierenden, Dozierenden, Praxislehrpersonen) Anerkennung erhalten habe.	[fis4]
Sorgen wegen des Studiums (SOS) (4)	Hast du dir in den vergangenen paar Wochen Sorgen gemacht... 1 = nie 6 = sehr oft Bsp. Ich habe mir in den vergangenen paar Wochen nie / sehr oft Sorgen gemacht.	
	1. ... wegen des Studiums.	[sos1]
	2. wegen Studienleistungen und Leistungsnachweisen im Studium.	[sos2]
	3. ... wie es im Studium weitergeht.	[sos3]
	4. ... wie es <i>nach</i> dem Studium weitergehen wird.	[sos4]
Physische Probleme wegen des Studiums (KOP) (4)	In den letzten Wochen kam es vor, dass ich wegen des Studiums ... 1 = nie 6 = sehr oft Bsp. Ich hatte in den vergangenen paar Wochen nie / sehr oft Bauchschmerzen.	
	1. ... Bauchschmerzen hatte.	[kop1]

	2. ... nicht gut schlafen konnte.	[kop2]
	3. ... starke Kopfschmerzen hatte.	[kop3]
	4. ... keinen / ständig Appetit hatte.	[kop4]
Soziale Probleme im Studium (SOP) (3)	In den letzten Wochen kam es vor, dass ... 1 = nie 6 = sehr oft Bsp. Es kam in den vergangenen paar Wochen nie / sehr oft vor.	
	1 ich Probleme mit Studienkolleg:innen hatte.	[sop1]
	2 ich Probleme mit Dozierenden / Praxislehrpersonen hatte.	[sop2]
	3. ... ich mich im Studium als Aussenseiter:in fühlte.	[sop3]
Akademischer Selbstwert (ASW) (4)	Und wie treffen die folgenden Aussagen auf dich zu? 1 = stimmt nicht 6 = stimmt sehr oft	
	1. Ich bin fähig, Dinge im Studium ebenso gut zu tun, wie die meisten anderen Studierenden.	[asw1]
	2. Ich kann Herausforderungen im Studium leicht lösen.	[asw2]
	3. Ich bin zufrieden mit der Art und Weise, wie ich mich im Studium weiterentwickle.	[asw3]
	4. Ich lerne Dinge im Studium schnell.	[asw4]
Anmerkung:	Das Item sos3 wurde in zwei Items aufgeteilt. Neue Items sos3 und sos4. Das Item asw4 wurde für die Befragung im Frühjahr 2023 ergänzt. Items sos4, kop4 wurden aufgrund der Pilotstudie sprachlich leicht angepasst.	
Skalierung:	1=nie bis 6=sehr oft 1=stimmt nicht bis 6=stimmt sehr oft (für Schulischer Selbstwert) (ohne Beschriftung; nur numerische Abstufungen)	
Quelle:	Deutsch: Skala „Wohlbefinden von Lehramtsstudierenden“ (adaptiert von Hascher, 2020) Hascher, T. (2020). Skala zum Wohlbefinden von Lehrpersonen. Abteilung Schul- und Unterrichtsforschung, Institut für Erziehungswissenschaft, Universität Bern.	
Persönlichkeiten		
Big-Five-Inventory-10 (BFI-10)	Wie gut beschreiben dich die folgenden Aussagen? 1 = trifft überhaupt nicht zu 5 = trifft voll und ganz zu	
	1. Ich bin eher zurückhaltend, reserviert.	[bfi1]
	2. Ich schenke anderen leicht Vertrauen, glaube an das Gute im Menschen.	[bfi2]
	3. Ich bin bequem, neige zur Faulheit.	[bfi3]
	4. Ich bin entspannt, lasse mich durch Stress nicht aus der Ruhe bringen.	[bfi4]
	5. Ich habe nur wenig künstlerisches Interesse.	[bfi5]
	6. Ich gehe aus mir heraus, bin gesellig.	[bfi6]

	7. Ich neige dazu, andere zu kritisieren.	[bfi7]
	8. Ich erledige Aufgaben gründlich.	[bfi8]
	9. Ich werde leicht nervös und unsicher.	[bfi9]
	10. Ich habe eine aktive Vorstellungskraft, bin fantasievoll.	[bfi10]
Anmerkungen	Negativ gepolte Items (1, 3, 4, 5 und 7) müssen umgepolt/rekodiert werden.	
Skalierung	Englisch: 1=disagree strongly, 2=disagree a little, 3=neither agree nor disagree, 4=agree a little, 5=agree strongly Deutsch: 1=trifft überhaupt nicht zu, 2=trifft eher nicht zu, 3=weder noch, 4=eher zutreffend, 5=trifft voll und ganz zu	
Quelle	Originalversion BFI: John, O. P., Donahue, E. M., & Kentle, R. L. (1991). <i>The Big-Five Inventory-Version 4a and 5</i> . University of California, Berkeley, Institute of Personality and Social Research. Kurzversion BFI-10: Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. <i>Journal of Research in Personality</i> , 41(1), 203–212. https://doi.org/10.1016/j.jrp.2006.02.001 Deutsch: Rammstedt, B., Kemper, C. J., Klein, M. C., Beierlein, C., & Kovaleva, A. (2013). Eine kurze Skala zur Messung der fünf Dimensionen der Persönlichkeit. 10 Item Big Five Inventory (BFI-10). <i>methods, data, analyses</i> , 7(2), 233-249. https://doi.org/10.12758/mda.2013.013	
Motivation		
The Situational Motivation Scale (SIMS)	Wie motiviert bist du, mit der FoResT-Lernplattform zu arbeiten? 1 = trifft nicht zu 7 = trifft in hohem Masse zu	
	1. Weil ich denke, dass die Arbeit an der Lernplattform interessant ist.	[sims1]
	2. Weil ich es zu meinem eigenen Wohl tue.	[sims2]
	3. Weil ich es tun soll.	[sims3]
	4. Wahrscheinlich gibt es gute Gründe, sich in dieser Arbeit an der Lernplattform zu engagieren, aber ich persönlich sehe keinen.	[sims4]
	5. Weil ich diese Arbeit an der Lernplattform für angenehm halte.	[sims5]
	6. Weil diese Arbeit an der Lernplattform gut für mich ist.	[sims6]
	7. Weil es etwas ist, was ich tun muss.	[sims7]
	8. Ich tue diese Sache, aber ich weiss nicht, ob sie das wert ist.	[sims8]
	9. Weil mir diese Arbeit an der Lernplattform Spass macht.	[sims9]
	10. Aus persönlichem Entschluss.	[sims10]
	11. Weil ich keine Wahl habe.	[sims11]

	12. Ich weiss nicht; Ich sehe nicht, was diese Arbeit an der Lernplattform mir bringen soll.	[sims12]
	13. Weil ich mich gut fühle, sobald ich mich mit der Arbeit an der Lernplattform beschäftige.	[sims13]
	14. Weil ich glaube, dass die Arbeit an der Lernplattform wichtig für mich ist.	[sims14]
	15. Weil ich denke, dass ich das tun muss.	[sims15]
	16. Ich arbeite an der Lernplattform, aber ich bin mir nicht sicher, ob es eine gute Sache ist, die ich fortsetzen sollte.	[sims16]
Anmerkung	Subskalen in der Originalversion: Intrinsische Motivation: Items 1, 5, 9, 13 Identifizierte Regulation: Items 2, 6, 10, 14 Externale Regulation: 3, 7, 11, 15 Amotivation: 4, 8, 12, 16	
Skalierung	Englisch: 1=corresponds not all; 2=corresponds a very little; 3=corresponds a little; 4=corresponds moderately; 5=corresponds enough; 6=corresponds a lot; 7=corresponds exactly. Deutsch: 1=trifft nicht zu bis 7=trifft in hohem Masse zu	
Quelle	Englisch: Guay, F., Vallerand, R. J., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The Situational Motivation Scale (SIMS). <i>Motivation and Emotion</i> , 24(3), 175- 213. Deutsch: Knörzer, L., Brünken, R., & Park, B. (2016). Facilitators or suppressors: Effects of experimentally induced emotions on multimedia learning. <i>Learning and Instruction</i> , 44, 97-107. Knörzer verweist auf: Gillet, N., Vallerand, R. J., Lafrenière, M. K., & Bureau, J. S. (2013). The mediating role of positive and negative affect in the situational motivation-performance relationship. <i>Motivation and Emotion</i> , 37, 465-479. Dissertation: «Die SIMS wurde zur Verwendung in diesem Experiment ins Deutsche übersetzt» (S. 106).	
Resilienz		
Resilienzskala (RS-25)	In den folgenden Fragen findest du eine Reihe von Feststellungen. Wie sehr werden dein übliches Denken und Handeln im Allgemeinen durch diese Aussagen beschrieben? 1 = stimme nicht zu 7 = stimme völlig zu	
	1. Wenn ich Pläne habe, verfolge ich sie auch.	[rsko1] Item 01
	2. Normalerweise schaffe ich alles irgendwie.	[rsko2] Item 02
	3. Ich kann mich eher auf mich selbst als auf andere verlassen.	[rsko3] Item 03
	4. Es ist mir wichtig, an vielen Dingen interessiert zu bleiben.	[rsko4] Item 04
	5. Wenn ich muss, kann ich auch allein sein.	[rsko5] Item 05
	6. Ich bin stolz auf das, was ich schon geleistet habe.	[rsko6] Item 06

	7. Ich lasse mich nicht so schnell aus der Bahn werfen.	[rsak1] Item 07
	8. Ich mag mich.	[rsak2] Item 08
	9. Ich kann mehrere Dinge gleichzeitig bewältigen.	[rsko7] Item 09
	10. Ich bin entschlossen.	[rsko8] Item 10
	11. Ich stelle mir selten Sinnfragen.	[rsak3] Item 11
	12. Ich nehme die Dinge wie sie kommen.	[rsak4] Item 12
	13. Ich kann schwierige Zeiten durchstehen, weil ich weiss, dass ich das früher auch schon geschafft habe.	[rsko9] Item 13
	14. Ich habe Selbstdisziplin.	[rsko10] Item 14
	15. Ich behalte an vielen Dingen Interesse.	[rsko11] Item 15
	16. Ich finde öfter etwas, worüber ich lachen kann.	[rsak5] Item 16
	17. Mein Glaube an mich selbst, hilft mir auch in harten Zeiten.	[rsko12] Item 17
	18. In Notfällen kann man sich auf mich verlassen.	[rsko13] Item 18
	19. Normalerweise kann ich eine Situation aus mehreren Perspektiven betrachten.	[rsko14] Item 19
	20. Ich kann mich auch überwinden, Dinge zu tun, die ich eigentlich nicht machen will.	[rsko15] Item 20
	21. Mein Leben hat einen Sinn.	[rsak6] Item 21
	22. Ich beharre nicht auf Dingen, die ich nicht ändern kann.	[rsak7] Item 22
	23. Wenn ich in einer schwierigen Situation bin, finde ich gewöhnlich einen Weg heraus.	[rsko16] Item 23
	24. In mir steckt genügend Energie, um alles zu machen, was ich machen muss.	[rsko17] Item 24
	25. Ich kann es akzeptieren, wenn mich nicht alle Leute mögen.	[rsak8] Item 25
<i>Anmerkung</i>	Reihenfolge der Items ist wie in der Originalversion. Zwei Subskalen: Persönliche Kompetenz (RS-Komp) mit Items: rsko1-17 Akzeptanz des Selbst und des Lebens (RS-Akz) mit Items: rsak1-8	
<i>Skalierung</i>	Deutsch: 1=ich stimme nicht zu bis 7=ich stimme zu Englisch: 1=disagree to 7=agree	
<i>Quelle</i>	Englisch: Wagnild, G. M. & Young, H. M. (1993). Development and psychometric evaluation of the resilience scale. <i>Journal of Nursing Measurement</i> , 1(2), 165-178. Deutsch: Schumacher, J., Leppert, K., Gunzelmann, T., Strauß, B., & Brähler, E. (2005). Die Resilienzskala - Ein Fragebogen zur Erfassung der psychischen Widerstandsfähigkeit als Personmerkmal [The Resilience Scale - A questionnaire to assess resilience as a personality characteristic]. <i>Zeitschrift für Klinische Psychologie, Psychiatrie und Psychotherapie</i> , 53(1), 16-39.	
	Bitte gib an, welche Gedanken und Gefühle du im Laufe des letzten Monats über dich selbst und wichtige Menschen um dich herum hattest.	

Resilience Scale for Adults (RSA) (33)	Bitte wähle die Ausprägung zwischen 1 bis 7 aus, die dich am besten beschreibt.	
	1 und 7 als Extremantworten	
	1. Wenn etwas Unerwartetes geschieht, 1 = ... fühle ich mich oft verwirrt 7 = ... finde ich immer eine Lösung	[rsa1]
	2. Meine Pläne für die Zukunft sind 1 = ... schwer umsetzbar 7 = ... gut umzusetzen	[rsa2]
	3. Ich genieße es, 1 = ... mit anderen Leuten zusammen zu sein 7 = ... alleine zu sein	[rsa3]
	4. In meiner Familie ist die Auffassung darüber, was im Leben wichtig ist, 1 = ... ziemlich unterschiedlich 7 = ... sehr ähnlich	[rsa4]
	5. Persönliche Themen kann ich 1 = ... mit niemandem besprechen 7 = ... mit Freund:innen / der Familie besprechen	[rsa5]
	6. Ich funktioniere am besten, wenn ich 1 = ... ein erstrebenswertes Ziel habe 7 = ... einen Tag nach dem anderen angehen kann	[rsa6]
	7. Meine persönlichen Probleme 1 = ... weiss ich zu lösen 7 = ... weiss ich nicht zu lösen	[rsa7]
	8. Ich habe das Gefühl, dass meine Zukunft 1 = ... sehr vielversprechend aussieht 7 = ... unsicher ist	[rsa8]
	9. In sozialen Situationen spontan reagieren zu können, 1 = ... ist mir nicht wichtig 7 = ... ist mir wichtig	[rsa9]
	10. Ich fühle mich, 1 = ... sehr wohl in meiner Familie 7 = ... schlecht in meiner Familie	[rsa10]
	11. Menschen, die es verstehen, mich zu ermutigen, 1 = ... finde ich unter einigen nahen Freund:innen / Familienmitgliedern 7 = ... gibt es nicht	[rsa11]
	12. Wenn ich etwas Neues in Angriff nehme, 1 = ... mache ich selten Pläne und fange einfach sofort damit an 7 = ... ziehe ich es vor, einen Plan zu haben	[rsa12]
	13. Bei meinen Einschätzungen und Entscheidungen 1 = ... bin ich oft im Zweifel 7 = ... habe ich voll und ganz Vertrauen	[rsa13]
	14. Wie ich meine zukünftigen Ziele erreichen kann,	[rsa14]

	1= ... weiss ich 7= ... bin ich mir unsicher	
	15. Neue Freundschaften zu schliessen, 1= ... ist einfach für mich 7= ... bereitet mir Schwierigkeiten	[rsa15]
	16. Meine Familie zeichnet sich aus durch 1= ... Unverbundenheit 7= ... gesunden Zusammenhalt	[rsa16]
	17. Der Zusammenhalt unter meinen Freund:innen ist 1= ... schwach 7= ... stark	[rsa17]
	18. Ich bin gut darin, 1= ... meine Zeit zu organisieren 7= ... meine Zeit zu vergeuden	[rsa18]
	19. Mein Glaube an mich selbst 1= ... bringt mich durch schwierige Zeiten 7= ... hilft mir in schwierigen Zeiten wenig	[rsa19]
	20. Meine Ziele für die Zukunft sind 1= ... unklar 7= ... gut durchdacht	[rsa20]
	21. Mit neuen Leuten in Kontakt zu kommen, 1= ... fällt mir schwer 7= ... fällt mir leicht	[rsa21]
	22. In schwierigen Zeiten 1= ... behält meine Familie eine positive Sicht auf die Zukunft 7= ... sieht meine Familie die Zukunft schwarz	[rsa22]
	23. Wenn ein nahes Familienmitglied in eine Notfallsituation kommt, 1= ... werde ich sofort informiert 7= ... dauert es lange, bis ich informiert werde	[rsa23]
	24. Regeln und feste Routinen 1= ... fehlen in meinem Alltag 7= ... sind Bestandteil meines Alltags	[rsa24]
	25. Wenn ich auf Widerstand treffe, neige ich dazu, 1= ... schwarz zu sehen 7= ... etwas Gutes zu finden, an dem ich wachsen kann	[rsa25]
	26. Wenn ich mit anderen zusammen bin, 1= ... lache ich oft 7= ... lache ich selten	[rsa26]
	27. In der Auseinandersetzung mit anderen Menschen 1= ... unterstützen wir uns innerhalb unserer Familie gegenseitig nicht 7= ... verhalten wir uns innerhalb der Familie loyal zueinander	[rsa27]
	28. Ich bekomme Unterstützung von 1= ... Freund:innen / Familienmitgliedern 7= ... niemandem	[rsa28]

	29. Ereignisse in meinem Leben, die ich kaum beeinflussen kann, 1= ... kann ich akzeptieren 7= ... bereiten mir grosse Sorgen	[rsa29]
	30. Gute Gesprächsthemen zu finden, ist für mich 1= ... schwierig 7= ... einfach	[rsa30]
	31. In meiner Familie mögen wir es, 1= ... etwas gemeinsam zu unternehmen 7= ... Dinge alleine zu machen	[rsa31]
	32. Wenn ich Hilfe brauche, habe ich 1= ... nie jemanden, der mich unterstützt 7= ... immer jemanden, der mich unterstützt	[rsa32]
	33. Meine nahen Freund:innen / Familienmitglieder 1= ... schätzen meine Eigenschaften 7= ... lehnen meine Eigenschaften ab	[rsa33]
Anmerkungen	Subskalen in der Originalversion: Perception of self: Items 1, 7, 13, 19, 25, 29 Planned future: Items 2, 8, 14, 20 Social competence: Items 3, 9, 15, 21, 26, 30 Structured style: Items 6, 12, 18, 24 Family cohesion: Items 4, 10, 16, 22, 27, 31 Social resources: Items 5, 11, 17, 23, 28, 32, 33 Negativ gepolte Items (03, 06, 07, 08, 10, 11, 14, 15, 18, 19, 22, 23, 26, 28, 29, 31 und 33) müssen umgepolt/rekodiert werden.	
Skalierung	1 und 7 als Extremantworten	
Quelle	Englisch: Friborg, O., Hjemdal, O., Rosenvinge, J. H., & Martinussen, M. (2003). A new rating scale for adult resilience: what are the central protective resources behind healthy adjustment? <i>International journal of methods in psychiatric research</i> , 12(2), 65–76. https://doi.org/10.1002/mpr.143 Deutsch: Kaiser, N., Seves, M., Koutsouleris, N., & Ruhrmann, S. (2019). Validierung einer deutschen Version der Resilience Scale for Adults (RSA). <i>Diagnostica</i> 65(4), 205-215. https://doi.org/10.1026/0012-1924/a000228 Favre et al., 2023 / Kassis et al. 2023 -> genaue Angaben fehlen.	
Prokrastination und Erschöpfung		
Prokrastinationsfragebogen für Studierende (PFS) (7)	Gib bitte an, wie häufig die genannten Verhaltensweisen bei dir vorkommen. Beziehe die Aussage dabei auf die letzten zwei Wochen, in denen du etwas für dein Studium tun solltest (z.B. Lernen für eine Prüfung/Leistungsnachweis, usw.) 1 = (fast) nie 5 = (fast) immer	
	1. Ich schiebe den Beginn von Aufgaben bis zum letzten Moment hinaus.	[pfs1]
	2. Ich schiebe die Erledigung bestimmter Tätigkeiten vor mir her.	[pfs2]
	3. Auch wenn ich mir vornehme mit einer Arbeit anzufangen, gelingt es mir nicht.	[pfs3]

	4. Ich warte mit dem Beginn einer Arbeit so lange, dass es mir schwerfällt, sie noch rechtzeitig zu beenden.	[pfs4]
	5. Beim Bearbeiten einer Aufgabe merke ich, dass ich sie schon viel früher hätte erledigen können.	[pfs5]
	6. Ich fange mit einer Aufgabe erst an, wenn ich unter Druck gerate.	[pfs6]
	7. Ich schaffe es erst auf den letzten Drücker meine Aufgaben zu erledigen.	[pfs7]
Skalierung	Deutsch: 1=(fast) nie, 2=selten, 3=manchmal, 4=häufig, 5=(fast) immer	
Quelle	Deutsch: Glöckner-Rist, A., Engberding, M., Höcker, A., & Rist, F. (2009). Prokrastinationsfragebogen für Studierende (PFS). <i>Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS)</i> . https://doi.org/10.6102/zis140	
Erschöpfung im Studium (EXHA) (5)	Wie häufig treten die nachfolgend beschriebenen Gefühle oder Situationen bei dir auf? 0 = nie 6 = täglich	
	1. Durch mein Studium fühle ich mich ausgelaugt.	[exha1]
	2. Ich bin völlig fertig nach einem Tag an der Pädagogischen Hochschule.	[exha2]
	3. Ich fühle mich schon müde, wenn ich morgens aufstehe, und wieder einen Tag an der Pädagogischen Hochschule vor mir habe.	[exha3]
	4. Das Studium oder der Besuch von Lehrveranstaltungen bedeutet immer eine Belastung für mich.	[exha4]
	5. Ich fühle mich durch mein Studium ausgebrannt.	[exha5]
Anmerkung	Die Subskala bzw. Dimension <i>Erschöpfung</i> stammt aus der Maslach Burnout Inventory – Student Survey (MBI-SS) von Schaufeli et al. (2002)	
Skalierung	Deutsch: 0=nie bis 6=täglich	
Quelle	Deutsch: Gusy, B., Wörfel, F., & Lohmann, K. (2016). Erschöpfung und Engagement im Studium: Eine Anwendung des Job Demands-Resources Modells. <i>Zeitschrift für Gesundheitspsychologie</i> , 24(1), 41–53. https://doi.org/10.1026/0943-8149/a000153	
Arbeitsbezogenes Verhaltens- und Erleben		
Arbeitsbezogenes Verhaltens- und Erlebensmuster (AVEM-Kurzform)	Wie treffen die folgenden Verhaltensweisen, Einstellungen und Gewohnheiten für dich zu? Es wird dabei vorrangig auf die Arbeit in Bezug auf dein Studium genommen. 1 = gar nicht 7 = voll und ganz	
	Wie sehr trifft es für dich zu, dass du ...	
	1. die Arbeit im Studium als deinen wichtigsten Lebensinhalt ansiehst?	[avem1]
	2. im Studium mehr erreichen willst als andere?	[avem2]
	3. dich über das gesunde Mass hinaus verausgabst, wenn es die Aufgaben im Studium erfordern?	[avem3]
	4. die Leistungen im Studium immer perfekt machen willst?	[avem4]
	5. nach der Arbeit im Studium problemlos abschalten und an andere Dinge denken kannst?	[avem5]

	6. nach Misserfolgen schnell zur Resignation und zum Aufgeben neigst?	[avem6]
	7. dich auch bei auftretenden Schwierigkeiten und Hindernissen behauptest und durchsetzt?	[avem7]
	8. selbst bei grösster Aufregung und Hektik in deiner Umgebung im Studium ruhig und gelassen bleiben kannst?	[avem8]
	9. in deinem Studium bis jetzt erfolgreich sein konntest?	[avem9]
	10. mit deinem gesamten Leben zufrieden bist?	[avem10]
	11. dich stets auf Verständnis und Unterstützung durch nahestehende Menschen verlassen kannst?	[avem11]
Anmerkung	Fragebogen misst folgende Bereiche: Berufliches Engagement Fähigkeiten zur Stressbewältigung Gefühlslage	
Skalierung	1=gar nicht bis 7=voll und ganz	
Quelle	Schaarschmidt, U. & Fischer, A. W. (2008). Arbeitsbezogenes Verhaltens- und Erlebensmuster. AVEM (Standardform). AVEM-44 (Kurzform). Manual. Frankfurt am Main: Pearson. Angepasst für Studierende: Blomert, E., Knoch, S., Rösch, J.-M., Stemme, S. & Mierke, K. (2010). Subjektives Belastungserleben bei Studierenden. In W. Aretz & K. Mierke (Hrsg.). Aktuelle Themen der Wirtschaftspsychologie. Beiträge und Studien. Band 2 (S. 317-331). Köln: Kölner Wissenschaftsverlag.	
Wahrgenommenes Stresserleben		
The Perceived Stress Scale (PSS-10)	Die folgenden Fragen beschäftigen sich mit deinen Gedanken und Gefühlen während des letzten Monats. Bitte gib für jede Frage an, wie oft du sie in entsprechender Art und Weise gedacht oder gefühlt hast. 1 = nie 5 = sehr oft	
	1. Wie oft warst du im letzten Monat aufgewühlt, weil etwas unerwartet passiert ist?	[pss1]
	2. Wie oft hattest du im letzten Monat das Gefühl, nicht in der Lage zu sein, die wichtigen Dinge in deinem Leben kontrollieren zu können?	[pss2]
	3. Wie oft hast du dich im letzten Monat nervös und gestresst gefühlt?	[pss3]
	4. Wie oft warst du im letzten Monat zuversichtlich, dass du fähig bist, deine persönlichen Probleme zu bewältigen?	[pss4]
	5. Wie oft hattest du im letzten Monat das Gefühl, dass sich die Dinge zu deinen Gunsten entwickeln?	[pss5]
	6. Wie oft hattest du im letzten Monat den Eindruck, nicht all deinen anstehenden Aufgaben gewachsen zu sein?	[pss6]
	7. Wie oft warst du im letzten Monat in der Lage, ärgerliche Situationen in deinem Leben zu beeinflussen?	[pss7]
	8. Wie oft hattest du im letzten Monat das Gefühl, alles im Griff zu haben?	[pss8]
	9. Wie oft hast du dich im letzten Monat über Dinge geärgert, über die du keine Kontrolle hattest?	[pss9]

	10. Wie oft hattest du im letzten Monat das Gefühl, dass sich so viele Schwierigkeiten angehäuft haben, dass du diese nicht überwinden konntest?	[pss10]
Anmerkungen	6 reversed items: 1, 2, 3, 6, 9, 10 Zwei Subskalen: Subskala Hilfflosigkeit: Items 1, 2, 3, 6, 9, 10 Subskala Selbstwirksamkeit: Items 4, 5, 7, 8.	
Skalierung	Englisch: 1=never, 2=almost never, 3=sometimes, 4=fairly often, 5=very often. Deutsch: 0=nie, 2=fast nie, 3=manchmal, 4=ziemlich oft, 5=sehr oft	
Quelle	Englisch: Cohen S, Kamarck T, Mermelstein R. (1983). A global measure of perceived stress. <i>J Health Soc Behav.</i> , 24, 385–96. Deutsch: Schneider, E. E., Schönfelder, S., Domke-Wolf, M., & Wessa, M. (2020). Measuring stress in clinical and nonclinical subjects using a German adaptation of the Perceived Stress Scale. <i>International Journal of Clinical and Health Psychology</i> , 20, 173-181. https://doi.org/10.1016/j.ijchp.2020.03.004	

Bewältigungsstrategien

Coping Orientation to Problems Experienced (Brief-COPE, dispositional) (28)	Inwiefern treffen die folgenden Aussagen auf dein Denken und Handeln im Allgemeinen in <u>vergangenen unangenehmen oder schwierigen Situationen</u> zu?	
	1 = stimme überhaupt nicht zu 4 = stimme sehr zu	
	1. Ich habe mich mit Arbeit oder anderen Sachen beschäftigt, um auf andere Gedanken zu kommen.	[cope1]
	2. Ich habe mich darauf konzentriert, etwas an meiner Situation zu verändern.	[cope2]
	3. Ich habe mir eingeredet, dass das alles nicht wahr ist.	[cope3]
	~~Ich habe Alkohol oder andere Mittel zu mir genommen, um mich besser zu fühlen.~~	~~[cope4]~~
	4. Ich habe aufmunternde Unterstützung von anderen erhalten.	[cope5]
	5. Ich habe es aufgegeben, mich damit zu beschäftigen.	[cope6]
	6. Ich habe aktiv gehandelt, um die Situation zu verbessern.	[cope7]
	7. Ich wollte einfach nicht glauben, dass mir das passiert.	[cope8]
	8. Ich habe meinen Gefühlen freien Lauf gelassen.	[cope9]
	9. Ich habe andere Menschen um Hilfe und Rat gebeten.	[cope10]
	~~Um das durchzustehen, habe ich mich mit Alkohol oder anderen Mitteln besänftigt.~~	~~[cope11]~~
	10. Ich habe versucht, die Dinge von einer positiveren Seite zu betrachten.	[cope12]
	11. Ich habe mich selbst kritisiert und mir Vorwürfe gemacht.	[cope13]
	12. Ich habe versucht, mir einen Plan zu überlegen, was ich tun kann.	[cope14]
	13. Jemand hat mich getröstet und mir Verständnis entgegengebracht.	[cope15]
	14. Ich habe versucht, die Situation in den Griff zu kriegen.	[cope16]

	15. Ich habe versucht, etwas Gutes in dem zu finden, was mir passiert ist.	[cope17]
	16. Ich habe humorvolle Sprüche darüber gemacht.	[cope18]
	17. Ich habe etwas unternommen, um mich abzulenken.	[cope19]
	18. Ich habe mich damit abgefunden, dass es passiert ist.	[cope20]
	19. Ich habe offen gezeigt, wie schlecht ich mich fühle.	[cope21]
	~~Ich habe versucht, Halt in meinem Glauben zu finden.~~	~~[cope22]~~
	20. Ich habe versucht, von anderen Menschen Rat oder Hilfe einzuholen.	[cope23]
	21. Ich habe gelernt, damit zu leben.	[cope24]
	22. Ich habe mir viele Gedanken darüber gemacht, was hier das Richtige wäre.	[cope25]
	23. Ich habe mir für die Dinge, die mir widerfahren sind, selbst die Schuld gegeben.	[cope26]
	~~Ich habe gebetet oder meditiert.~~	~~[cope27]~~
	24. Ich habe es mit Humor genommen.	[cope28]
<i>Anmerkungen:</i>	Originale Unterteilung in zwei-Item Subskalen: Ablenkung: 1, 19 Verleugnung: 3, 8 Emotionale Unterstützung: 5, 15 Verhaltensrückzug: 6, 16 Positive Umdeutung: 12, 17 Humor: 18, 28 Aktive Bewältigung: 2, 7 ~~Alkohol/Drogen: 4, 11~~ Instrumentelle Unterstützung: 10, 23 Ausleben von Emotionen: 9, 21 Planung: 14, 25 Akzeptanz: 20, 24 Selbstbeschuldigung: 13, 26 ~~Religion: 22, 27~~	
<i>Anmerkung</i>	Fragen zu Alkohol/Drogen und Religion wurden weggelassen, da sie sehr sensible Daten erfragen. Item 16 wurde in der deutschen Version umgepolt.	
<i>Skalierung</i>	Englisch: 1=not at all; 2=a little bit; 3=considerably; 4=very much. Deutsch: 1=überhaupt nicht; 2=ein bisschen; 3=ziemlich; 4=sehr	
<i>Quelle</i>	Englisch: Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief cope. <i>International journal of behavioral medicine</i> , 4(1), 92-100. Deutsch: Knoll, N., Rieckmann, N., & Schwarzer, R. (2005). Coping as a mediator between personality and stress outcomes: A longitudinal study with cataract surgery patients. <i>European Journal of Personality</i> , 19, 229-247.	
Conservation of human energy resources index (CHERI) (5)	Wie fühlen sie sich im Moment? Gerade möchte ich... 1 = stimme überhaupt nicht zu 6 = stimme komplett zu	
	1. ...meine Energiereserven sparen.	[cheri1]
	2. ...möglichst wenig meinen „Akku“ anzapfen.	[cheri2]
	3. ...in meinen „Energiesparmodus“ schalten.	[cheri3]
	4. ...meine Kräfte schonen.	[cheri4]

	5. ...so wenig wie möglich von meiner Energie verbrauchen.	[cheri5]
<i>Anmerkung</i>		
<i>Skalierung</i>	1 = not at all true, 6 = completely true	
<i>Quelle</i>	Blaise, M., Krispenz, A., & Bertrams, A. (2024). My precious: Development and validation of the conservation of human energy resources index (CHERI). <i>European Journal of Work and Organizational Psychology</i> . https://doi.org/10.1080/1359432X.2024.2376908	
Pictorial scale of human energy (PSHE) (6)	Wie man sich im Moment fühlt, wird oft durch den Ladezustand einer Batterie beschrieben, welche von «erschöpft» bis «voller Energie» reicht. Bitte geben Sie an, welches der folgenden Symbole Ihren aktuellen Zustand am besten beschreibt.	
	1 = erschöpft        7 = voller Energie	
	1. Akku (Battery)	[pshe1]
	2. Vitalität (Vitality)	[phse2]
	3. Ermüdung (Fatigue)	[phse3]
	4. Enthusiasmus (Enthusiasm)	[phse4]
	5. Gelassenheit (Serenity)	[phse5]
	6. Spannung (Tension)	[phse6]
<i>Anmerkung</i>		
<i>Skalierung</i>	1 = depleted, 7 = full of energy	
<i>Quelle</i>	Weigelt, O., Gierer, P., Prem, R., Fellmann, M., Lambusch, F., Siestrup, K., Marcus, B., Franke, T., Tsantidis, S., Golla, M., Wyss, C., & Blume, J. (2022). Time to recharge batteries: Development and validation of a pictorial scale of human energy. <i>European Journal of Work and Organizational Psychology</i> , 31(5), 781–798. https://doi.org/10.1080/1359432X.2022.2050218	
Stress- und Coping-Inventar (SCI)	Wie gehst du mit Stress um? Es gibt dabei keine richtigen oder falschen Antworten. 1 = trifft nicht zu 5 = trifft genau zu	
Positives Denken (POS) (4)	1. Ich sage mir, dass Stress und Druck auch ihre guten Seiten haben.	[pos1]
	2. Ich sehe Stress und Druck als positive Herausforderung an.	[pos2]
	3. Bei Stress und Druck konzentriere ich mich einfach auf das Positive.	[pos3]
	4. Auch wenn ich sehr unter Druck stehe, verliere ich meinen Humor nicht.	[pos4]
Aktive Bewältigung (AKT) (4)	5. Ich tue alles, damit Stress erst gar nicht entsteht.	[akt1]
	6. Ich mache mir schon vorher Gedanken, wie ich Zeitdruck vermeiden kann.	[akt2]
	7. Ich versuche Stress schon im Vorfeld zu vermeiden.	[akt3]

	8. Bei Stress und Druck beseitige ich gezielt die Ursachen.	[akt4]
Soziale Unterstützung (SOS) (4)	9. Wenn ich unter Druck gerate, habe ich Menschen, die mir helfen.	[soc1]
	10. Egal wie schlimm es wird, ich habe gute Freund:innen, auf die ich mich immer verlassen kann.	[soc2]
	11. Wenn ich mich überfordert fühle, gibt es Menschen, die mich wieder aufbauen.	[soc3]
	12. Bei Stress und Druck finde ich Rückhalt bei meiner Partnerin, meinem Partner oder einer guten Freundin, einem guten Freund.	[soc4]
Skalierung	Deutsch: 1 = trifft nicht zu, 2 = trifft eher nicht zu, 3 = trifft eher zu, 4 = trifft genau zu.	
Quelle	Satow, L. (2024). <i>Stress- und Coping-Inventar (SCI): Test- und Skalendokumentation</i> (2., überarbeitete und neunormierte Version). Verfügbar unter https://www.dr.satow.de/tests/stress-und-coping-inventar	
Resilienz von Lehrpersonen		
Multidimensional Teacher Resilience Scale (MTRS)	Die folgenden Fragen beziehen sich auf deinen Schulalltag (wenn du nicht als Lehrperson angestellt bist, erinnere dich an die Erfahrungen deines letzten Praktikums). 1 = stimme völlig zu 5 = stimme überhaupt nicht zu	
Emotional (MTEM) (4)	1. Wenn etwas in der Schule schief geht, nehme ich das <i>nicht</i> zu persönlich.	[mtem1]
	2. Ich kann, nachdem ich darüber nachgedacht habe, immer das Witzige/Positive an Herausforderungen in der Schule finden.	[mtem2]
	3. Wenn ich mich in der Schule aufrege oder wütend werde, schaffe ich es trotzdem ruhig zu bleiben.	[mtem3]
	4. Ich vereinbare meine Rolle als Lehrperson mit anderen Bereichen meines Lebens.	[mtem4]
Motivational (MTMO) (12)	5. Ich bin in der Schule generell optimistisch.	[mtmo1]
	6. In der Schule konzentriere ich mich mehr auf den Ausbau meiner Stärken als auf meine Schwächen.	[mtmo2]
	7. Wenn ich in der Schule Fehler mache, sehe ich diese als Möglichkeit daraus zu lernen.	[mtmo3]
	8. Als Lehrperson setze ich mir Ziele und arbeite darauf hin diese zu erreichen.	[mtmo4]
	9. Ich habe realistische Erwartungen an mich als Lehrperson.	[mtmo5]
	10. Ich glaube daran, dass ich, wenn ich in der Schule etwas schaffen möchte, dies auch erreiche.	[mtmo6]
	11. Ich kann mir meine Motivation und Begeisterung bewahren, auch wenn sich die Dinge in der Schule schwierig gestalten.	[mtmo7]
	12. Mir bereitet das Lernen bei der Arbeit als Lehrperson Freude.	[mtmo8]
	13. Ich mag Herausforderungen in meiner Arbeit.	[mtmo9]
	14. Ich bin in meiner Arbeit ausdauernd.	[mtmo10]
	15. Ich glaube, dass ich Kontrolle über mein Arbeitsleben habe.	[mtmo11]
	16. Es ist mir wichtig, mir Mühe zu geben, damit ich meine Arbeit gut mache.	[mtmo12]
Sozial (MTSO) (6)	17. Wenn ich mir bei etwas nicht sicher bin, bitte ich meine Kolleg:innen im Schulhaus um Hilfe.	[mtso1]
	18. Ich bin gut darin, in einer neuen Schule Kontakte zu knüpfen.	[mtso2]

	19. Als Lehrperson bin ich ein:e gute:r Kommunikator:in.	[mtso3]
	20. Bei meiner Arbeit als Lehrperson kann ich Situationen aus verschiedenen Blickwinkeln betrachten, um eine Lösung zu finden.	[mtso4]
	21. Bei der Arbeit kann ich Situationen aus der Sicht von anderen betrachten.	[mtso5]
	22. Bei meiner Arbeit kann ich Konflikte mit anderen normalerweise lösen.	[mtso6]
Beruflich (MTBE) (4)	23. In der Schule kann ich flexibel sein, wenn sich etwas ändert.	[mtbe1]
	24. Ich reflektiere / denke immer über mein Lehren und das Lernen nach, um Pläne für die Zukunft zu machen	[mtbe2]
	25. Ich bin in meiner Arbeit in der Schule gut organisiert.	[mtbe3]
	26. Ich kann mich in der Schule schnell an neue Gegebenheiten anpassen.	[mtbe4]
<i>Anmerkungen:</i>	Itemnr. 24 und 26 wurde Platz getauscht, da Nr. 23. und 24. sonst sehr ähnlich sind.	
<i>Skalierung:</i>	Englisch: 1=strongly agree, 2=agree, 3=neutral, 4=disagree, 5=strongly disagree Deutsch: 1=stimme völlig zu, 2=stimme zu, 3=neutral, 4=stimme eher nicht zu, 5=stimme überhaupt nicht zu	
<i>Quelle:</i>	Englisch: Peixoto, F., Wosnitza, M., Pipa, J., Morgan, M., & Cefai, C. (2018). A multidimensional view on pre-service teacher resilience in Germany, Ireland, Malta and Portugal. In M. Wosnitza, F. Peixoto, S. Beltman, & C.F. Mansfield (Eds.), <i>Resilience in Education</i> (pp. 73-89). Springer. https://doi.org/10.1007/978-3-319-76690-4_5 Deutsch: Übersetzung	

Appendix C: FoResT Modules

Table 3

Content of the Six FoResT Modules based on BRiTE

Module 1	Understanding resilience (introductory module) Estimated duration: 15-20 minutes
Resilience and you	- Explanatory video on the definition of resilience: What is meant by resilience? - Record findings
Case study	- Case study: Challenging situation in the classroom with a disruptive pupil - Reflection question - Possible reaction to the challenging situation
AWaRE model	- Video explaining the AWaRE (Aligning Resilience and Wellbeing) model to restore wellbeing through strategies. - Draw on existing resources (individual and contextual)
Strategies	- Strategies from Elisa and Anja to maintain well-being and resilience
Findings	- Reflection question on individual and contextual resources
Protect resilience	- Explanatory video on: How can you protect resilience? - Four dimensions of resilience from Mansfield et al. (2012)
4 Dimensions	- Four dimensions of teacher resilience from Mansfield et al. (2012): professional, emotional, social and motivational. - Information on: What did they do in the study? Why is this model helpful? What should you consider? etc.
Outlook	- Task: What challenges have you faced? How did you deal with these challenges?
Logbook - Your plan (Introduction)	- Explanatory video on the goal-setting technique Explanation of the individual steps with examples: - Wish: What is your wish? - Outcome: If your wish were to be realised, what do you expect from it? What would the best thing feel like? - Obstacle: What is standing in the way of you achieving your wish or goal? When does the obstacle appear? Is it another person or a circumstance? Is it something within yourself? - If-Then Plan: What could you do to overcome the obstacle? What action could you take or what could you tell yourself to effectively overcome the obstacle? - Formulate your own plan according to the following template: Whenever IF obstacle, THEN I will take action. - What next? Record findings in the logbook. Two possible examples are given. - Assignment: Include these findings in your logbook of the BERG seminar as a separate chapter "FoResT". - Workbook for lateral entrants as an additional resource or dashboard

Module 2		Maintaining relationships Estimated duration: 45-60 minutes
Relationships and you		- Explanatory video on relationship building and competence development - Reference to AWaRE model: Relationships as a
Case study		- Case study: Challenging situation with a teacher colleague - Reflection question - Lea's thoughts
Build relationships		- Relationship building and prequiz with recommendation of three sub-modules: (1) Communicating in relationships, (2) Building relationships and (3) Shaping relationships - Strategies from Elias, Anja, school management and reflection - Record findings
Findings		- Asking for support is a strength and an opportunity to learn - Recommendation of the PHBern coaching team (link) - Reflection question
Communicating in relationships		- Reflection question on Joy multiplier (active and constructive style) - Explanatory video on various communication strategies: joy multiplier, joy thief, conversation killer, conversation hijacker - Good communication can be learned and four "communication sins": (1) criticism, (2) defence, (3) contempt and disdain, (4) "walls" and withdrawal - Reflection question on communication sins - Non-violent communication: hard conversation starters vs. soft starters - Dealing with conflicts and reflecting on a past conflict - Formulate a gentle introduction to the conflict: I feel... about... I wish... Please enter the answers to these questions in your logbook. - What was it like to carry out this exercise? - To what extent has this exercise changed your attitude to dealing with potential conflicts? - How did you find this exercise helpful? - What insights did you gain from this exercise? - Boundaries in relationships on an emotional level, in conversations and temporal boundaries - Reflection question on your own demarcation
Shaping relationships		- Reflection questions on working with others and your own strengths - Shaping relationships with colleagues: Tips - Collegial intervention (link to PDF) - Relationships with pupils: Communication, classroom climate, offering safety and appreciation - Parent contact and tips - Reflection on future relationship design
Knowledge and outlook	check	Knowledge questions and take-home message

Logbook
Your plan

- **Reflection questions:** That's why we're giving you a task now. Over the next week, we would like you to keep asking yourself a few questions. This will help you to get to know your needs better, manage your behaviour and be more mindful of yourself.

- Which relationships with people in my environment do I experience as supportive and positive?
- How do these people help me?
- Where and with whom do you offer your support?

Summarising points: To ensure that what you have learnt is really useful in the long term, keep the following points in mind:

- Your highlight in one sentence
- Summary of the most important content for you
- your personal action goals

In-depth, supplementary questions: You can also think about the following questions:

- What impact do positive relationships have on the learning climate in the classroom?
- How can you build a positive relationship with all of your students?
- How can you improve cooperation with colleagues in order to positively influence the working atmosphere?

Assignment: Include these findings in your logbook of the BERG seminar as a separate chapter "FoResT".

Module 3	Establish well-being Estimated duration: 30.45 minutes
Well-being and you	- Introductory video to: Why is well-being important at all? - Definition of well-being as a positive imbalance - Prequiz
Personal well-being	- Our own well-being is influenced by various factors. - The role of wellbeing for teachers: Why is wellbeing important? - Reflection and strategies: How do you maintain your well-being? - Mental health: Audio from Lea - Case study: Challenging situation with a student friend - Reflection question
Life Domains	- Positive work-life balance and effective time management strategies to maintain well-being - Reflection question on the current work-life balance - Tips on life domains - Demarcation and reflection question on strategies for demarcation - Tips from Elias à Wheel of Life
Strengthen strengths	- Test on character strengths (approx. 30 min): https://www.charakterstaerken.org/ - Reflection - Exercise to strengthen strengths - Utilising strengths and reflection - Theoretical reference
PERMA	- Explanation of the model and reflection on significant factors in the last internship - Advantages of positive emotions
Knowledge check and outlook	- Knowledge questions and take-home message
Logbook Your plan	- Reflection questions / tasks: - Assess for yourself next week: Look for one or two positive things that happened at the end of each day. - Plan at least one thing to look forward to every day. In the morning, think about what that will be today so that you can look forward to it. - What interests and hobbies did you pursue outside of school today? - Which time management tips did you use today? Which ones would you like to use tomorrow? - Summarising points: - Your highlight in one sentence - Summary of the most important content for you - your personal action goals - In-depth, supplementary questions: - How can healthy habits, such as getting enough sleep and regular exercise, help you feel better? - What strategies can you use to reduce stress and relax? - How can you change your attitude towards challenges to improve your well-being?

Module 4	Show initiative Estimated duration: 30-45 minutes
Show initiative and you	- Show initiative introductory video
Case study	- Case study on the challenging situation of many work demands and parents' evening preparations - Reflection question on the next action steps - Possible suggestion for action from Lea
Show initiative	- Set boundaries on a mental, material, physical and inner life level.
Strategies	- Strategies of Elias and Lea (Audios)
Findings	- Reflection question on own experiences of times with many tasks - Prequiz on: How do you show initiative?
Problem-solving processes	- Flexibility and adaptability - Bag of tricks with various suggestions - Empathy and understanding: Case study of Erion - Reflection in action and on the events - Three problem-solving strategies: (1) detective, (2) adventurer and (3) scientist
Efficient working	- Set realistic goals using the SMART method - Reflection on personal SMART goal for the week. - Preventing perfectionism and tips for time management - Eisenhower matrix to visualise and prioritise tasks - Procrastination and the procrastination mechanism (various slides)
Communication	- Communication with parents and solution-orientated discussions with parents (PDF) - Communication with parents: strategies for dealing with spontaneous requests or tasks. - Get help and tips
Knowledge check and outlook	- Knowledge questions and take-home message
Logbook - Your plan	Reflection questions: - In which situations and at which levels do I show initiative and set boundaries? - Where would it be valuable for me to set boundaries? - How and in which areas could I improve my communication? Summarising points: - Your highlight in one sentence - Summary of the most important content for you - your personal action goals In-depth, supplementary questions: - What are your goals as a teacher and how can you achieve them? - What steps could you take to further develop yourself in areas that are still challenging for you? - How can you encourage your students to show initiative?

Module 5	Perceiving emotions Estimated duration: 45-60 minutes
Emotions and you	- Explanatory video on emotions and resilience: What needs are hidden in emotions? What do they show us? - Aim of the module: Learning to surf on the feelings / emotions. - Prequiz
Make emotions conscious	- Memories of your own emotions at school (Audio) - Emotions in the classroom: Emotions are important - Every emotion has its reason: examples of joy, fear, anger - Be more open to new experiences through positive emotions (broaden and built) - Reflection question on situations with experienced joy
Case study	- Case study by Lea about emotions in the classroom - Scaling to the emotional awareness of Lea and herself
Regulate emotions	- Acceptance of feelings and reflection on feelings experienced - Primary and secondary emotions - Accepting primary emotions and interactive exercise: assigning descriptions to feelings - Dealing with negative feelings: (Negative) Habit Loop - Encountering emotions: Curiosity, self-compassion, body awareness - Dealing with emotions can be learnt: reference to the case study - Thinking traps: Mind reading, personalising, catastrophising, externalising and helplessness
Optimism	- Awaken positive emotions by scaling the current emotional state - The power of optimism and questions for reflection - Seeing the benefits of positive emotions and reflection questions - Positive thinking and the power of thoughts: examples of pessimistic vs. optimistic thinking - Exercise in optimistic thinking and strategies - Four exercises to awaken positive emotions - Connection between optimism and resilience - Practising optimism and ABC scheme (Action, Belief, Consequences) with exercise
Knowledge check and outlook	- Knowledge questions and take-home message
Logbook - Your plan	Reflection questions: - What emotions did you notice in yourself today? What emotions did you notice in other people today? - Ask someone close to you how they perceive you. Ask them to give you honest feedback on how you deal with emotions. What do they want from you? - How do you best manage to arouse or increase positive emotions? What have you been able to apply today? Summarising points: - Your highlight in one sentence - Summary of the most important content for you - your personal action goals In-depth, supplementary questions: - How can emotional intelligence and empathy help you as a teacher to respond to your students' needs? - How can you regulate your own emotions and express them in a positive way? - What feedback did you get from the feedback?

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- What techniques can you use to deal with difficult emotional situations in the classroom?
-

Module 6	Practising mindfulness Estimated duration: 60-70 minutes
Mindfulness and you	- Explanatory video on mindfulness in everyday life as a teacher
Case study	- Case study on the challenging situation of excessive workload and many to-dos - Reflection question about your own experience - Possible action strategy of Lea and reflection question
In the here and now	- Attention can be trained and self-control can be improved - Breathing meditation (5 minutes)
Systems equilibrium	in - Explanatory video on the model of the three emotion regulation systems - Scaling via the balance of the three systems and reflection question on the strategies learnt - Strategies from Elias and Anja
Autopilot	- Autopilot mode and reflecting on your own automatisms - Autopilot and mindfulness - The five-finger method - Vagus nerve and excessive demands with questions to reflect on your own feelings - Explanatory video on vagus nerve - Outlook: Taking breaks and self-care
Compassion	- Compassion as an important component of mindfulness - Why is self-compassion important? - Exercise in self-compassion - Compassion for others and reflection - Meditation on compassion (5 minutes) - Ideas for practice (PDF) with reflection question on incorporating a mindfulness exercise into practice - Compassion and self-care
Valuations	- Assessments with questions for reflection on the situation with hasty judgements - Inner criticism, mistakes and thinking traps: Observe with curiosity - Reflection question about your own inner voices (critics) - Meditation reviews (5 minutes) - Positive affirmations as method to avoid giving too much space to negative judgements with gratitude exercises - Assessments and self-care
Knowledge and outlook	check - Knowledge questions and take-home message
Logbook - Your plan	Reflection questions / tasks: - In the coming week, be aware of when you switch to autopilot and don't consciously complete tasks. - When were you fully present in your everyday life this week? Where would it be valuable for you to set boundaries? - Incorporate a mindfulness exercise into your everyday life and note whether it helps you to be more in the now and how it makes you feel. Summarising points: - Your highlight in one sentence - Summary of the most important content for you

-
- your personal action goals

In-depth, supplementary questions:

- How can mindfulness help you to be calmer and more balanced as a teacher?
 - What exercises could you integrate into your everyday life to strengthen your mindfulness?
 - What changes have you already noticed since you've started focussing more on mindfulness?
-

Appendix D: Interview guides

The interview guides are not open-access available. More detailed information and inspection of the interview guide are available upon request from the author (isabelle.krummenacher@phbern.ch) and other project members.