



SCIENTIFIC AND METHODOLOGICAL SUPPORT FOR DEVELOPING PROFESSIONAL RESILIENCE IN PRE- SERVICE TEACHERS

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Abstract

Although teacher resilience is now widely regarded as a capacity that can be fostered during initial teacher education, teacher educators often lack a coherent set of methodological resources for doing so. This article designs and substantiates the scientific and methodological support for developing professional resilience in pre-service teachers. Drawing on theoretical analysis of the literature and on pedagogical design, the article describes four interrelated blocks of such support: a content block (a modular programme integrated into pedagogical courses and practicum), a technological block (methods and forms of work matched to the components of resilience), a didactic block (a case bank, simulations, reflective tasks and an electronic portfolio) and a diagnostic block (criteria, levels and instruments). Requirements for the teacher educator and for the sequencing of support are formulated. The article is a design study: it presents a theoretically grounded methodological package and outlines how its effectiveness should be tested, without reporting experimental results.

Keywords: professional resilience, pre-service teachers, teacher education, methodological support, case method, simulation, reflection, electronic portfolio, assessment.

1. Introduction

Research over the past two decades has established that teacher resilience is neither an innate trait nor a purely individual achievement. It is the outcome of a dynamic interplay between personal and contextual risk and protective factors (Beltman et al., 2011), and it fluctuates with the conditions in which teachers work (Gu & Day, 2013). Recent reviews confirm that the field has moved towards process- and context-oriented conceptions (Zhang & Luo, 2023). A practical consequence follows: if resilience depends on processes and conditions, initial teacher education can be organised so as to foster it.

This consequence has been recognised at the level of frameworks. Mansfield et al. (2016) proposed an evidence-informed framework for building resilience in teacher education that brings together personal resources, contextual resources, strategies and outcomes, and Johnson et al. (2014) described the conditions that support early career teachers. Yet a framework states what should be developed and under which conditions; it does not by itself tell a teacher educator what to teach in a given week, which tasks to set, what materials to use and how to judge whether students are progressing. The distance between a conceptual framework and everyday teaching practice is covered by what the pedagogical tradition of Uzbekistan and other post-Soviet countries calls scientific and methodological support: the system of programmes, methods, didactic materials, diagnostic instruments and guidelines that makes a pedagogical idea practicable.

In teacher education programmes, elements relevant to resilience are usually present but dispersed. Stress and emotion regulation are addressed in psychology courses, classroom difficulties in methods courses, and real challenges in practicum, with little coordination between them and no common criteria of progress. The aim of this article is to design and substantiate an integrated scientific and methodological support for developing professional resilience in pre-service teachers. The article addresses three questions: (1) What blocks should such support include? (2) What content, methods and didactic tools correspond to each component of professional resilience? (3) How can progress be diagnosed?

2. Theoretical Background

In this article professional resilience of a pre-service teacher is understood as an integrative, developable capacity to maintain professional commitment and effective pedagogical action in the face of professionally significant difficulties, to recover after setbacks and to learn from them. Following the dimensions that teachers themselves attribute to a resilient colleague, namely profession-related, emotional, motivational and social (Mansfield et al., 2012), and adding the regulatory function of reflection, five components are distinguished: motivational-value, cognitive, emotional-volitional, social-communicative and reflexive-regulatory.

Four theoretical positions determine the choice of methods. First, self-efficacy is strengthened above all by mastery experiences (Bandura, 1997), and teachers' efficacy beliefs are strongly related to their persistence (Tschannen-Moran & Woolfolk Hoy, 2001); students therefore need to encounter and successfully resolve professional difficulties. Second, such difficulties must lie within the zone of proximal development (Vygotsky, 1978) and be accompanied by scaffolding that is gradually withdrawn (Wood et al., 1976). Third, experience becomes learning only through a cycle that includes reflection and renewed action (Kolb, 1984; Schön, 1983) and through self-regulation of goals and strategies (Zimmerman, 2002). Fourth, relationships with mentors and peers are central to the resilience of beginning teachers (Le Cornu, 2013). In addition, the principle of constructive alignment requires that intended outcomes, learning activities and assessment be consistent with one another (Biggs & Tang, 2011).

3. Method

The study follows the logic of pedagogical design. Theoretical analysis and synthesis of literature were used to derive requirements for the support; pedagogical modelling was used to construct its blocks; and constructive alignment was used as the criterion of internal consistency, so that each component of resilience is matched with content, methods, didactic tools and assessment. The result is a designed methodological package. Its empirical effectiveness has not yet been tested, and no experimental data are reported.

4. Results

4.1. Structure of the support

The scientific and methodological support is defined here as a system of four interrelated blocks. The *content block* answers the question of what is to be learned; the *technological block* specifies how learning is organised; the *didactic block* supplies the materials and tools; the *diagnostic block* establishes how progress is identified. The blocks are connected by a common target, the five components of resilience, and by a common sequence of three stages: orientation, guided practice and autonomous practice.

4.2. Content block

Two ways of locating resilience-related content in a programme are possible: a separate course or integration into existing courses. A separate course ensures visibility but risks isolating resilience from the contexts in which it is needed. The solution proposed here is modular: a compact module of five thematic units that can be delivered within courses of pedagogy and educational psychology and that is deliberately linked to school practicum. The units and their correspondence to the components of resilience are presented in Table 1.

Table 1. Thematic units of the module and corresponding methods

Thematic unit	Leading component	Main methods and forms
1. The teaching profession: demands, risks and resources	Motivational-value	Analysis of teacher narratives, meetings with experienced teachers, discussion of professional values
2. Typical professional difficulties and ways of appraising them	Cognitive	Case analysis, classification of difficulties, generation of alternative responses
3. Emotion regulation and self-efficacy in teaching	Emotional-volitional	Micro-teaching with graduated difficulty, role play, rehearsal of responses to critical incidents
4. Professional relationships and support	Social-communicative	Peer support groups, mentoring during practicum, training in constructive communication
5. Reflection and self-regulation of professional development	Reflexive-regulatory	Reflective journal, portfolio, individual development plan

The order of the units reflects a movement from understanding the profession and its difficulties, through acting in difficult situations, to regulating one's own development. Units 2 to 4 are revisited during practicum, when students meet real rather than simulated difficulties.

4.3. Technological block

The methods are selected according to the principle that resilience is developed in action and not by information about resilience. Three groups of methods are central.

Case-based methods. Cases present realistic situations of professional difficulty, such as a conflict with a parent, a lesson that fails, or a disruptive class, and require analysis and decision. Shulman (1992) argued that cases allow future teachers to learn from experience that is not yet their own and to connect principles with particular situations. For the purposes of resilience, cases are constructed so that there is no single correct solution and so that the emotional dimension of the situation is explicit.

Approximations of practice. Role play, micro-teaching and simulations allow students to enact responses under conditions of reduced complexity and risk. Grossman et al. (2009) describe such approximations as opportunities to rehearse components of professional practice with support and feedback that are rarely available in real settings. Difficulty is

graduated across three levels: a predictable situation with full support, a situation with an unexpected element and partial support, and an uncertain situation handled independently. This gradation operationalises scaffolding (Wood et al., 1976) and is intended to provide mastery experiences rather than experiences of failure.

Reflective and self-regulatory methods. Every activity is completed by structured reflection. Since reflective writing by student teachers often remains descriptive (Hatton & Smith, 1995), prompts are used that lead from description of the situation to analysis of one's appraisal and emotions, consideration of alternatives and a plan for the next attempt. Formative feedback from the teacher educator and peers addresses not only the task but also the process and self-regulation, which are the levels at which feedback is most likely to support further learning (Hattie & Timperley, 2007).

These methods are supplemented by forms of social support: stable peer groups that meet throughout practicum and mentoring by experienced school teachers. Their purpose is twofold: to provide support and to develop the habit of seeking and offering help, which is itself a component of resilience.

4.4. Didactic block

The didactic block contains four tools. The *case bank* is a structured collection of situations classified by type of difficulty (instructional, relational, organisational, emotional), level of complexity and the component of resilience mainly addressed. Each case includes a description, questions for analysis and notes for the teacher educator. Cases are expected to be collected from local school practice, since the meaning of difficulty is context-specific. *Simulation scenarios* are scripts for role play and micro-teaching with defined roles, an unexpected element and criteria for observation. *Reflective tasks* are sets of prompts and templates for journals and post-practicum analysis. The *electronic portfolio* gathers evidence of the student's work with difficulties, including analyses, recordings of micro-teaching, feedback and reflective entries, and thus makes development visible over time; research on electronic portfolios associates them with learner engagement and reflection (Barrett, 2007).

Digital formats can extend these tools, for example through branching scenarios in which the student's decisions lead to different consequences, and frameworks of educators' digital competence include reflective practice and professional collaboration among their areas (Redecker, 2017). However, technology-related overload can itself be a source of strain (Tarafdar et al., 2007). The use of digital tools is therefore subordinated to pedagogical purpose: a tool is included when it adds an opportunity for practice, feedback or reflection that is otherwise unavailable.

4.5. Diagnostic block

Diagnostics serve two functions: initial identification of each student's resources in order to individualise support, and monitoring of change. Criteria correspond to the five components. For each criterion a combination of instruments is proposed (Table 2), because self-report measures alone are vulnerable to social desirability and capture beliefs rather than action.

Table 2. Diagnostic criteria and instruments

Criterion	Indicators	Possible instruments
Motivational-value	Professional commitment, intention to teach	Questionnaire on professional motivation; interview

Criterion	Indicators	Possible instruments
Cognitive	Quality of analysis of difficult situations, range of alternatives	Case analysis assessed with a rubric
Emotional-volitional	Self-efficacy, perseverance, recovery after failure	Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001); general resilience scale, e.g. CD-RISC (Connor & Davidson, 2003); observation in simulations
Social-communicative	Help-seeking, cooperation, communication in conflict	Observation in group work and practicum; mentor report
Reflexive-regulatory	Depth of reflection, goal setting, adjustment of strategies	Analysis of reflective writing using levels of reflection (Hatton & Smith, 1995); portfolio review

Teacher-specific resilience instruments, such as the scale developed by Daniilidou and Platsidou (2018), may also be considered. Any instrument developed in another language and culture must be translated, adapted and validated before use; this is a necessary preliminary step and not a formality.

Three levels of development are distinguished. At the *situational* level, the student copes with difficulty only with external support, appraises difficulties mainly as threats, and reflects descriptively. At the *adaptive* level, the student applies learned strategies in familiar situations, seeks support when needed and analyses experience with guidance. At the *self-regulated* level, the student acts effectively in uncertain situations, mobilises personal and social resources independently and uses reflection to plan professional growth. The levels describe a direction of development and are not intended as labels for selection.

4.6. Requirements for the teacher educator and sequencing

The support presupposes a particular role of the teacher educator: a designer of difficult situations, a source of scaffolding and feedback, and a model of a constructive attitude to difficulty. Methodological guidelines therefore accompany each unit and include aims, a scenario of activities, criteria for observing students and recommendations for debriefing. Particular attention is given to psychological safety: students must be able to fail in a simulation without consequences for their grade or standing in the group.

Implementation proceeds in three stages. At the orientation stage, initial diagnostics are carried out and units 1 and 2 are studied. At the stage of guided practice, units 3 and 4 are delivered through approximations of practice with decreasing support. At the stage of autonomous practice, students apply strategies during school practicum, supported by mentors and peer groups, complete unit 5 and present their portfolios; final diagnostics are then conducted.

5. Discussion

The proposed support is consistent with existing frameworks for building resilience in teacher education (Mansfield et al., 2016) and extends them in the direction of practice. Its

distinctive features are the systematic matching of each component of resilience with content, methods, tools and assessment, and the gradation of difficulty and support across three stages. In this respect it responds to the dispersion of resilience-related elements noted in the Introduction.

Several risks should be considered. First, an emphasis on developing individual capacities may be read as shifting responsibility for difficult working conditions onto teachers, a concern raised in the literature on early career teachers (Johnson et al., 2014). The inclusion of mentoring and peer support, and the treatment of help-seeking as a competence, are intended to keep the relational and contextual nature of resilience in view; nevertheless, methodological support in teacher education cannot substitute for adequate conditions in schools. Second, simulated difficulties differ from real ones, and transfer to practice cannot be assumed; this is why the module is linked to practicum. Third, the support places demands on teacher educators' time and preparation, and its feasibility depends on institutional resources.

The principal limitation of the study is that the support has been designed but not tested. Its evaluation requires a pedagogical experiment with comparable experimental and control groups, pre- and post-measurement using validated instruments, and appropriate statistical analysis, complemented by qualitative analysis of reflective writing and by follow-up into the first year of teaching. Until such evidence is available, the claims of this article concern the internal coherence and theoretical grounding of the support, not its effects.

6. Conclusion

The scientific and methodological support for developing professional resilience in pre-service teachers has been presented as a system of four blocks. The content block is a five-unit module integrated into pedagogical courses and linked to practicum. The technological block combines case-based methods, approximations of practice with graduated difficulty, and reflective and self-regulatory methods within a supportive community. The didactic block comprises a case bank, simulation scenarios, reflective tasks and an electronic portfolio. The diagnostic block defines five criteria, three levels and a combination of instruments. Together they translate a conceptual understanding of teacher resilience into materials that a teacher educator can use, and they provide a basis for subsequent experimental verification.

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