

# TOWARDS EFFECTIVE TRAINING TRANSFER IN TEACHER PROFESSIONAL DEVELOPMENT: A MULTIPLE CASE STUDY

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**ABSTRACT**

**Aim.** This paper aims to provide key insights based on best practice examples identified and analysed during a multiple case study on effective and efficient teacher training transfer across diverse educational contexts.

**Methods.** An in-depth analysis of four cases from evidence-based practices in Lithuania, Norway, Estonia, and Germany was conducted to determine: (a) success aspects, (b) implementation challenges, and (c) insights for sustaining practice and implications for teacher professional development design and delivery. The best practice examples were sourced through desk research, literature reviews, and structured interviews with educational experts from the four countries. The cases were selected based on the availability and willingness of experts to share their best practices. A double screening process, based on a theoretical framework, was applied to the data of each case to identify the key characteristics of effective teacher professional development incorporated in the best practice examples.

**Results.** The findings indicate that successful training transfer is underpinned by a combination of innovative approaches, collaborative learning environments, and sustained support systems. By addressing the specific needs of teachers and schools, and offering opportunities for critical reflection and practical application, these best practice examples make a significant contribution to the ongoing professional development of teachers and the overall performance of educational organisations.

**Conclusion.** The insights gained from this research can guide the design and implementation of teacher professional development initiatives, highlighting the importance of tailoring programmes to the unique challenges and objectives of each educational context.

**Keywords:** best practice, evidence-based practice, multiple case study, teacher professional development, training transfer

## INTRODUCTION

Teachers face numerous educational reforms requiring them to reshape their current professional practices by introducing innovations, modernising teaching methods, and facilitating professional growth. This requires continuous involvement in professional development activities. Effective professional development for teachers includes various models and approaches aimed at enhancing the culture and quality of education, fostering innovative instructional practices, and improving pupil learning outcomes (Browne et al., 2022; Ciraso, 2012; Chandler, 2024; Gil et al., 2022).

Effective professional development is not only about providing training but also ensuring that the acquired skills and knowledge are effectively transferred and applied in the workplace. Various definitions of training transfer (Ciraso, 2012; del Arco et al., 2023; Gil et al., 2022; Isna, 2021; Schoeb et al., 2021) emphasise the application and sustained use of new skills and knowledge in professional settings. These definitions illustrate both the immediate and long-term impacts of professional development initiatives on reshaping teacher practices and enhancing the quality of teaching. Training transfer is a core aspect of the effectiveness of teacher professional development, as it measures how well teachers apply new knowledge and skills in their job settings and improve their teaching practices.

Anna Ciraso (2012) and Isabel del Arco et al. (2023) define training transfer as the degree to which trainees use the knowledge, skills, and abilities acquired during training in their job settings. Geneviève Schoeb et al. (2021) describe training transfer as the application of skills developed in training after learners return to work and the maintenance of those skills. Alfonso Gil et al. (2022) note that training transfer is related to the application of training, behavioural changes, and improvements in job performance.

Previous studies on best practices in training transfer, presented to an international readership by Lisa Burke and Holly Hutchins (2008a; 2008b) and Vijay Kumar Grover (2015), inspired this study to identify and analyse further examples of best practices. This paper aims to provide key insights based on best practice examples identified and analysed during a multiple case study on effective and efficient teacher training transfer in diverse educational contexts. Before conducting the multiple case study, the authors undertook an extensive systematic literature review of publications indexed in various databases. It was concluded that a more detailed exploration of the evidence of best practices in effective and efficient training transfer is needed to achieve a more systematic and comprehensive understanding.

## THEORETICAL BACKGROUND

A significant body of international research focus on enhancing the quality of teaching through opportunities for professional renewal. Susanne Wißhak (2022) states that training transfer depends on teachers' resources, cognitive abilities, conscientiousness, motivation, and self-efficacy. The transfer is more effective when participation in learning is voluntary, opportunities to apply knowledge in the workplace are provided, and support from administration and peers is available, along with feedback and coaching (Hughes et al., 2020; Wang et al., 2022).

Many empirical studies are based on diverse theoretical frameworks, both the classical models (Darling-Hammond et al., 2017; Desimone, 2009; Guskey, 2002; Kirkpatrick, 1998; Kirkpatrick & Kirkpatrick, 2006) and more innovative models (Kaunickienė, 2023; Sims et al., 2021; Sims et al., 2025) of effective professional development. Common theoretical concepts and approaches supporting efficient training transfer include: communities of practice, professional networking, and learning from colleagues (Warwas & Helm, 2018); transformative theories (Mezirow, 1991); situated learning (Lave & Wenger, 1991); teachers' self-efficacy (Aguirre-Muñoz & Pando, 2021; Nesmith & Cooper, 2019; Wißhak, 2022).

Traditional transmission models of teaching do not meet the needs of contemporary learners and require the exploration of more comprehensive teaching models. This requires teachers' involvement in continuous transformative professional development (Hargreaves & Fullan, 2012; Mezirow, 1989; 1991; 2009). The unpredictable and rapidly changing world, along with massive digitalisation, compels teachers to reshape their practice to educate strong problem-solvers, innovative thinkers, and leaders. Increasing demands and expectations require teachers to engage in critical reflection on their practice (Darling-Hammond et al., 2017). James Southworth (2022) states that personal growth in teachers is possible when they engage in critical reasoning and question established ways of thinking. Overcoming cognitive defence mechanisms and biases, and maintaining open-mindedness, allows teachers to break free from old perspectives and embrace new ones (Baehr, 2011). Jack Mezirow (1991) argues that teachers must question and expand their meaning schemes with novel ideas. Randall Curren (2021) notes that not all changes are truly transformative; only those that fulfil one's potential in eudaimonic activity contribute to a life lived well. He advocates for ethically transformative changes that foster desirable capabilities.

Transformations should not be pursued as an educational goal in themselves. Instead, professional development should focus on engaging teachers in transformational journeys and critical reflection on their practice. During and after training, teachers engage in reflective practice by evaluating, analysing, and interpreting newly gained experiences, and applying new knowledge and skills to their teaching contexts. Reflective practice allows teachers to understand personal and pro-



fessional aspects of their teaching, challenging assumptions and re-evaluating ineffective approaches. Fred Korthagen (2017) proposes a holistic model of reflection that helps teachers gain insights into educational problems by reflecting on their thoughts, feelings, and core beliefs about teaching. The framework by John Ward and Suzanne McCotter (2004) outlines different levels of reflection that can lead to transformative teaching practices. Eudaimonic reflective practice focus ones not only on enhancing teaching quality but also on aligning new experiences with teachers' professional identity and teaching philosophy.

Based on extensive prior research, Sam Sims et al. (2025) suggest that effective teacher professional development must focus on four key purposes to achieve improvements in teaching: providing insight (I) into teaching and learning; motivating (M) teachers to change their practices; offering techniques (T) to apply these insights; and embedding these changes in practice (P). They also outline potential failures if these four purposes are not addressed together:

- If professional development addresses I and perhaps M, but not T and P, sustained improvements in practice are unlikely due to the “knowing-doing gap”.
- If it addresses I, M, and T, but not P, teachers may abandon new practices and revert to old methods.
- If it addresses M, T, and P, but not I, teachers may misapply techniques without understanding their effectiveness.

Hypothetically, addressing all four purposes – I, M, T, and P – increases the likelihood of effective professional development and its transfer to practice. However, meta-analysis results (Sims et al., 2025) revealed that addressing all four purposes may not be strictly necessary for effective professional development, possibly due to variations in participants' prior characteristics.

## METHODOLOGY

The multiple case study was conducted under the State Research Programme's “Education” project No. VPP-IZM-Izglītība-2023/4–0001, funded by the Ministry of Education and Science of the Republic of Latvia. In March-May 2024, the project researchers selected seven examples of best practice and developed narrative descriptions. The case studies, related to diverse educational settings, were based on structured interviews with experts, literature analysis, and desk research, collecting evidence from project websites, reports, video records, and other relevant sources. The inclusion criteria for best practices were based on selecting success stories from the Baltic countries (Lithuania, Estonia), Norway, and Germany, with a focus on the informants' willingness to share their practices and the availability of respondents. Most of the best practices (Table

1) were selected from neighbouring Baltic countries, Lithuania and Estonia, which share a similar historical background and approaches to designing teacher professional development.

**Table 1**

*A brief summary of the seven case studies*

Study No., Country	Methods of data collection	Participants	Subject domain	Professional development approaches and forms	Educational level
Case study 1, Norway	Structured interviews, desk research	Teacher Education Network members, 7 university teachers and students	Arts, theatre, and music	Learning by doing, reflection, group work, interactive methods, transdisciplinary, workshops, experimental design, peer learning, mentoring	Primary education
Case study 2, Estonia	Structured interview, desk research	General education school teachers	Music	Learning by doing, experimental design, group work, lectures, summer schools, peer learning, communities of practice, project work, action research	General education
Case study 3, Lithuania	Structured interview, desk research	Preschool or school teams nominated by 45 municipalities	Leadership in education	Regular meetings, peer discussions, deep learning, action research, workshops, communities of practice	General education
Case study 4, Germany	Desk research	Teams from 12 early education and care centres (368 participants)	Early education and care	Regular meetings, group discussions, management interviews, reflection discussions on videography, network meetings, experimental design and testing of inclusive educational programmes for early education and care centres, self-evaluation, questionnaire	Preschool education

Study No., Country	Methods of data collection	Participants	Subject domain	Professional development ap- proaches and forms	Educational level
Case study 5, Lithuania	Structured interview, desk research	50 teachers from one school	All subject areas	Peer learning, monitoring, critical reflection	General education
Case study 6, Norway	Systematic literature analysis, desk research	28 VET teachers	All subject areas	Communities of practice, support groups for teachers, critical reflection, discussion, practical techniques and tools, learning cases of best practice, peer learning, learning by doing, self-directed learning	Vocational education and training (VET)
Case study 7 Lithuania	Structured interview, desk research	Teachers	All subject areas	Teacher support groups/circles, coaching, mentoring, empathic communi- cation	General education

*Source.* Own research.

The structured interview form was developed based on the World Health Organization's recommendations (World Health Organization, 2008) for identifying best practices, the SQUIRE (Standards for Quality Improvement Reporting Excellence) guidelines (Ogrinc et al., 2016), and the best practice concept of the Centre for Disease Prevention and Control of Latvia (Slimību profilakses un kontroles centrs, 2020). The structured interview form consists of four parts. The first part provides general information about the country, the organisation implementing the practice, and the title of the example. It also explains the purpose of the practice in relation to adult training transfer. This part followed by the second part encompasses a detailed description of the practice, including how it ensures the transfer of professional knowledge and skills and supporting evidence with additional data and resource requirements. The third part describes the results of the best practice, including how goals were achieved, factors of success, encountered difficulties, and recommendations for others who might implement this practice. The final part of the form includes documentation details, information about the informant, and consent to use the information.

Based on previous research findings (Sims et al., 2021; Sims et al., 2025) regarding the main characteristics of effective teacher professional development, and a new theoretical framework (Sims et al., 2025) that includes fourteen evidence-based mechanisms for the four purposes of teacher professional development, a 5-block screening and evaluation system was developed (Appendix Table 1A). The screening and eval-

uation process within Block 4 followed the “full mechanisms coding frame” (Sims et al., 2021 [for details pp. 175–187]), which provides guidance, examples, and references for each of the fourteen mechanisms.

The description of each best practice example selected for in-depth analysis was screened twice. Initially, a researcher who collected data and described a best practice example conducted the first screening and evaluation. This involved identifying the main characteristics of effective teacher professional development incorporated in the best practice example, marking with an “X” those characteristics that were most evident. An independent expert then conducted the second screening and evaluation of each best practice example. The results of the first and second screenings were discussed and consolidated. The consolidated screening data is summarised in Table 2, categorising the main findings into nine categories and 29 sub-categories related to the main characteristics of effective teacher professional development.

## RESULTS

In this section, the researchers focus on four exemplary cases selected from the seven compiled narratives (case studies 2, 3, 4, and 6) due to their diverse educational backgrounds, country contexts, and insights that contribute to improving the quality of teacher training transfer experiences. These four best practice examples were analysed in-depth.

The exemplary case study selected from Estonia focuses on summer schools as effective spaces for music teachers’ involvement with the experimental design of new methodologies and tools for their pedagogical practice in the community of practice with other teachers. The exemplary case study from the Lithuanian context was selected due to its strong emphasis on leadership and continuous professional development for teachers and school leaders. Another illustrative case from Germany reflects on competencies that are needed for the daycare centre professionals in building more inclusive practice. The case from Norway was selected for this paper due to its focus on VET teachers’ professional development in formative assessment. This Norwegian case highlights the importance of individual teachers’ awareness of their professional development needs and provides them with opportunities to reflect on their past experiences.

The best practice examples analysed in this multiple case study aim to enhance content knowledge and acquire new methodologies and approaches to improve teachers’ pedagogical practice. Teacher training initiatives focus on developing critical thinking skills, encouraging peer support and mentoring, and promoting leadership and initiative in planning professional development. A brief overview of the four selected cases is provided in a structured manner: 1) aim of practice to ensure the training transfer; 2) theoretical justification; 3) success aspects while implementing practice; 4) imple-

mentation difficulties; and 5) insights to sustain practice and some useful implications for designing and delivering effective teacher professional development.

### **Exemplary case study from Estonia (summer schools for music teachers)**

#### ***Aim of practice***

The aim of the practice is to enhance teachers' understanding of current issues in music pedagogy and to develop their pedagogical competence for work in educational institutions, facilitating the transfer of professional development results into practice for music teachers, particularly those working in preschools and general education schools. This is achieved through annual summer schools as a form of post-graduate continuing education. The summer schools aim to increase participants' understanding of current challenges in music pedagogy and to develop their pedagogical competence by offering solutions to contemporary practice challenges. The summer schools also provide teachers with the opportunity to understand global and national educational issues in music pedagogy and how to address them.

#### ***Theoretical justification***

The practice is justified by the growing trend of interdisciplinary practice and projects in the arts and music nationally and globally, and the increasing number of publications based on artistic research and projects. The methods used in the summer school are grounded in a holistic approach that emphasises self-reflection, critical thinking, learning by doing, and collaborative problem-solving through arts and community engagement projects. The integration of artistic research perspectives and methods (Association Européenne des Conservatoires et al., 2020; Wilson & van Ruiten, 2013) into academic and applied research projects is intended to ensure the transfer of enhanced professional competence into practice.

#### ***Success aspects while implementing practice***

The forms of knowledge transfer applied in the summer school include practical workshops, improvisation, and creative involvement in modelling one's own practice using newly acquired knowledge. Effective knowledge transfer is ensured by: (1) engaging teachers in critical reflection on existing practices and identifying problems; (2) involving teachers in creative activities to integrate newly acquired strategies into their practice; (3) providing mentoring by experienced professionals as part of the summer school; and (4) applying new knowledge in organising creative competitions and solving

specific, complex educational problems. Successful elements include a well-thought-out and modern continuing education programme, teacher involvement in creative activities, and the opportunity for teachers to model changes in their pedagogical work through action research during the summer school. The programme's interdisciplinary approach to music teaching and learning, which allows teachers to experiment with modern methods and strategies, has also been a key success factor.

### ***Implementation difficulties***

Key difficulties in implementation include the high cost of participating in the summer school, which covers accommodation, travel, and food expenses, and the excessive workload of teachers, which limits their ability to attend courses except during the summer.

### ***Insights to sustain practice and useful implications***

To sustain the practice, it is recommended to inspire and motivate teachers to critically evaluate their existing practices and become agents of change within their practice. Additionally, music education should be organised as an interdisciplinary process. It is also suggested to sustain teachers' engagement in continuous learning by opening space for teachers' mutual learning and improvisation with new approaches and methods and demonstrating newly acquired approaches and methodology at the musical competitions.

## **Exemplary case study from Lithuania (a project “Time for leaders – 3”)**

### ***Aim of practice***

The project “Time for Leaders – 3” aimed to create a cohesive educational leadership infrastructure and a holistic framework to ensure continuous professional development for education institutions' teams from 45 municipalities. This provided an opportunity for educational leaders to learn and implement innovative ideas consistently, thereby enhancing the learning potential of every staff member and improving student performance. The project focused on the development of professional capital, viewed as the capacity to mobilise necessary resources through data-driven decision-making, continuous assessment, and feedback mechanisms (Damkuvienė et al., 2021).

### ***Theoretical justification***

The theoretical basis of this case is the transformative learning model (Mezirow, 2009) and the concept of professional capital (Hargreaves & Fullan, 2012). Transformative learning was a central concept that facilitated reflection on the experiences encountered during the implementation of the project. Professional capital consists of human capital (individual skills and education), social capital (trust-based relationships and networks), and decisional capital (the empowerment to make informed decisions). This framework emphasises that the development of professional capital is essential for fostering systemic educational changes and improving students' learning outcomes.

### ***Success aspects while implementing practice***

The project focused on providing individual and community learning opportunities through diverse teaching and learning formats. The primary forms of training transfer included the development of innovative practices and leadership potential within communities of practice, regular meetings, workshops, and team learning sessions. Its main objective was to achieve success through collaborative learning and sustainable changes in municipalities and schools. The project successfully enhanced trust between educational institutions and local authorities by involving individuals in decision-making processes. This involvement motivated participants to engage actively, leading to better understanding and the transferability of good practices to other contexts. The establishment of practice communities within municipalities allowed participants to collaboratively develop and implement change projects, contributing to the overall success. This case demonstrates strong potential for developing the professional capacity of employees to work within schools as complex adaptive systems.

### ***Implementation difficulties***

Significant challenges were encountered with social capital and decisional capital. The main difficulty encountered was a lack of cooperation among teachers. Despite claims of collaboration, teachers often did not work together effectively to meet objectives like improving lesson quality. The primary challenge was finding ways to motivate the entire school team to engage in critical reflection during the problem-solving process to propose viable solutions. Additionally, there was resistance to taking on decision-making responsibilities, especially among less experienced teachers. The project's complexity, due to its broad and integrated approach, also created implementation challenges.



### ***Insights to sustain practice and useful implications***

To sustain the practice, a systemic approach is necessary, ensuring that all initiatives continue to develop. It is important to avoid overly complex implementations by providing clear frameworks for schools to identify and solve their problems. Aligning professional development with the needs and priorities of schools, and ensuring that learning directly influences practice, are crucial for effectiveness. Continuous support from municipal consultants and community engagement is essential for long-term success.

## **Exemplary case study from Germany (a project “InkluKiT”)**

### ***Aim of practice***

The overall goal of the InkluKit project (“InkluKit – Inklusionskompetenz in Ki-Ta-Teams”) was to involve employees in transformative processes towards inclusion as a whole institution policy and practice. This case reflects efforts in curriculum development, testing, and empirical validation of a training programme for staff in early childhood care centres to enhance their professional competencies in inclusive education. The objectives included identifying the necessary inclusive competencies, developing practical methods for effective transfer into practice, and empirically evaluating the programme implemented in 12 early education and care centres across two German regions (Weltzien et al., 2021).

### ***Theoretical justification***

The theoretical basis for the InkluKit project is centred around the global challenge of implementing effective inclusive education. Inclusive education requires a comprehensive professional competency profile for educators, which involves identifying the necessary skills and enhancing training programmes to ensure practical application. The programme was informed by experiences from other countries and aimed at reducing disparities in the implementation of inclusive education across educational institutions in Germany. The project’s approach included evaluating the effectiveness of the interventions using Donald Kirkpatrick’s evaluation model (Kirkpatrick, 1998; Kirkpatrick & Kirkpatrick, 2006) and identifying influential factors using the framework developed by Timothy Baldwin and Kevin Ford (1988).

### ***Success aspects while implementing practice***

The programme was successful in several key areas. It implemented three internal training courses, which were evaluated and adjusted according to individual needs.

There was an increase in participant satisfaction after the second and third courses, with positive feedback regarding group dynamics and atmosphere. Participants were actively involved in selecting training topics based on their needs, and there was a significant improvement in their self-assessed inclusive competencies, such as pedagogical work, collaboration with parents and colleagues, and feedback reception and provision. There were high levels of participant satisfaction and motivation, with a notable percentage able to formulate concrete goals for applying inclusive education practices. The diversity of topics covered and the involvement of the entire team in planning the training contributed significantly to the project's success.

### ***Implementation difficulties***

The Inklukit project faced several challenges during its implementation. Organisational difficulties arose due to the COVID-19 pandemic, which led to the reduction of planned training courses and the cancellation of team meetings in some institutions. There was a need to improve the structure of the training to maintain participant interest, particularly in afternoon sessions. The content of the courses did not always provide new learning experiences for participants, and there was a need for more practical activities within the training sessions.

### ***Insights to sustain practice and useful implications***

For sustaining the practice and enhancing teacher professional development, several insights and recommendations were noted. It is essential to involve all educational staff in the change processes to foster a team-wide commitment to inclusive education. The Inklukit programme provides practical methods and tools to assess educators' professional development needs in inclusive education, facilitating personalised and goal-oriented training. The programme emphasises the importance of considering individual educators' needs and interests when planning professional development activities. Continuous external quality assessments are necessary to ensure the effective transfer of new skills and knowledge to the work environment. Teacher training should focus on making professional development more targeted and personalised to enhance its effectiveness.

## **Exemplary study from Norway (a programme “Assessment for learning in VET”)**

### ***Aim of practice***

The primary aim of the practice is to enhance the professional development of VET teachers in assessment for learning, focusing on promoting the transfer of training outcomes into practice. The programme “Assessment for learning in VET” is designed to improve VET teachers’ skills in formative assessment, enabling them to better understand and implement these methods in their teaching to improve student engagement and learning outcomes (Sandal, 2023).

### ***Theoretical justification***

The practice is grounded in the professional development theories of Thomas Guskey (2002) and Laura Desimone (2009), as well as Linda Darling-Hammond’s et al. (2017) views on the role of reflection in self-directed and effective professional activities. The emphasis is on the idea that self-directed learning and critical self-reflection facilitate the successful transfer of experiences gained in professional development to practical settings. Theoretical support is also drawn from the importance of professional communities in enhancing educational quality.

### ***Success aspects while implementing practice***

Key success factors include the structured design of the programme, which spans multiple sessions, allows for practical experimentation with formative assessment techniques between meetings, and facilitates VET teachers’ self-directed learning and critical reflection within professional communities. During two-day sessions, teachers worked on tasks aligned with self-defined learning goals, analysed their achievements, and set new objectives to improve performance by learning from each other and sharing best practices. The involvement of multiple teachers from each school in the programme helped in forming support groups to transfer the experience gained during professional development into practice. Between sessions, VET teachers tested what they had learned in their real classroom settings and later reflected with peers in small support groups about their learning and challenges. This collaborative approach enabled teachers to reflect on their practices and integrate new assessment methods effectively.

### ***Implementation difficulties***

Challenges during implementation included difficulties in forming support groups for practical experimentation of ideas in some schools due to the different learning cultures within schools which significantly impact the transfer of knowledge and skills acquired during professional development to practice. Teachers faced challenges in adapting formative assessment practices to VET contexts, which often differ from academic subjects. Additionally, maintaining momentum and enthusiasm for the new practices after the training programme ended proved challenging, as some colleagues who had not participated in the training continued with traditional methods.

### ***Insights to sustain practice and useful implications***

To sustain the practice, it is essential to establish ongoing support and professional development opportunities within VET institutions. The development of professional learning communities within schools can provide a supportive network for teachers to continue experimenting with and refining their assessment practices. The ability to critically reflect is crucial for teachers to recognise their learning and teaching needs, ensuring continuous professional growth and effective practice transfer. School leadership must acknowledge and support VET teachers' unique needs in professional development, ensuring that assessment practices align with VET teaching methods.

## **The main characteristics of effective teacher professional development incorporated in the four best practice examples**

The analysis of screening and evaluation data (Table 2) indicates varying levels of effectiveness in addressing key characteristics of successful teacher professional development (Sims et al., 2021; Sims et al., 2025) across four best practice examples. Estonia's case scored 62.07%, highlighting a lack of evidence for eleven possible characteristics of effective teacher professional development. In contrast, Lithuania and Germany both scored 86.21%, showing a lack of evidence only for four characteristics. Norway's example is the most comprehensive and evident, with a score of 89.66%, effectively incorporating 26 characteristics (from 29 possible). Each best practice example incorporates a comprehensive range of categories and sub-categories outlined in the screening and evaluation framework. All the examples demonstrate a balanced approach to improving teacher practices, with a strong emphasis on relevance and applicability, flexibility, support systems during training. The consistent focus on practical social support, feedback, action planning, self-monitoring, and context-specific repetition underscores the importance of these mechanisms in successful professional development.

**Table 2**

*The main characteristics of effective teacher professional development incorporated in the four best practice examples*

Category	Sub-category	Code	Estonia, Summer schools	Lithuania, Time for leaders	Germany, InklusivIT	Norway, Assessment for learning in VET	% within each sub-category	% within each category
Value	Improvement of teacher practice	V-1	x	x	x	x	100	91.67
	Support for student learning	V-2		x	x	x	75	
	Relevance and applicability	V-3	x	x	x	x	100	
Feasibility	Pitch	F-1		x	x	x	75	83.33
	Alignment	F-2		x	x	x	75	
	Flexibility	F-3	x	x	x	x	100	
Support system during training	Guidance and communication	S-1		x	x	x	75	93.75
	Resources	S-2	x	x	x	x	100	
	Teacher educators	S-3	x	x	x	x	100	
	Training events	S-4	x	x	x	x	100	
School context	Alignment	C-1		x	x	x	75	75.00
	Leadership support and resources	C-2		x	x	x	75	
Instil insight	Manage cognitive load	I-1	x	x	x	x	100	75.00
	Revisit prior learning	I-2			x	x	50	
Motivate change	Goal setting	M-1	x	x	x	x	100	58.33
	Credible source	M-2		x	x	x	75	
	Praise/reinforce	M-3					0	
Develop techniques	Instruction	T-1		x	x	x	75	65.00
	Practical social support	T-2	x	x	x	x	100	
	Modelling	T-3	x				25	

Category	Sub-category	Code	Estonia, Summer schools	Lithuania, Time for leaders	Germany, Inklusiv	Norway, Assessment for learning in VET	% within each sub-category	% within each category
Embed in practice	Feedback	T-4	x	x	x	x	100	
	Rehearsal	T-5	x				25	
	Prompts/cues	P-1	x	x		x	75	93.75
	Action planning	P-2	x	x	x	x	100	
	Self-monitoring	P-3	x	x	x	x	100	
	Context-specific repetition	P-4	x	x	x	x	100	
Forms of effective professional development	Lesson study	LS		x	x	x	75	91.67
	Instructional coaching	IC	x	x	x	x	100	
	Teacher learning communities	TLCs	x	x	x	x	100	
% within each best practice example	62.07	86.21	86.21	89.66	81.03	80.83		

Source. Own research.

The analysis of the main categories reveals that the value category has a strong adherence rate of 91.67%, indicating a clear focus on the perceived benefits for teachers and students. The support system is also robust, scoring 93.75%, underscoring the availability of comprehensive training opportunities and resources provided by the developers and trainers. However, the feasibility category, scoring 83.33%, highlights challenges in the initial presentation (pitch) and contextual alignment. The school context, with a score of 75%, suggests the need for a more supportive environment in some cases. The instil insight category is moderately addressed at 75%, with room for improvement in revisiting prior learning. The motivate change category, with the lowest score of 58.33%, reflects gaps in motivational reinforcement, primarily due to insufficient evidence. The development of techniques is moderately addressed, scoring 65%, with practical social support and feedback well-integrated. The mechanisms for embedding new practices show strong alignment at 93.75%, reflecting consistent efforts to support teachers in applying new insights effectively. The implementation of effective professional development methods is characterised by a score of 91.67%, with instructional coaching and teacher learning communities being the most prominent across the four best practice examples. Overall, while there are strengths in the areas of value, support

systems during training, and embedding practices, further attention is needed to create a more supportive school context and enhancing motivational reinforcement to ensure a holistic approach to professional development. The analysis also highlights gaps in the implementation of modelling and rehearsal mechanisms, possibly due to a lack of sufficient evidence or due to a lack of experience in such practices.

## DISCUSSION

The analysis of teacher professional development practices across various educational contexts reveals several key insights into the effective transfer of training. Case studies from Estonia, Lithuania, Germany, and Norway highlight a shared emphasis on enhancing pedagogical practices through innovative and context-specific approaches. The focus on communities of practice, peer support, and continuous reflection underscores the importance of collaborative learning environments in sustaining professional growth and facilitating the application of newly acquired skills and knowledge.

The Estonian case study illustrates the potential of summer schools to engage music teachers in interdisciplinary and creative pedagogical journeys, fostering an environment conducive to experimentation and the integration of new methodologies into teaching practice. In the Lithuanian case, the emphasis on leadership and professional capital is shown to be crucial in driving systemic change within educational institutions. By prioritising the development of professional capital, the project successfully mobilised resources to enhance organisational performance through collaborative decision-making processes and innovative practices. Germany's *InklusKit* project underscores the necessity of inclusive competencies in early childhood education, highlighting the need for comprehensive training programmes that are both flexible and adaptable to the diverse needs of teachers. The Norwegian example demonstrates the significance of formative assessment in VET, illustrating how well-structured training programmes can promote critical reflection and self-directed learning among VET teachers.

Overall, the findings suggest that effective teacher professional development requires a holistic approach that addresses the needs of both teachers and educational institutions, fosters collaboration, and supports the practical application of new skills and knowledge. The success of these professional development initiatives is largely attributed to the provision of supportive environments, opportunities for collaborative and reflective practice, and the alignment of training with the specific goals and challenges of the educational context. These results are consistent with prior studies (Burke & Hutchins, 2008a; 2008b; Grover, 2015; Sims et al. 2021; Sims et al., 2025). However, a closer examination reveals that multiple studies may produce mixed findings on effective practices due to variations in training content, work settings, duration of training, and the individual characteristics of participants. Kaye Alvarez et al. (2004) also suggest that training interventions may be context-dependent



and influenced by diverse variables. Training transfer is not a linear process but rather a complex one, involving an interplay between individual and organisational factors, occurring within a cyclical process of training transfer in an organisation as an open and dynamic system.

The conclusions drawn from the analysis of the selected case studies align with research on the effectiveness of training transfer conducted by various scholars, who offer tools to measure training effectiveness (Ciraso, 2012; Gil et al., 2022; Popova, 2021; Sasson & Miedijensky, 2023). These scholars assert that factors such as teachers' motivation to undertake training (del Arco et al., 2023), the usefulness and relevance of proposed changes to teachers' practice (Ciraso, 2012), their critical thinking skills (Chandler, 2024), school climate and support (Isna, 2021), teamwork within communities of practice, and the sense-making process all contribute to the effective transfer of training.

## LIMITATIONS

While this multiple case study provides valuable insights into effective teacher professional development practices, several limitations must be acknowledged. Firstly, the study was conducted on a limited number of cases, though it still yields significant insights into effective training transfer. Secondly, the case studies are confined to specific educational contexts in Estonia, Lithuania, Germany, and Norway, which may not be directly applicable to other regions with different educational systems and cultural backgrounds. Although there are notable similarities across the selected cases, these should be interpreted within their specific contexts.

Additionally, the study relies on qualitative data derived from interviews, desk research, and literature analysis, which may be prone to interpretation bias. The cases do not offer a unified model for training transfer but rather explore experts' perspectives on effective and efficient training transfer practices, complemented by researchers' interpretations based on the available sources of information.

## IMPLICATIONS

The findings of this multiple case study carry significant implications for policymakers, educational leaders, teacher educators, and researchers. There is a clear need for increased investment in professional development opportunities that prioritise collaboration, reflection, and practical application. Policymakers should endorse initiatives that cultivate communities of practice and equip teachers with the necessary resources and support for ongoing learning and improvement.

Educational leaders should strive to create supportive environments that encourage teachers to engage in reflective practice and experiment with new teaching methods. This includes allocating time and space for professional development activities and recognising the critical role of leadership in driving systemic change within schools.

Teacher educators should design programmes that are flexible and responsive to the needs of teachers and their institutions, incorporating diverse teaching and learning formats that promote active engagement and effective training transfer. By aligning professional development initiatives with the specific goals and challenges of the educational context, teacher educators can enhance the relevance and effectiveness of these programmes, ultimately leading to improved teaching practices, student learning, and organisational outcomes.

To ensure effective training transfer, it is essential to consider contextual factors. Each of the selected case studies offers valuable lessons that should be contextualised within diverse educational settings. However, not all studies provide a comprehensive overview, as they may omit consideration of teachers' emotions, values, attitudes, and philosophical models in interpreting their new learning insights. A more detailed examination of teachers' perceptions before and after undertaking training is needed to gain a comprehensive understanding of what has changed in their teaching or mindset. Additionally, a careful study of teachers' emotions, values, and frames of reference is crucial to understanding their aspirations, hopes, and fears regarding the introduction of sustainable changes in their current educational practice.

By highlighting the features of effective teacher professional development, the researchers hope that the evidence provided will guide policymakers and institutions responsible for designing professional development courses, offering more productive and efficient opportunities for teachers. Kira Jade Cooper et al. (2024) argue that cases of best practice offer replicability and consistency but caution against the risk of imposing them as a meta-framework due to their anthropocentric and Eurocentric biases.

Best practice cases should serve the common good and be ethically grounded. They should lead to both personal and professional transformations for teachers, fostering greater resilience, reflexivity, and sense-making (Stein, 2021). For future research, detailed evidence of teachers' inner transformations would be valuable in cultivating wisdom. Narratives of inner transformation can provide evidence of holistic, complexity-rich sense-making processes (Cooper et al., 2024) among teachers. Such a trans-systemic inquiry would allow for the examination of best practices in individual and organisational transformations resulting from training transfer. The authors recommend avoiding a reductionist approach in describing cases, instead encouraging analysis through a 'trans-systemic' lens that embraces "a complexity-informed and trans-perspectival approach to sense-making" (Cooper et al., 2024, p. 3). As Marie-Eve Drouin-Gagné (2021) argues, trans-systemic thinking opens the door to dialogue between diverse ways of knowing and different knowledge systems.

## CONCLUSION

This multiple case study highlights the crucial role of effective teacher professional development in enhancing teaching practices and improving educational outcomes. The findings show that successful training transfer depends on a combination of innovative approaches, collaborative learning environments, and sustained support systems. Such training is typically characterised by its transformative impact, relevance to real-life challenges, and the provision of opportunities for teachers to rethink and reshape their practices, supported before, during, and after training. By addressing the specific needs of teachers and schools and offering opportunities for critical reflection and practical application, the best practice examples identified in this study significantly contribute to the ongoing professional growth of teachers and the overall performance of educational organisations.

The insights from this research can guide the design and implementation of future professional development initiatives, underscoring the importance of tailoring programmes to the unique challenges and objectives of each educational context. Additionally, the study emphasises the need for continuous evaluation and adaptation of professional development practices to ensure their effectiveness in fostering meaningful and lasting changes in teaching practices.

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## APPENDIX

**Table A1***A 5-block screening and evaluation system*

BLOCK 1: Main aspects of effective intervention design				
Feature	Explanation	Aspect	Explanation	Code
Value (V)	It involves the perceived benefits of the intervention for teachers and students.	Improvement of teacher practice	It provides tools, strategies, or opportunities that help teachers enhance their instructional methods and overall teaching effectiveness.	V-1
		Support for student learning	It contributes to student learning outcomes. This could include resources like lesson plans, educational materials, or technology that support and enhance student engagement and achievement.	V-2
		Relevance and applicability	It is relevant to the teachers' and students' contexts and applicable to their everyday educational activities.	V-3
Feasibility (F)	It refers to how practical and workable an intervention is within the school's context.	Pitch	It pertains to the initial presentation and appeal of the intervention to teachers. It includes how realistic the expectations are, whether it places realistic demands on teachers' time and resources.	F-1
		Alignment	It describes how well the intervention matches the school's existing practices, policies, and priorities.	F-2
		Flexibility	It refers to the adaptability of the intervention to meet the specific needs and constraints of different schools and teachers.	F-3
BLOCK 2: Main elements of effective intervention support system				
Feature	Explanation	Element	Explanation	Code
Support system during training (S)	It encompasses the training, resources, and support offered by the developer to ensure effective implementation of the intervention.	Guidance and communication	Provide teachers with clear instructions on what they need to do.	S-1
		Resources	They include guidance documents, teaching resources (e.g., lesson plans, materials for students), and technological resources (e.g., iPads or software). Effective resources meet teachers' needs simply and efficiently.	S-2
		Teacher educators	They are responsible for delivering training sessions and providing ongoing support to teachers.	S-3



Training events	Effective training events offer opportunities for teachers to share experiences, discuss best practices, and gain new ideas.	S-4
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**BLOCK 3: Main aspects of supportive school context**

Feature	Explanation	Aspect	Explanation	Code
School context (C)	It refers to the overall environment and circumstances within a school that can impact the implementation of an intervention.	Alignment	Alignment between the school's current aspirations and an intervention contributes to successful adoption of the change. Schools that find interventions matching their existing ethos and practices are more receptive.	C-1
		Leadership support and resources	School leadership support is crucial for the success of an intervention, allowing teachers to prioritise the intervention and provides necessary resources, including time for planning, preparation, and participation in the intervention activities. It also involves direct participation in professional development, which helps leaders understand the programme and demonstrate their support.	C-2

**BLOCK 4: Purposes and mechanisms of effective teacher professional development**

Purpose	Explanation	Mechanism	Explanation	Code
Instil insight (I)	To assist a teacher in acquiring a new, evidence-based comprehension of teaching, their students, or themselves.	Manage cognitive load	This can be accomplished by concentrating on a single idea or task, eliminating unnecessary information, or offering worked examples, all of which aid in preventing working memory overload.	I-1
		Revisit prior learning	This can be accomplished by reteaching or encouraging recall of key concepts, important ideas on separate occasions, both of which contribute to enhancing memory.	I-2
Motivate change (M)	To inspire a teacher to undertake an action with a specific, intentional goal in mind, thereby enhancing the teacher's motivation to change.	Goal setting	Teachers deliberately agree on an objective to change a specific aspect of their teaching practice.	M-1
		Credible source	Statistical data or well-founded arguments assist in altering teachers' opinions and intentions within the given context.	M-2
		Praise/reinforce	This can be accomplished by offering praise or reaffirming the importance of a particular teaching practice.	M-3

Develop techniques (T)	To assist a teacher in mastering (utilising) a new teaching practice.	Instruction	This involves giving clear guidance on how to apply a specific teaching method, thereby removing any uncertainty about the requirements for effectively using the procedure.	T-1
		Practical social support	This entails organising guidance from a teacher's colleagues on how to implement a practice.	T-2
		Modelling	This includes offering a visible example of the desired teaching practice, serving as a visual reference for future application.	T-3
		Feedback	This involves offering evaluative feedback based on previous observations of the specific practice, identifying areas for improvement and providing recommendations.	T-4
		Rehearsal	This entails structured practice outside of an actual classroom environment, enhancing the accuracy and speed of future performance.	T-5
Embed in practice (P)	To support a teacher in consistently applying a technique, acting on an insight, or pursuing a goal in the classroom.	Prompts/cues	This includes incorporating environmental cues (stimuli) to encourage the desired practice.	P-1
		Action planning	This entails detailing when and how a practice change will be implemented in a future lesson, creating situational prompts that facilitate the new practice.	P-2
		Self-monitoring	This includes creating a system for individuals to document and subsequently evaluate their own practice.	P-3
		Context-specific repetition	This involves rehearsing the target practice in a realistic classroom environment, which helps replace old habits by reassociating the classroom setting with the new practice.	P-4

**BLOCK 5: Forms (clusters of mechanisms) of effective teacher professional development**

Form	Explanation	Mechanisms	Explanation	Code
Lesson study (LS)	LS is a process where a group of teachers observes live classroom lessons, gathers data on teaching and learning, and collaboratively analyses the information.	T-2, T-4, P-2	The key mechanisms for lesson study include: practical social support, feedback, and action planning.	LS

**BLOCK 5: Forms (clusters of mechanisms) of effective teacher professional development**

Form	Explanation	Mechanisms	Explanation	Code
Instruc- tional coaching (IC)	IC a continuous cycle of observation and feedback within an ongoing instructional context.	M-1, T-1 or T-3, T-4, T-5 or P-4	The core mechanisms of instructional coaching are as follows: goal setting, instruction or modelling, feedback, rehearsal or context-specific repetition.	IC
Teacher learning commu- nities (TLCs)	TLCs are defined as learning in a community where teachers regularly gather to reflect on their current beliefs and practices, and to acquire new professional insights and skills.	M-1, T-2, P-2	The essential mechanisms of teacher learning communities include: goal setting, practical social support, and (collaborative) action planning.	TLCs

Source. Elaborated based on Sims et al. (2021) and Sims et al. (2025).