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Development of Teacher's Professional Competence through Action Research as a Form of Professional Development

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Abstract. Action research serves as a significant tool for the professional development of teachers, the enhancement of educational practice, and the advancement of student learning. This review study aims to provide an empirically grounded perspective on action research as a means of stimulating the development of teachers' professional competence. Drawing upon the analysis of 28 empirical studies from the *Scopus*, *WoS*, *EBSCO*, *ProQuest*, and *Science Direct* databases over the past five years, the study identifies the contributions of action research to the development of both core and key professional competences among teachers. The findings confirm that action research not only supports the expansion and deepening of teachers' knowledge base but also fosters the development of their key professional competences which are vital for effectively addressing the challenges of pedagogical practice. These findings highlight the potential of action research as a form of professional development and its application in establishing teacher professional communities centred on reflection and innovation, aimed at enhancing educational practice and student learning.
Keywords: action research, teacher's professional development, professional competence, core professional competences, key professional competences.

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Mokytojų profesinės kompetencijos tobulinimas pasitelkiant veiklos tyrimus kaip profesinio tobulėjimo formą

Santrauka. Veiklos tyrimai yra svarbi mokytojų profesinio tobulėjimo, ugdymo praktikos tobulinimo ir mokinių mokymosi pažangos užtikrinimo priemonė. Šiuo apžvalginiu tyrimu siekiama pristatyti empiriškai pagrįstą požiūrį į veiklos tyrimus kaip mokytojų profesinės kompetencijos tobulinimo priemonę. Remiantis 28-ių per pastaruosius penkerius metus atliktų empirinių tyrimų iš *Scopus*, *WoS*, *EBSCO*, *ProQuest* ir *Science Direct* duomenų bazių analize, tyrimo nustatytas veiklos tyrimų indėlis ugdant pagrindines ir bendrąsias mokytojų profesines kompetencijas. Tyrimo rezultatai patvirtina, kad veiklos tyrimai ne tik padeda plėsti ir gilinti mokytojų žinias, bet ir skatina jų pagrindinių profesinių kompetencijų, kurios yra gyvybiškai svarbios siekiant veiksmingai spręsti pedagoginės praktikos iššūkius, ugdymą. Šie radiniai išryškina veiklos tyrimų, kaip vienos iš profesinio tobulėjimo formų, potencialą ir jų taikymą kuriant į refleksiją ir inovacijas orientuotas mokytojų profesines bendruomenes. Visa tai padeda tobulinti ugdymo praktiką ir mokinių mokymąsi.

Pagrindiniai žodžiai: veiklos tyrimas, mokytojų profesinis tobulėjimas, profesinė kompetencija, pagrindinės profesinės kompetencijos.

Introduction

With the change of requirements for education to meet the needs of the 21st century, the requirements for the teacher change as well. The need to continuously develop, broaden, deepen or innovate the professional competences is emphasised. In this context, the issue of the high quality of teacher training and professional development is coming to the foreground.

Standardised models of professional development based on the dissemination of knowledge and skills to a wider group of teachers at the same time appear to be ineffective (Európska komisia, 2011; Hooker, 2008). In contrast, models based on local communities of practice, which situate professional development directly in schools and link it to practical problem solving, are recommended as effective (Brestovanský, 2019; Brestovanský et al., 2020; Hooker, 2008; Kools & Stoll, 2016; Pol et al., 2013; Poortman et al., 2021). This concept of professional development corresponds to action research, which has been adopted as a tool in education since the 1950s, starting with Stephen Corey (Richnavská et al., 2020; Rutten, 2021).

The concept of **action research** (AR) has been developing over time and is linked to various disciplines such as sociology, anthropology, psychology and other social sciences. Its origins are linked to the name of Kurt Lewin (1946) who is also considered the founder of action research as a tool/driver of social change. This concept of action research is also represented by other authors such as Greenwood and Levin (1998); Koch and Kralik (2006); McNiff and Whitehead (2006) and others.

AR is a specific type of research focusing on specific actions or interventions with the aim to address problems of practice (Hendl, 2016; Liamputtong, 2013; Mills & Birks, 2014). It also plays a key role in educational changes, in the development of teachers, their professionalism and teaching (Carr & Kemmis, 1986; Corey, 1954; Elliot, 1991; Stenhouse, 1968, 1975). As stated in OECD documents (2009, 2012) teacher's engagement in research activities is a key element of their professional development and the subsequent change of educational practice.

In line with the model of Willegemes et al. (2017) and Desimone (2009), we can speak of a sequence of steps, or a pathway model, in which professional development is understood as a tool for changing educational practice and pupils' learning through the development of teachers' professional competences.

The article has the character of a review study. The intention was to create an up-to-date and empirically based view of action research as a means of developing professional competence in the process of teachers' professional development through the analysis of empirical studies registered in world databases.

We drew on Weinert's (2001) conception of professional competence as the ability to handle the specific demands associated with a particular job domain. In a narrower sense, this concept refers to context-dependent cognitive dispositions that are acquired through learning and are needed to cope with specific demands in specific areas (Klieme et al., 2008; Simonton, 2003). In a broader sense, the concept encompasses not only cognitive, but also motivational, metacognitive and self-regulatory characteristics, the combination of which creates the prerequisites needed to master the demands of a specific job position (Connell et al., 2003; Epstein & Hundert, 2002; Kunter et al., 2013; Rovňanová, 2015).

From the point of view of our analysis, **Generic Structural Model of Teachers' Professional Competence** is inspiring (Kunter et al., 2013). In the structure of professional competence, the authors distinguish between cognitive (knowledge, beliefs) and non-cognitive (motivational orientations and self-regulation skills) factors:

1. Specific declarative and procedural ***knowledge*** (knowledge and skills) acquired through professional development and shared in the community of professionals (declarative and procedural knowledge, or knowledge and skills). They include:
   - *subject-specific content knowledge,*
   - *subject-specific pedagogical content knowledge,*
   - *subject-unspecific psychological-pedagogical knowledge,*
   - *organizational knowledge,*
   - *counselling knowledge*.
2. Teachers' ***beliefs*** are seen as implicit or explicit conceptions of school and learning which influence the professional practice of teachers.
3. ***Motivational orientations*** related to the perceived self-efficacy and enthusiasm.
4. ***Self-regulation skills*** related to the ability to regulate one's own engagement in the job, but also to the ability to monitor one's own behaviour and to find ways to effectively cope with stressful situations that are a part of the teaching profession.

The concept of professional and key personal (intrapersonal) competences of a teacher is intertwined in the model. However, beside the intrapersonal competences, we also consider other **key competences** that go beyond individual expertise to be important (Knapík & Kosturková, 2022). They cannot replace professional competence, but they enable its better use (Belz & Siegrist, 2011). According to the LifeComp conceptual framework (Sala et al., 2020), these are personal, social and learning competences.

With the combination of Generic Structural Model of Teachers' Professional Competence (Kunter et al., 2013) and the model of Key professional competences (LifeComp,

In Sala et al., 2020), we defined two categories of teachers' professional competence (Table 1) which are the basis for the analysis of the previously published empirical studies.

Table 1. *Components and subcomponents of teachers' professional competence elaborated according to Kunter et al. (2013), LifeComp (In Sala et al., 2020).*

Teachers' professional competence	
Components of professional competence	**Subcomponents of professional competence**
Core professional competences (professional knowledge base)	*subject-specific content knowledge, subject-specific pedagogical content knowledge, subject-unspecific psychological-pedagogical knowledge, organizational and counselling knowledge*
Key professional competences (motivational-regulative components, enablers)	Intrapersonal competences: *intelligence, beliefs, motivational orientation (self-efficacy, enthusiasm), self-reflection, self-regulation, flexibility, well-being*
	Interpersonal competences: *empathy, communication, cooperation*
	Learning competences: *growth mindset, critical thinking, guidance of learning*

1. Aim and Research Questions

In this literature review, we used the literature from 2019 to 2023. We concentrated on the analysis of empirical studies confirming the influence of action research on the development of individual components of teachers' professional competence. The main problem of the research was the development of teachers' professional competence through action research. We formulated this problem into Research Question 1:

1. *How is teachers' professional competence developed through action research?*

The aim was to identify, summarise and interpret the influence of action research on the development of individual components of teachers' professional competence. Research Questions 2 and 3 were derived from the main research question:

2. *How are teachers' core professional competences developed through action research?*
3. *How are teachers' key professional competences developed through action research?*

2. Methodological Procedure

The literature search and study were conducted between November 2023 and February 2024 using the *WoS*, *Scopus*, *ProQuest*, *EBSCO*, and *Science Direct* databases. We searched and analysed documents matching the following criteria: 1. peer-reviewed journal articles and conference collective volumes; 2. articles no older than 5 years

(2019–2023); 3. empirical studies dealing with action research in the context of teachers' professional development and the development of their professional competence; 4. open access to articles (during the period when the analysis was being conducted).

During the search, we entered the following keywords: 'action research' and 'teachers' professional development' or 'action research' and 'teachers' professional learning' or 'action research' and 'in-service teachers' education'.

We found 119 open access articles in total. We studied the abstracts and gradually chose 52 articles to focus on, which we further analysed (Figure 1). From the original number of found documents, we excluded those that did not directly address action research as a method of teachers' professional development. By progressively analysing and reducing the studies to those that matched the predetermined criteria, we obtained 28 relevant studies that were subjected to a more profound analysis.

We carried out a within-case analysis, considering each document as a unit of analysis. The documents were analysed by four assessors. We identified, classified and summarised the results of the empirical findings on teachers' professional development by action research based on the model of teachers' professional competence we have developed (Table 1).

3. Results

In the context of the research questions, we present the contribution of action research to the development of the individual components of professional competence, by dividing them theoretically into two categories: core professional competences versus key professional competences.

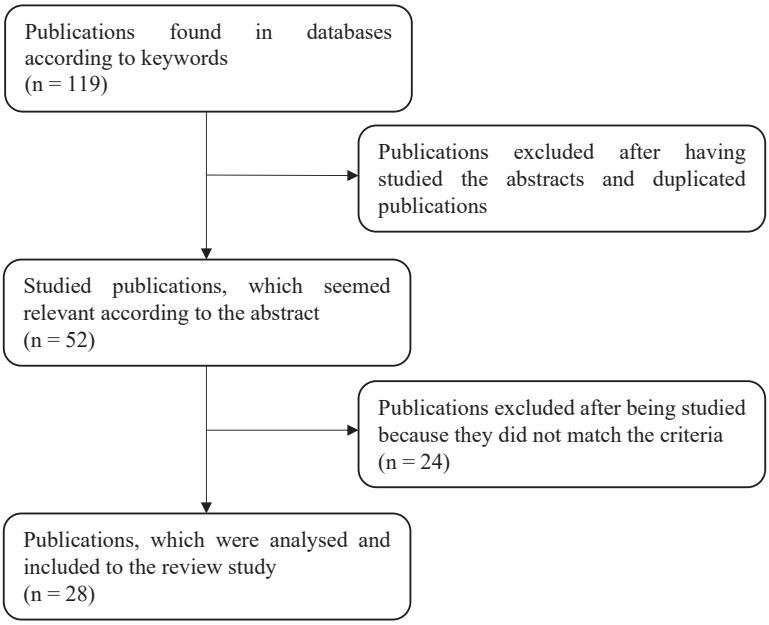

Figure 1. *Procedure of choosing relevant publications, as elaborated by Mareš (2013)*

3.1. Contribution of action research from the viewpoint of development of core professional competences (professional knowledge base)

Meta-analysis showed that action research is a means of acquiring and broadening the knowledge base of a teacher, mainly in the area of knowing the teaching process and learning of a pupil and in the area of planning and implementing of action research.

Several studies emphasise the importance of action research as a means of organising professional learning communities of teachers while developing their *research knowledge* and *subject-unspecific psychological-pedagogical knowledge* (Bendtsen et al., 2022; Van Schaik, 2019; Zheng et al., 2021). More specific findings are provided, for example, in the research of Van Schaik et al. (2019) which primarily focused on how teachers broaden or construct their knowledge in learning communities. Teachers were divided into three groups: 1. The group of teachers who participated in communities on the basis of sharing their practical experience (practice-based approach to knowledge co-construction in the teachers' learning group); 2. The group of teachers who together constructed knowledge on the basis of information obtained from already carried out researches (research-informed approach to knowledge co-construction in the teachers' learning group), and 3. The group of teachers who constructed knowledge on the basis of implementation of their own research (research-based approach to knowledge co-construction in the teachers' learning group). For our study, the results of the third group of teachers, which carried on their own research, are relevant. One of the findings was that those teachers who take part in common research activities within learning communities also create knowledge in the following areas: knowledge and skills in conducting research; academic skills, such as utilising academic literature; pedagogical knowledge and skills (mainly cross-curricular, such as coping with differences between students, better formulation of student assignments, student motivation, and the effect of using digital tools in classrooms) (Van Schaik et al., 2019, p. 34).

Bendtsen et al. (2022) state benefits of professional learning communities based on the principles of AR as a form of organization from the viewpoint of sustainability of professional development (in the sense of implementing the learning results into practice after the completion of an educational course) and implementation of the acquired knowledge and skills into teaching practice. On the basis of empirical research, Zheng et al. (2021) remark the importance of research activities of teachers' cooperation in professional learning communities while developing new knowledge and skills in the area of research implementation, data collecting and writing of research report and in the area of the development of teaching skills. The contribution of *collaborative action research* (CAR) while developing teachers' knowledge also confirms the research of Li and Gu (2023), specifically in the area of developing the skill of formative evaluation in the teaching process. Guan (2021) with his research directs attention to the importance of CAR while developing the understanding of teaching and learning and of developing the skills to use the methods meeting the needs of the pupil. The study of Rumiantsev et al. (2023) emphasises the development of skills related to the structural implementation of

reflection and feedback in teaching and the skills of implementation of collaborative and mixed learning. Bedford (2022) investigated the importance of AR while implementing the principles and practice of Transformative Sustainability Pedagogy, such as solidarity, situated, conscientisation, participatory, activist, researching. Those teachers who implemented AR developed the skills to apply the principles of *Gross National Happiness* (GNH) in the educational practice. GNH is Bhutan's unique overarching development goal with socio-economic, cultural, environmental and political pillars. It emphasises the importance of happiness and well-being which is more important than material wealth. (Bedford, 2022, p. 5).

Some of the studies further specify *subject-specific pedagogical content knowledge* that is developed by action research, e.g., skills in applying online English language learning methodologies (Chen, 2019), skills in applying project-based learning strategies in engineering studies (Perico-Granados et al., 2022) and pre-primary teachers' skills in developing children's media literacy, specifically, the development of skills in selecting media in terms of media components such as message clarity and visual quality (Alici & Sahin, 2023).

3.2. Contribution of action research from the viewpoint of developing key professional competences (enablers)

Most of the studies analysed focused on the contribution of action research in the development of key professional competences. Several studies pointed to the importance of AR in terms of increasing teachers' *motivation and engagement* in areas such as teaching, curriculum development, self-development and professional development of others, and in the area of research itself. The study by Banegas (2019) was primarily focused on promoting teachers' motivation and engagement in curriculum development. The secondary aim of the research was the professional development of English language teachers and the stimulation of their skills as curriculum developers through the promotion of their research engagement. The research confirmed the positive impact on increasing teachers' motivation through elements such as collaborative lesson planning, materials development and research engagement. The finding that AR contributes to higher levels of autonomy and, consequently, teachers' engagement as teacher leaders is significant. This finding was reached by Harris et al. (2020) who additionally pointed out the need for teachers to be supported and collaborate with, for example, the university environment in the implementation of AR, as this is a highly demanding activity for teachers themselves, while performing many other tasks associated with the teaching profession. Nurhasanaf et al. (2020) confirmed the importance of CAR in alleviating the feelings of loneliness and insecurity among primary and secondary school science and mathematics teachers. The importance of CAR in increasing teachers' engagement in relation to teaching and innovative teaching practices is also supported by the research of Bedford (2022). The author highlights the importance of AR in supporting the application of the principles of Transformative Sustainability Pedagogy and the principles of GNH in the educational practice. Teachers participating in the research activities expressed that their

efforts to promote GNH principles in schools (the so-called latent empowerment) had developed, which also manifested itself in a form of activism (active empowerment) and promotion of GNH that has led to action and transformation (transformative empowerment).

Other studies confirm an increase in teachers' research engagement and a change in attitudes towards research activities. Zheng et al. (2021) in their research found that teachers involved in research activities were initially quite sceptical about research, but, after participating in research activities, they changed their attitudes, e.g., in the sense that research and teaching can be mutually reinforcing, and ended up in changing their view towards research as a tool for improving teaching. Positive attitudes also led to higher engagement in research projects. Research by Esparza et al. (2022) revealed the importance of a teachers' education course based on active learning about AR in terms of developing teachers' self-efficacy related to their ability to design and conduct action research. It also increased teachers' awareness of the usefulness of data to inform research and teaching. AR also brings benefits in terms of changing teachers' *attitudes and beliefs*. In their study, Van Schaik et al. (2019) point to, among other things, a change in teachers' perspectives on the connection between teaching and research. To a greater extent, teachers began to emphasise the research role of the teacher, the role of research at school, and the need to conduct research on their own practices. They started to consider their own practices with a more inquiring attitude (Van Schaik et al., 2019). Changing attitudes and beliefs also occur through the influence of AR in relation to teaching and learning. Changing attitudes and beliefs also occur through the influence of AR in relation to teaching and learning. Kramer-Roy et al. (2020) and Rumiantsev et al. (2023) talk about changes in teachers' priorities in teaching due to the influence of AR, specifically, a shift in focus from the content of learning to the needs of learners and the processes behind teaching and learning.

Some of the analysed studies emphasise AR as a tool for developing teachers' *social competences*, in particular, *the ability to cooperate* and *to create a collaborative culture*. In their research, Betlem et al. (2019) validate the benefits of a professional development model (referred to as the *MtM* model – *Mentoring the Mentor*) using participatory action research aimed at supporting the development of teachers' mentoring skills and supporting a culture of collaborative inquiry. The research of Elm and Nordquist (2019) pointed to the support of the development of different kinds of cooperation, both within pre-school teachers and with other pre-schools in the municipality. The research of Zheng et al. (2021) also emphasised such benefits of AR which are related to the change of the community culture. The change has occurred in two ways, as, firstly, formal cooperation has become informal, while, secondly, the emotional relationships of community members have also changed. Emotional bonds have emerged where community members support each other and care about each other's work and life (Zheng et al., 2021, p. 11). Professional cooperation and social relationships continued after the programme was concluded.

Several research studies focused on the benefits of AR in terms of stimulating key professional competences that could be classified in the area of *teachers' learning and*

self-development. Elm and Nordquist (2019) point to improving the ability to reflect and monitor one's own teaching through their research. The authors' main research question was how collaboration between pre-school teachers and researchers can contribute to pre-school teachers' professional development and pre-school development. One of the conclusions of the research was the suggestion to increase teachers' ability to approach their own teaching practice reflectively. The importance of AR implementation in developing teachers as reflective practitioners and developing teachers' capacity for self-directed learning has been confirmed by De Beera (2019); Guan (2021); and Rauch et al. (2021). Inspiringly, De Beera's (2019) study confirmed the importance of AR in terms of teachers' professional development in two key areas: 1. In developing teachers as reflective practitioners; and 2. In developing the capacity for self-directed learning, where self-directed learning can be understood as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying material and human resources for learning, selecting and implementing appropriate learning strategies, and evaluating outcomes" (Knowles, 1975). In the area of learning and self-development, Nugroho et al. (2020) talk about positive changes through the impact of AR implementation on the ability to cope with the problems of teaching practice, but also by setting a growth mindset and increasing confidence in one's own abilities and the abilities of others to cope with the diverse problems of educational practice. Sosh (2019) came to similar findings, highlighting the benefits of AR in terms of teachers' (as well as other interested parties') ability to solve practice problems in a unique educational context (rather than seeking universal solutions from external experts). Bendtsen et al. (2022) highlighted the benefits of AR in terms of increasing teachers' ability to identify areas for further professional development, developing the role of the teacher as an expert who provides advice to other colleagues, offers explanations and guidance, and inspires the professional development of others. Johannesson (2022) came to similar conclusions when he talked about stimulating a growth mindset through AR in terms of awareness and confidence in one's own and others' abilities to learn.

Limitations

There are several limitations to consider in the study. Firstly, the review study was completed in 2024; however, the articles under consideration fall within the period of 2019–2023. It is likely that other relevant studies have been published in the meantime. Another limitation is that we did not include 'grey literature' in the analysis. We subjected empirical studies from scientific articles and collective volumes registered in reputable scientific databases to meta-analysis. It is possible that studying the 'grey literature' would have yielded additional relevant studies and findings. In the review study, a realistic approach to the data presented in the analysed articles was used; we did not analyse the formal procedures of their acquisition and presentation, and thus the question of their plausibility.

4. Discussion and Conclusions

The purpose of this review study was to document empirical findings on how components of teachers' professional competence are developed through the implementation of action research as an integral part of a teacher's teaching practice and professional development. Our interest was determined by the extensive discussion of the need for and possibilities of effective teachers' professional development, which is a prerequisite for improving the quality of education, as well as the preference for forms of professional development that are based on action research of the teaching practice.

Based on the analysis of empirical studies, we have created an empirically based review of the benefits of action research as a form of professional development in developing components of teachers' professional competence.

In 14 out of the 28 analysed studies, the importance of AR was confirmed from the viewpoint of broadening and deepening the ***teachers' professional knowledge base***, mainly the knowledge in the area of teaching and learning and in the area of action research. Not all studies specify exactly which knowledge is developed by action research; rather, they are limited to stating the importance of AR in terms of expanding teachers' knowledge. In three studies, the importance of AR in developing *subject-specific pedagogical content knowledge* (Alici & Sahin, 2023; Chen, 2019; Perico-Granados, 2022) was specified and confirmed. In five studies, the authors confirmed the influence of AR on the development of *subject-unspecific psychological-pedagogical knowledge* (Bedford, 2022; Guan, 2021; Li & Gu, 2023; Rumiantsev et al., 2023; Van Schaik et al., 2019). Two studies documented the importance of AR from the viewpoint of broadening the *knowledge in the area of educational practice*, specifically, in the area of implementation of action research, data collection, report writing and utilising academic literature (Esparza et al., 2022; Zheng et al., 2021).

The majority, i.e., even 26 out of 28 studies subjected to meta-analysis confirmed the impact of AR in developing ***key professional competences***, which, while transcending the boundaries of individual disciplines, are not and cannot be without content. Within the professional competence of the teacher, they are concretised particularly in relation to the teaching process, to the culture of the community or school, in relation to action research itself and to the professional development of the teacher. In the *intrapersonal* area, it is mainly about supporting the development of *attitudes* and *beliefs*, both in teaching and learning (Alici & Sahin, 2023; Kramer-Roy et al., 2020; Nugroho et al., 2020; Nurhasanaf et al., 2020; Rumiantsev et al., 2023; Van Schaik et al., 2019), and in the area of research (Esparza et al., 2022; Van Schaik et al., 2019). The development of the teacher's *autonomy* and *engagement* in teaching is also important (Bedford, 2022; Guan, 2021; Harris et al., 2020; Nugroho et al., 2020; Torrato et al., 2021), but also in the area of research (Banegas, 2019; Esparza et al., 2022; Meihami & Werbińska, 2022; Sullivan et al., 2022; Zheng et al., 2021). In the *social* area, it is primarily about developing a *cooperation* and *collaborative community culture* (Betlem et al., 2019; Chen, 2019; Elm & Nordqvist, 2019; Guan, 2021; Johannesson, 2022; Nugroho et al., 2020; Sullivan et al., 2022; Zheng et al., 2021). Finally, in the *learning* area, studies have confirmed the

importance of AR in developing *reflective*, *self-regulated* teacher's *learning* (De Beera, 2019; Edwards, 2019; Elm & Nordqvist, 2019; Guan, 2021). AR enables the teacher to critically reflect on his/her own teaching practice and, through a critical stance, to obtain relevant data to make informed decisions that can be implemented almost immediately in the classroom. In this way, AR softens the sometimes-sharp boundaries between research and practice (Ara, 2017) through enhancing the teacher's role as a reflective practitioner. At the same time, it strengthens the role of the teacher as a decision maker. The point of increasing the teacher's ability to *solve problems* of the teaching practice is emphasised in the studies by Elm and Nordqvist (2019) and Sosh (2019). In the area of teaching competence, the development of the *growth mindset* and confidence and the ability to *manage one's own self-development* and the development of others has also been noted by three research studies (Bendtsen et al., 2022; Johannesson, 2022; Nugroho et al., 2020;). Table 2 presents the results of the meta-analysis.

Table 2. *AR and teachers' professional competence on the basis of meta-analysis results*

Teachers' professional competence	
Components of professional competence	**Subcomponents of professional competence**
Core professional competences	*subject-specific pedagogical content knowledge* teaching strategies and methodologies, e.g., online English language teaching methodology, project-based learning in engineering studies, the use of digital technologies in developing media literacy in pre-school children
	subject-unspecific psychological-pedagogical knowledge coping with the differences between students; formulating student assignments; stimulating student motivation, formative assessment; using digital tools in classrooms; strategies for applying the principles of transformative pedagogy in the classroom; strategies for reflection and feedback in the classroom; collaborative and mixed teaching strategies
	research knowledge implementation of AR, data collecting, research report writing, utilising academic literature
Key professional competences	*Intrapersonal competences* attitudes and beliefs in relation to teaching and learning and in relation to research; autonomy and engagement in teaching and research
	Interpersonal competences cooperation; creation of collaborative culture
	Learning competences reflection; self-regulated learning; solving the problems of practice; growth mindset (trust in one's own self-development and development of the others)

The studies under analysis further revealed that AR has a multiplicative nature in relation to the development of the components of teachers' professional competence. The different components of professional competence are not developed in isolation but are mutually dependent. In particular, CAR, which is implemented as part of the functioning of professional learning communities, leads through shared observation, reflection and collaborative dialogue to a higher level of knowledge and understanding of both teaching and research in the work of the teacher (Elm & Nordqvist, 2019; Rumiantsev et al., 2023; Van Schaik et al., 2019). Higher levels of understanding subsequently lead to both changes in the teachers' attitudes and beliefs, an increased self-efficacy, higher levels of motivation, engagement and autonomy in solving problems of the teaching practice and carrying out research activities, as well as higher levels of confidence in their own development and the development of others (Bendtsen et al., 2022; Johannesson, 2022; Nugroho et al., 2020).

The aforementioned studies demonstrate the benefits of AR not only in terms of shaping the cognitive, but also the affective components of teachers' professional competence (Esparza et al., 2022). Several of them emphasise the impact of action research in changing the conception of the teacher's role and the formation of his/her professional identity as a change agent, curriculum developer (Khan et al., 2019), researcher (Meihami & Werbińska, 2022; Van Schaik et al., 2019; Zheng et al., 2021), knowledge creator (Meihami & Werbińska, 2022; Ronen, 2020; Sullivan et al., 2022; Torrato et al., 2021; Van Schaik et al., 2019), teacher leader or teacher as an expert (Bendtsen et al., 2022; Harris et al., 2020;).

Our meta-analysis focused on the benefits of AR in terms of teachers' professional development, but the study of the articles uncovered opportunities for further investigation and systematic analysis in the field of action research. Other aspects of AR can also be analysed, in particular, AR as a tool for curriculum development and educational practice change, and AR as a means of improving the process and outcomes of student learning. Despite several benefits, in practice, we do not encounter too often a consistent and systematic implementation of action research in the teachers' practice. AR as a catalyst for professional development requires intellectual, practical and organisational support (Banegas, 2019; Doqaruni et al., 2017). Further investigation should be aimed at analysing and summarising the findings in terms of specifying barriers as well as supportive elements to the use of AR in the teachers' practice. Studying AR from different perspectives would allow for a more objective and holistic view of AR, revealing its strengths as well as the pitfalls that need to be named and addressed in order for it to be a truly effective form of teachers' professional development.

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