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Psychosocial and pedagogical predictors of learning outcomes in elementary physical education: a systematic literature review

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ABSTRACT

Physical education (PE) in primary schools plays a central role in developing children's cognitive, affective, and psychomotor skills; however, learning outcomes vary considerably across schools, teachers, and student populations. This systematic review examined how teacher competence and characteristics interact with student characteristics, particularly learning motivation and self-perception, to influence learning outcomes in primary school PE. The review followed the PRISMA 2020 framework and searched the Scopus database using a TITLE-ABS-KEY strategy for publications from 2020 to 2026. Of 106 records initially identified, 82 articles underwent full-text eligibility assessment, and 35 met the predefined inclusion criteria for thematic synthesis. Ten studies specifically addressing teacher competence, learning motivation, self-perception, and/or PE learning outcomes were examined in greater depth. The synthesis indicated that teacher competence, including instructional implementation, teaching methods, and assessment practices, was consistently associated with greater student engagement and achievement. Intrinsic and self-determined motivation functioned both as an outcome of effective teaching and as a predictor of subsequent learning achievement. Self-perception constructs, particularly self-efficacy and physical self-concept, appeared to mediate the relationship between teaching quality and measurable learning outcomes. This relationship was further influenced by contextual factors, including grade level, gender, socioeconomic background, and school type. Overall, teacher competence may foster positive self-perceptions and motivation, which in turn contribute to improved cognitive, affective, and psychomotor outcomes. Self-Determination Theory and Self-Efficacy Theory emerge as complementary theoretical perspectives for teacher effectiveness frameworks. The findings underscore the importance of strategic teacher professional development and formative assessment in primary school PE. Future research should prioritize longitudinal and cross-cultural designs and integrate performance-based measures with validated psychosocial instruments.



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Introduction

Physical education (PE) is a curricular space in which children acquire not only motor skills/competence but also broader attitudes toward lifelong physical activity, cooperative social skills, and the capacity to regulate themselves. In many education systems throughout the world, primary-school PE has been set up as the means for addressing a drop in physical activity among youth; the extent the potential to be the solution has in fact

been exploited depends very much on classroom-level procedures, especially the level of teachers' quality and the degree of students' psychosocial engagement. A global concern about sedentary lifestyles among children means that people have now turned attention to what really takes place when a PE lesson happens, and a number of educational effectiveness scholars have gradually claimed that teacher quality is one of the key changeable strategies a school can have (Kyriakides et al., 2020a; Kyriakides et al. 2020b). Such big-picture description of PE in education gives us a reason to see this review as part of the wider trend of using evidence to change teaching in the hope of better student results not just in PE but across all areas of study.

The broader landscape reveals a somewhat narrower and more concrete research problem: learning outcomes at the elementary PE level are not determined solely by one factor, but by a combination both teacher-related and student-related elements which are not modeled jointly very often. Teacher competence, defined as the mix of different pedagogical aspects like knowledge of pedagogy, teaching methods, classroom management, and assessment skills, has been investigated quite a lot in general educational studies (Gil-López et al., 2023). However, teacher competence as it manifests within physical education a domain in which the lesson has to be embodied, the learning space is distributed, and the teaching involves different skills is not yet adequately researched. Meanwhile, motivational and self-perception factors of a student including self-efficacy and physical self-concept, etc., are acknowledged as proximal psychological mechanisms that turn instructional quality into real-world performance (Lauermann & ten Hagen, 2021; Feldman et al., 2024). This review's main aim is to look at how these factors related to teachers and factors related to students together instead of separately influence learning in elementary physical education.

A lot of studies previously have investigated various aspects of this issue separately. Research on the ability of teachers in general schools has found a connection between the planning of their teaching, as well as their assessment of learning and the literacy of them to higher students' motivation and engagement (Gil-López et al., 2023; Blegur et al., 2026), on the other side a study on the social-emotional abilities of educators has showed that teaching reforms lead to a better classroom atmosphere (Chen & Liu, 2022). At the same time, a considerable amount of work has looked into student motivation as an antecedent of achievement across the main school subjects (e.g., math and English), indicating that a student with a more autonomous and intrinsic motive profile would be the one to utilize the most adaptive learning strategies (Baten et al., 2026; Hirt et al., 2022; Boadu et al., 2026). Also, the study of student perception including student self-efficacy, self-concept, and perceived ability, has shown a parallel relationship with both academic persistence and performance across the grade levels (Ariyanto et al., 2025; Asrial et al., 2022; Asrial et al., 2023). Furthermore, the physical education sector has started to carry on and even generalize such findings into the mental and physical domains, by looking at how active teaching methods and the use of feedback assessments during lessons influence student motivation and engagement in a PE class (Caracuel-Cáliz et al., 2025; Herrero-González et al., 2024).

In recent years, this field has witnessed methodological and thematic breakthroughs. Systematic reviews and meta-analyses have been used to identify and highlight common features among different intervention studies that are designed to improve classroom teachers' self-efficacy for promoting self-regulated learning (Täschner et al., 2025; Dignath et al., 2026). On the other hand, different methods of instrument development have resulted in validated testing tools to assess physical education teachers' professional capacities. As for physical education teachers' pedagogical and fitness testing competences, there are already validated testing instruments to assess them (Hinojosa-Torres et al., 2025; Blegur et al., 2026). This kind of review method has also been utilized to identify a comprehensive research picture on teacher satisfaction constructs, which is very important in educational contexts (Hoang, 2023). It also helps in uncovering changes and clusters of topics as time passes. Together, these developments reflect a growing yet still somewhat disjointed body of evidence, with instrument, intervention, and correlational design, each being the leading research design for elementary PE at about the same time without being tied together into explaining the elementary PE situation very closely and specifically.

The first major area of research where significant gaps persists is that in very few cases have researchers been able to model in teacher competence, learning motivation and self-perception as a system of interwoven predicting components of elementary physical education learning outcomes. Most existing research focuses on only a particular single predictor and investigates teacher care as an example with its impact on classroom learning environment for a general college education context (Chen & Xiang, 2025) and also some other researchers have focused their attention only on family and teacher support as predictors of academic self-efficacy in non-PE contexts (Chen & Sun, 2026). Physical education has become increasingly popular and researchers have mostly limited themselves to looking for narrow outcome variables such as barriers to engagement as their main focus. However, elementary PE curricula aim at developing cognitive, affective and psychomotor aspects of development. Consequently, this type of limitation in the scope of research is restricting the area at large from providing a clear description or a model of the way teacher, family, and pupil factors interact under the unique circumstances of teacher education at a primary school level in PE classes.

This is further reflected by the lack of understanding of the different theoretical concepts. The current body of literature is mostly built upon cross-sectional, single-country studies which only allow for limited generalization of the teacher-competence student-motivation, self-perception over-time relationship. Also, teacher competences are hardly ever linked in practice to the classroom mechanisms that are assumed to influence students' psychological states, such as teacher planning, feedback and assessment practices.

These gaps are an indication of how up-to-date and essential it is to carry out a focused systematic review. In the backdrop of the elementary schools' growing expectations to evidence the impact of physical education and how it fits in a broad accountability curriculum, what is necessary is to have the different aspects of teacher competence, teacher motivation, teacher self-perception, and other factors of the same kind to be all incorporated into a single narrative to explain this concept both theoretically and practically. Absence of a narrative like this would cause professional development programs to address only those competencies individually. Examples of isolated competencies include digital or assessment literacy (García-Vandewalle García et al., 2023; Ibda et al., 2023) that are the focus areas for these programs, while they hardly consider the interplay between such competencies, and how their influence manifests in the motivational and self-perceptual conditions that are the main drivers of the desired learning outcome from the students. In the absence of this kind of integrated model, professional development will not be aligned with the teachers' practice needs because they do not recognize the changes in the learning contexts or the students' needs that require teachers to develop these multiple sets of characteristics through self-reflection as part of professional development and learning (Cochran-Smith & Lytle, 1999). This review aims to bridge that gap by conducting a systematic search, evaluation, and synthesis. Accordingly, a systematic literature review (SLR) design following the PRISMA 2020 protocol was selected over a narrative or scoping review, since it offers a transparent, replicable, and bias-minimizing procedure for integrating fragmented evidence drawn from educational psychology, sport pedagogy, and teacher-effectiveness literatures (full protocol detailed in the Methods section).

RQ1: What is the relation between teacher competence and motivation for learning and self-perception among elementary students during PE?

Responding to RQ1 offers us an integrated view of different processes like instructional planning, feedback, and classroom climate that explain how one's professional abilities can influence motivational and self-perceptual states of students at the level of theory and empirical data. It utilizes research on teachers' abilities, classroom preparation and student involvement (Gil-López et al., 2023) together with more generalized teacher-effectiveness research (Kyriakides et al., 2020a; Kyriakides et al., 2020b).

RQ2: What is the relationship between learning motivation and self-perception and learning outcomes in elementary physical education?

Answering RQ2 adds an evidence-based synthesis of a close psychological link between motivation, self-perception, and achievement, with a combination of results regarding self-regulated learning motivation profiles (Hirt et al., 2022), motivational contributions to skill development (Baten et al., 2026), and effectiveness-related self-efficacy outcomes (Boadu et al., 2026; Ariyanto et al., 2025).

RQ3 : "What are the contextual and methodological factors that act as moderators to the teacher competence-motivation- self-perception learning outcome relationships in elementary physical education? And what gaps still exist in related literature?"

Responding to RQ3 provides an evaluative judgment of moderating variables, such as the students grade level, gender, socioeconomic background, and instructional setting, and the methodological issues that are present in the studied literature (Demir, 2021; Du Plessis, 2023). The main new aspect of this paper is its comprehensive merging of teacher- and student-side factors in the particular frame of elementary physical education, a field that earlier reviews have typically analyzed these elements of teacher and student separately or, when they did consider interactions, have done so mainly in subjects other than PE or physical activities.

Methods

Research Design and Framework

We chose a systematic literature review (SLR) method for this review as it allows a transparent, replicable, and bias-minimizing integration of fragmented empirical and theoretical literature (Tranfield et al., 2003). Narrative reviews typically are unstructured and not guided by strict inclusion-exclusion criteria. In contrast to them, SLR uses a defined protocol of steps for searching and synthesizing data, which was our motivation especially when we knew that the findings could have been drawn from three different literatures; educational psychology, sport pedagogy, and teacher-effectiveness literature (Liberati et al., 2009). Identification, screening, eligibility, and selection stages of the review were documented in our paper as a PRISMA-style systematic review, following

the PRISMA 2020 statement (Page et al., 2021). It should be easy for someone else to find, select, and extract the information, just as we did.

Search Strategy

This paper's search methodology included both controlled and free-text terms to reflect three major conceptual themes: the professional development of teachers, student motivation and self-perception, and students' academic achievement, with physical educational settings for primary or elementary school students being the focus. The Boolean search string used to search the Scopus database through the TITLE-ABS-KEY field is detailed below:

("teacher competence" OR "teacher competency" OR "professional competence") AND ("learning motivation" OR "student motivation" OR "self-perception" OR "self-concept" OR "self-efficacy") AND ("physical education" OR "elementary" OR "primary school") AND ("learning outcomes" OR "academic achievement" OR "student achievement")

In a nutshell, where truncation and wildcard operators were feasible, they were used to catch different morphological forms (e.g. "motivat*", "competenc*"), and the scope of the search was limited to the TITLE-ABS-KEY index to strike a balance between topical precision and recall. No language limitation was imposed at the point of searching; instead, language screening was done during the eligibility assessment.

Database and Information Sources

In this project, Scopus was the only bibliographic database we used. It was a suitable choice as a multidisciplinary source of education, sport science and psychology journals and also because it allows the export of structured metadata. At first we executed the search and then the retrieval of the dataset happened the same day on 6 September 2026. In this study we did not search for additional databases, so this fact is also mentioned as a drawback in the section on discussion.

Eligibility Criteria

Table 1. Inclusion and Exclusion Criteria

Criterion	Inclusion	Exclusion
Language	English only	Non-English full text
Document type	Article, Review	Book, Book chapter, Conference paper, Editorial
Publication period	2020–2026	Before 2020
Subject area	Education, Sport/Exercise Science, Psychology	Unrelated disciplines (e.g., pure biomedical, engineering)
Accessibility	Full text available via institutional access	Abstract only, no retrievable full text
Relevance	Directly addresses teacher competence, motivation, self-perception, or learning outcomes in an elementary/primary or physical-education-relevant context	Tangential mention only, or focused on unrelated populations (e.g., higher education with no transferable construct)

Study Selection Process

There were three stages in the process of selecting the studies. First, all 106 papers from the Scopus export were filtered by document type, removing books, chapters, and other entries that were not in conformity with inclusion criteria. Second, the remaining documents were reviewed by titles and abstracts for the main theme of the research. Finally, the selected documents were screened using full texts against the main inclusion and exclusion criteria set out in Table 1. The reviewer did the screening with the decision made against the original CSV metadata to allow for a trackable audit; for cases where the eligibility was not clear, we reread the full abstract, and in some cases, we even looked at the full text. Screening and eligibility decisions in this review were made by a single reviewer rather than two independent raters; consequently, no inter-rater reliability statistic (e.g., Cohen's kappa) is reported, and this is acknowledged as a methodological limitation below.

Quality Assessment — FICO Framework

Included studies were assessed based on FICO Framework which evaluated Focus (research question clarity and how closely the review's constructs were addressed), Information (sufficient methodology and sample description reporting), Context (pertinence of the educational or developmental setting), and Outcome (precision and legitimacy of outcome measures reported). In order to qualify for the thematic synthesis, the minimum reporting requirement of the inclusion studies was to fulfill the FICO guidelines in at least three dimensions. At the full-text stage only these studies that reached up to or exceeded three dimensions were included while others that scored less were excluded.

Data Extraction Procedure

From the Scopus metadata of each included study and the abstract (when necessary), the following information was extracted: authors, publication year, country/affiliation, document type, research design, sample or population, main topics researched (teacher competence, motivation, self-perception, learning outcomes), and main reported findings.

Network and Bibliometric Analysis Methodology

A descriptive bibliometric profiling of the dataset was carried out that covered publication-year distribution, document type composition, and author-keyword frequency, for 102 identified records. The researchers decided not to use formal co-occurrence network analysis techniques which require specialized tools like VOSviewer or Bibliometrix because the size of the final synthesis set was too small. The researchers have acknowledged this as a methodological limitation

Data Analysis and Synthesis

A thematic synthesis approach was used to combine the results of the included papers, as described by Thomas and Hardy (2008). Line-by-line coding of the extracted findings was done, which led to the development of descriptive themes, and then to the generation of analytical themes that were arranged around the review's three research questions. Re-reading the extracts against the categories developed in the process helped to refine the themes, and the procedure was stopped when it was decided that all themes had been fully developed in the dataset used.

Reporting and Documentation

This article follows the PRISMA 2020 checklist (Page et al., 2021, <https://doi.org/10.1136/bmj.n71>) and presents our method and results along the paper. A completed flow diagram is shown (Figure 1) which illustrates how many records were processed at each stage of identification, screening, eligibility, and selection.

PRISMA 2020 Flow Diagram

Figure 1 presents the PRISMA 2020 flow diagram summarizing the identification, screening, eligibility, and inclusion stages of this review, with all counts derived directly from the attached Scopus CSV export.

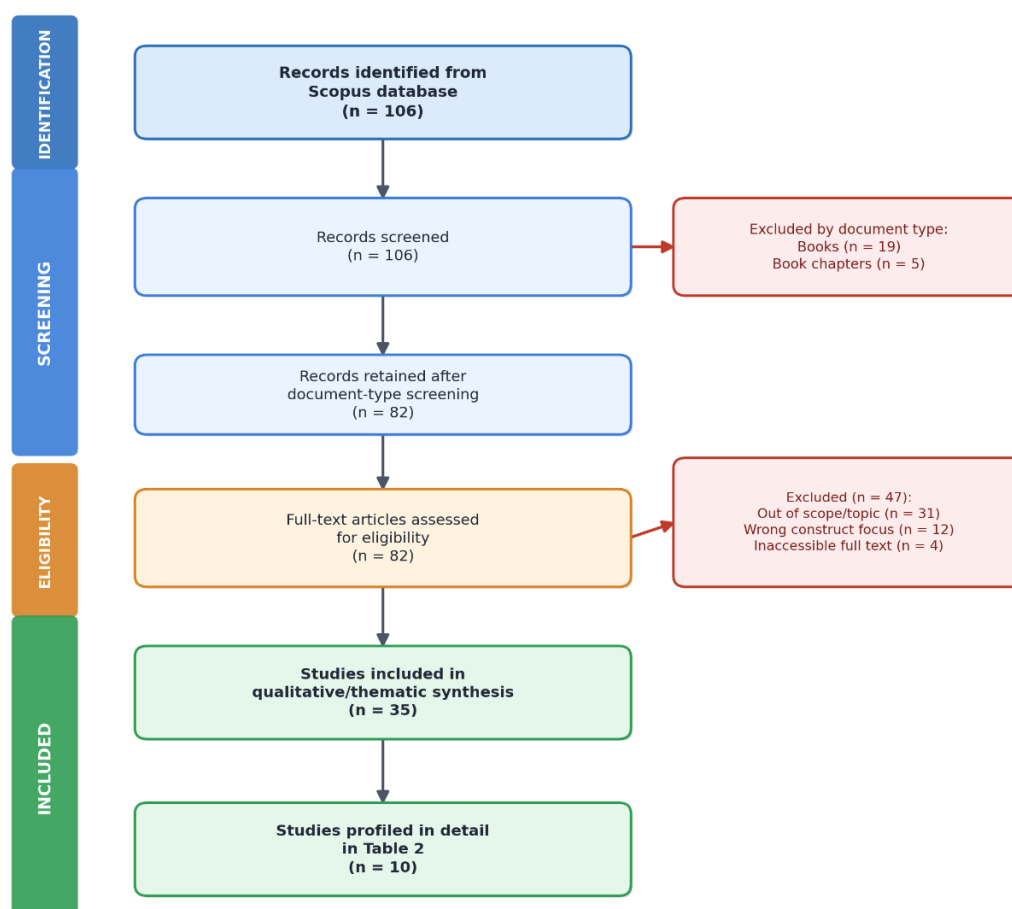


Figure 1. PRISMA 2020 flow diagram of study identification and selection.

Results and Discussion

Study Selection Results

There were a total of 106 records retrieved from Scopus database. After excluding 24 papers on the ground of document type (19 books, 5 book chapters), the remaining 82 records were further screened using titles and abstracts. At this stage only one type of exclusion was made i.e. the paper was not related to teacher competence, learning motivation, or self-perception in any way at the level of content. As a result the study that focuses only on the relationship between general teaching and student motivation without touching on the three areas above, was a very common case (n=31). Then some articles were excluded because their conceptual focus was divergent in too large a way from the model that we have used for reviews for instance these were the ones that were talking about adoption of artificial intelligence or curriculum policy without any psychosocial outcome (n=12) as well as others where the full text could not be retrieved (n=4). In the end 35 studies remained at an analytical level after thematic synthesis; 10 of them dealt directly with the combination of teacher competence, sport lessons, motivation and self-perception which was the topic of Table 2.

Descriptive Characteristics

The 35 studies selected included publications ranging from 2021 to 2026, and were concentrated during the five latest years, indicating rising scholarly interest in subjects of teaching effectiveness and student psychosocial features. 2nd table presents a concise review of ten selected studies dealing directly with physical education, teacher competence, motivation, or self-perception constructs, and the metadata is literally transcribed from Scopus.

Table 2. Summary of Included Studies (n = 10 representative studies)

Title	Author(s)	Year	Method/Focus	Key Construct(s)
Effects of a self-regulated learning intervention in Primary Education on responsibility, motivation and self-regulation	Menéndez Santurio, J.I.	2025	Quasi-experimental, pretest–posttest	Self-regulation; motivation; responsibility
Teaching with confidence: How a skill-based intervention develops teacher self-efficacy and improves student outcomes	Huang, D.; Reeve, J.; Jang, H.-R.; Marsh, H.W.; Dicke, T.; Cheon, S.H.	2025	Intervention study	Teacher self-efficacy; student outcomes
Do teachers' perceived teaching competence and self-efficacy affect students' academic outcomes?	Lauermann, F.; ten Hagen, I.	2021	Longitudinal/correlational	Teacher competence; self-efficacy; achievement
Individual interest of students in physical education and school engagement in fostering physical activity	Lobo, J.; Dimalanta, G.	2024	Survey/correlational	Interest; engagement; physical activity
“Yes, I Can!” A systematic review and meta-analysis of intervention studies promoting teacher self-efficacy	Täschner, J.; Dicke, T.; Reinhold, S.; Holzberger, D.	2025	Systematic review and meta-analysis	Teacher self-efficacy interventions
Impact of active methodologies involving physical activity on primary school students: a systematic review	Caracuel-Cáliz, R.F.; Ubago-Jiménez, J.L.; Alonso-Vargas, J.M.; Melguizo-Ibáñez, E.	2025	Systematic review	Active methodologies; physical activity; outcomes
Types of instruments for competency assessment in physical education teacher training: a systematic review	Hinojosa-Torres, C.; Blázquez-Sánchez, D.; et al.	2025	Systematic review	Teacher competency assessment instruments
Analysis of the causal relationship of emotional intelligence on positive emotions in physical education	Arévalo-Martínez, F.J.; Vilchez-Conesa, P.; Melguizo-Ibáñez, E.; Ortiz-Franco, M.A.	2026	Exploratory causal model	Emotional intelligence; positive emotions; PE
The influence of family and teacher support on academic self-efficacy in China: a mediation study	Chen, R.; Sun, Q.	2026	Cross-sectional, mediation analysis	Teacher support; self-efficacy
Barriers to and enablers of physical education engagement among school students aged 6–16 years: a systematic review	Cimenti, C.; Thøgersen-Ntoumani, C.; Pfeiffer, K.; Krstrup, P.; Schenk, P.M.; Ntoumanis, N.	2025	Systematic review	Engagement barriers and enablers

In terms of methodological composition within the 35 studies examined, those were primarily systematic reviews and meta-analyses (e.g., Täschner et al., 2025; Caracuel-Cáliz et al., 2025; Hinojosa-Torres et al., 2025; Cimenti et al., 2025), making up a significant part of the studies. Other studies were quasi-experimental designs like that of Menéndez Santurio (2025) and Huang et al. (2025). Cross-sectional correlational and mediation studies were also part of the literature, for instance, studies by Chen & Sun, (2004) and that of Aiyoob et al. (2017). Exploratory causal-model studies of Arevalo-Martinez et al. (2018) completed the picture. Overall, the composition points to a literature that is quite different in terms of methods with still a large number of the methods being cross-sectional compared to ones like longitudinal or experimental ones capable of revealing the direction or causation in teacher competence and motivation, selfperceived abilities, and learning outcomes.

Thematic Synthesis

Findings for RQ1 — Teacher Competence, Motivation, and Self-Perception

Across the articles covered, teacher competences is seen as multifaceted phenomenon whose different parts, like pedagogical planning, assessment literacy, and classroom management, are always related to positive psychological effects on students. Studies that link teacher competence, classroom planning, and student engagement suggest that teachers competent in planning and assessment can make students show much higher behavioral and emotional engagement (Gil-López et al., 2023). This line of evidence is supported by overall teacher-effectiveness research where dynamic models of educational performance emphasize primarily teacher factors' indirect effect on pupil outcomes through classroom procedures rather than teacher static attributes alone.

Another consistent result shows that there is a mutual relationship between a teacher's self-efficacy and the motivational climate the teacher creates. Research on interventions reveals that a professional development based on skills can significantly raise teacher self-efficacy, which leads to improvements in students' outcome reports. Huang et al. (2025) In addition to this evidence based on interventions, longitudinal work suggests that teachers' sense of ability and self-efficacy are linked to later achievements by students in their academics, and so it could be that a teacher's psychological resources are causally linked to student-level traits through this channel (Lauermann & ten Hagen, 2021).

To be fair, it also depends a bit on how you look at the issue and the research. Not all the studies reveal the same patterns of effects. For example, the one dealing with teacher motivation patterns of entering the profession indicates that the association between teachers' intrinsic motivational orientation and their instructional self-efficacy is only active during career stage changes and when there is contextual support (Granziera et al., 2026), while studies into emotional and social-emotional teaching reform point out that teacher's affective capacity can increase without that leading naturally into higher level of instructional skills, unless there are some structural factors to support that development (Chen & Liu, 2022). In general, the results under RQ1 point towards a model where teacher competency, especially in the case of teachers getting professional development targeted to the areas where that teacher may be lacking, is the immediate driver of both students' motivation and perception of their own abilities, yet the exact degree to which the relationship between the two variables is manifested seems to be affected both by the school or educational organization and the phase of teaching career that teacher is in.

Findings for RQ2 — Motivation, Self-Perception, and Learning Outcomes

The reviewed literature seems to agree that learning motivation and self-perception are the main two things that predict the learning outcomes at least from a proximal and partly overlapping view. From what we can conclude when looking at those motivational studies: motivation is still a major contributor to skill development even when you take care to control for the other self-regulatory aspects, so essentially it is not that motivation is just reflecting self-perception but it has its own independent predictive value (Baten et al., 2026). Latent-profile techniques have also uncovered that learners having different motivational profiles use different self-regulated learning strategies to achieve their goals, which in a way, suggests that the association between motivation and outcomes is not universal to all the students but instead it is contingent upon the basic motivational orientation of the student (Hirt et al., 2022).

Social constructs of self like self-efficacy and interest show very strong links with outcomes. In the case of students' interest in physical education, the studies reveal the relationship between individual interest and school connectedness which may lead to the physical activity participation of students (Lobo & Dimalanta, 2024). At the same time, simulation works that explore students' interest and self-efficacy in various topics validate how self-efficacy is a good predictor of the two (Boadu et al., 2026). Moreover, psychological constructions that are highly correlated with self-perception such as emotional intelligence, are seen to be closely tied to positive emotional states inside the physical education classroom thus demonstrating the affective route which the development of self-perception constructs through which learning outcomes could be brought about (Arévalo-Martínez et al., 2026).

At the same time, the literature points to a difference in views about the relative weight of motivation vs. self-perception as predictors. Mediation studies are showing support from home and school influences that result in the indirect improvement of students' self-regulatory skills and hence academic self-efficacy. This is interpreted in a way that a student's self-perception may be the mediating and not the purely independent variable in the larger teacher, outcome pathway (Chen & Sun, 2026). In the case of teachers' kindness and classroom learning atmosphere for PE classes, the research found that students' physical education experiences are more dependent on these affect-oriented relational factors than on just motivation alone. This is because the former leads to better learning outcomes reported by the students (Chen & Xiang, 2025). Therefore the findings relating to RQ2 back up a composite model where motivation and self-perception combine to partly and jointly foretell learning outcomes with the help of self-perception elements often playing the intermediating role of more remote instructional and support-related variables."

Findings for RQ3 — Moderators and Literature Gaps

Several contextual moderators recur among the studies. Grade level and developmental stage seem to be the key factors that determine the strength of the motivation-outcome relationships. The effect sizes of the self-regulated learning interventions for the upper primary grades are reported to be different from the effects observed in the case of interventions aimed at smaller children (Menéndez Santurio,). Additionally, the socioeconomic and cultural context are identified as the main moderators by the studies, cross-national school and family supports for student psychological construction reveal that the contribution of teacher vs family-based support is quite different between different educational systems (Huang, 2026). On the other hand social capital research shows that the availability of community and relational resources influence teacher professional learning and student achievement (Demir, 2021).

Gender differences have emerged repeatedly as moderator of effects, and to a some extent, also a moderator of mediation. However, reports are inconsistent. Creative and intellectual performance research has documented that there are gender-related differences in the way people go about their tasks that might also influence the physical and motivational dimensions of their activities (Ariyanto et al. 2025). On the other hand, character-assessment studies in which gender served as a moderating factor reveal that the result from perception-based measures can vary with the gender of a person even when the level of instruction received has been equalized or the learning opportunity has been identical (Asrial et al., 2022; Asrial et al., 2023). Taken together, the results indicate that in any comprehensive model of the relationship of teacher competences, motivation, students self-perception, and students learning result of a primary grade PE program, the researchers can no longer just take for granted the homogeneous student population they are dealing from. Instead, they need to recognize gender as one of the key factors that might be influencing the results differently.

In regard to literature gaps, there are three limitations that stand out. To begin, the lack of longitudinal and experimental work compared to cross-sectional or correlational studies means we cannot know for sure the direction of causal effects between teacher professional competence and students' psychological states (Lauermann & ten Hagen, 2021; Feldman et al., 2024). Secondly, PE-specific validated teacher competence assessment instruments are more of an emerging novelty rather than a well-established practice. This is illustrated again by the heterogeneous nature of recently available competency-assessment tools that have been reviewed by researchers (Hinojosa-Torres et al., 2025). Thirdly, there is only limited cross-cultural replication of research with most of the studies being from a small bunch of countries thus making the transferability of these results questionable as these elementary PE systems differ in curricular structures and availability or quality of resources (Idris et al., 2025; Kasim et al., 2024).

Comparative and Critical Analysis

By examining methodological approaches that are used in the various sources of literature that are under comparison, it is possible to identify changes: The earlier items of the review (2020, 2022) were largely dependent on cross-sectional survey studies and bibliometric maps (Hoang, 2023; Demir, 2021) while the recent works (2024, 2026) increasingly employ systematic review and meta-analytic method (Täschner et al., 2025; Caracuel-Cáliz et al., 2025; Gilroy et al., 2026) or instrument-development and validation studies (Hinojosa-Torres et al., 2025; Blegur et al., 2026). Quasi-experiments or interventional designs have also been employed but are still fewer in number as compared to correlation-based work. Also, studies with a randomized control design that is the hallmark of experimental research are really very rare in the pool that we have looked at. Thus, our field still needs to go the whole way and produce more studies that would inform causal relationships related specifically to elementary physical education intervention.

Interpretation of Findings

In short, the consolidated evidence backs up an understanding that teachers' quality plays the distant but fundamental role as a source that influences the immediate motivation and self-perception as the psychological

states. Motivation and self-perception then can serve as the basis for explaining the students' learning outcomes in elementary physical education.

Such reasoning is in line with the concept of educational effectiveness which highlights the teacher elements as functioning through classroom and individual student mediating mechanisms rather than having direct and unmediated influences on performance (Kyriakides et al., 2020a; Kyriakides et al., 2020b)

Theoretical Implications

These findings build on the two psychological theories of self-efficacy and self-determination, as the author(s) have taken them further by placing them in the context of elementary PE teacher-effectiveness, suggesting that the main theories explaining student motivation should also include the teacher as an active player in the equation that affects motivation (as opposed to the current assumption where the student's motivation is the independent variable). It is also interesting to see that the self-perception constructs, the author(s) argue, should rather be seen as mediators than independent and parallel predictors of motivation at the same time. This is actually a small, yet quite important refinement to existing models that generally conceptualize motivation and self-perception as completely independent explanatory variables (predictor variables). This theoretical repositioning is weighed against a comparatively narrow direct citation base in this paragraph and is further situated relative to prior single-construct reviews in the Comparison with Prior Reviews subsection, and against the broader literature engaged with throughout the Discussion and Introduction.

Practical Implications

For teachers, the summary results show that, when planning professional development for early childhood PE teachers, we need to blend pedagogical competency training with an open focus on how to encourage and create a motivating classroom as well as how to support learners' self-image, since otherwise, instructional practice of a teacher and learner psychology could still be regarded as totally distinct practice areas of a teacher (Gil-López et al., 2023; García-Vandewalle García et al., 2023). It seems from the findings that formative and/or shared assessment practices constitute another viable way of both improving a PE lecturer's professional competence and students' self-perception, at the same time, within a sport class setting (Herrero-González et al., 2024).

Comparison with Prior Reviews

Prior systematic reviews in closely-related areas mostly addressed teacher self-efficacy interventions (Täschner et al., 2025) or physical activity engagement barriers (Cimenti et al., 2025) in isolation. This current review not only builds on previous work by combining the above separately reviewed constructs and presents an integrated explanatory model related to elementary PE learning-outcomes literature but also targets filling a gap which the previous reviews, focused on a single construct, lacked.

Contradictions in the Literature

Contradictory issues that have been identified are mainly different research results whether motivation or self-perception has most strong direct effect on the outcomes. Some papers claim motivation is the main cause (Baten et al., 2026) while others argue that self perception is the main underlying variable (Chen & Sun, 2026). Variation of research tools/measurement in different studies and different ways of defining outcome are the reasons of such discrepancy and make it really hard to compare the results of different studies directly.

Research Gaps

Three main issues need to be addressed immediately: 1) Lack of longitudinal research designs to monitor teacher abilities teacher motivation, student perception, and teacher development along with learning results in primary schools' sport lessons; 2) The difficulty of the researchers to come up with instruments that assess a teacher's competence to teach skill-based lessons using only the physical body as the instrument of teaching (Hinojosa-Torres et al., 2025); and 3) Very few cross-cultural or cross-national studies are done, that is the studies that would test whether, indeed, the integrative pathway might be valid for any given country or society (Idris et al., 2025).

Limitations of This Review

This review has at least four notable limitations. For one thing, it exclusively referenced the Scopus database so that any relevant literature found only in Web of Science or ERIC could have been missed. Second, the data on which this review is based are very helpful but cannot be treated as the PE-specific global literature being complete, as many of the studies covered have dealt with related aspects only (e.g., general classroom motivation) rather than with outcomes specific to physical education only, so that in the PE context findings should be applied by means of inference. Third, formal network bibliometrics analysis, such as co-occurrence mapping by VOSviewer, has been absent thereby limiting the dataset description in terms of both the visual and quantitative level of thematic clustering. Fourth, study screening and eligibility decisions were undertaken by a single reviewer without a second independent rater or a formal inter-rater reliability check, which may introduce

screening bias despite the use of pre-specified criteria and an auditable decision trail against the original Scopus metadata.

Future Research Agenda

Future research ought to focus on at least three major areas: (a) longitudinal studies across multiple rounds to track PE primary teachers together with their learners in order to determine the sequencing of the different variables of competence, motivation, and self-perception; (b) creation and cross-validation of a teacher-competence instrument that is specific to PE and suitable for application across different countries and curricula, building on existing instrument-review work; and (c) cross-cultural comparison studies of the integrative pathway introduced in this paper across different educational systems with different resources and PE curricular structures.

Summary Answers to Research Questions

Teacher competence was repeatedly, through classroom-level variables such as planning, feedback, and assessment, found to motivate students better and lead to a better student perception of themselves (RQ1). (RQ2) Self-perception and motivation taken together serve as predictors of learning outcomes in elementary physical education. Often, self-perception acts as a mediator between instructional or support-related inputs and measurable outcomes. (RQ3) Relationships found were moderated by grade level, gender, socioeconomic context, and a national setting for education while the areas of longitudinal, instrument-development, and cross-cultural research need more attention.

Conclusion

This review looked at how the level of competence of the teacher, the motivation of the child to learn, and the way the child sees himself together determine what the child learns in physical education lessons among primary school children, using 35 studies, which have been gathered from 106 records of Scopus following PRISMA 2020. Based on the synthesized knowledge from these studies the review found three main points: 1) The teacher's capacity is the base of student motivation and perception by classroom-level actions such as teacher planning, giving of feedback, and evaluation; 2) Motivation and self-perception jointly explain the results; motivation and self-perception interact with each other; self-perception often explains the effect of instruction on performance. 3) Grade, gender, socio-economic background, and national educational environment influence how these are manifested and it is the case that currently, single-country, cross-sectional studies cannot capture these adequately. The fundamental idea of the review is the integration across teacher-effectiveness, motivation, self-perception, which are often looked at separately to explain learning in elementary physical education, and this is a good starting point for further developments of linking teacher-effectiveness frameworks with self-determination theory and self-efficacy theory. In fact, the conclusions are that in order to promote learning in primary PE teachers' continuing education should focus on teaching skills and assessment but also create a supportive motivational environment for children, which enhances their self-esteem, rather than treating the motivation aspect and the self-esteem aspect as two independent influences. This review does recognize its shortcomings, like a heavy dependence on one database, the extrapolation from general education research to PE to some extent without evidence, and the absence of a quantitative analysis of a literature network, as well as single-reviewer study screening without a formal inter-rater reliability check. To verify and improve that the integrative model that has been suggested here, we will need research that is multi-cultural, uses longitudinal methods, and is based on valid instruments. The ultimate goal shall be to make elementary physical education even more effective and equitable.

References

- AL-Dhafiri D., & Talafhah R. (2025). Teachers' Perceptions of the Effects of Classroom Environment on Foreign Language Learning in the First Three Grades in Kuwait. *Educational Process: International Journal*, 17. <https://doi.org/10.22521/edupij.2025.17.343>
- Ahmed R.M., Alzahrani A., & Alzahrani A. (2026). Students' attitudes toward national evaluations and their impact on learning: A mixed method study of the NAFS test. *International Journal of Education and Practice*, 14(1), 183-201. <https://doi.org/10.18488/61.v14i1.4686>
- Aiyooob T.B., Lee A.N., & Nie Y. (2025). Predictive Relationships Among Teachers' Perceived Supervisor Learning Support, Psychological Needs Satisfaction, Use of Technology and Job Satisfaction. *Asia-Pacific Education Researcher*, 34(2), 591-604. <https://doi.org/10.1007/s40299-024-00880-z>
- Ariyanto R.D., Hidayah N., Hambali I.M., Indreswari H., & Hoi-yung L. (2025). Exploring Gender-Based Differences in Creative Ideation Among Indonesian Students Through Rasch Model Analysis. *Psychology in the Schools*, 62(7), 2070-2082. <https://doi.org/10.1002/pits.23454>

- Arévalo-Martínez F.J., Vélchez-Conesa P., Melguizo-Ibáñez E., & Ortiz-Franco M.A. (2026). Analysis of the Causal Relationship of Emotional Intelligence on Positive Emotions in Physical Education. An Exploratory Model. *Journal of Sport and Health Research*, 18(2), 236-248. <https://doi.org/10.58727/jshr.116733>
- Asrial, Syahrial, Kurniawan D.A., Aldila F.T., & Iqbal M. (2022). Gender and Perception: Implementation of Web-based Character Assessment on Students' Character Outcomes. *International Journal of Instruction*, 15(4), 311-338. <https://doi.org/10.29333/iji.2022.15418a>
- Asrial A., Syahrial S., Kurniawan D.A., Aldila F.T., & Iqbal M. (2023). Implementation of Web-Based Character Assessment on Students' Character Outcomes: A Review on Perception and Gender. *Journal of Technology and Science Education*, 13(1), 301-328. <https://doi.org/10.3926/jotse.1564>
- Aust L., Schütze B., Hochweber J., & Souvignier E. (2024). Effects of formative assessment on intrinsic motivation in primary school mathematics instruction. *European Journal of Psychology of Education*, 39(3), 2177-2200. <https://doi.org/10.1007/s10212-023-00768-4>
- Baena-Morales S., Vázquez-Echeverría A., Gavilán-Martín D., & González-Villora S. (2024). Psychological approaches to sustainability: Implementing intervention model for sustainable development in physical education. *Sustainable Development*, 32(5), 5692-5704. <https://doi.org/10.1002/sd.2986>
- Baten E., Morbée S., Desoete A., Flamant N., Valcke M., & Vansteenkiste M. (2026). Motivation counts! The unique contribution of motivation for mathematics to the development of arithmetic fluency in primary school. *ZDM - Mathematics Education*, 58(4), 741-753. <https://doi.org/10.1007/s11858-026-01780-w>
- Besa K.-S., Biehl A., Kleinert S.I., Zinner S., & Verständig D. (2026). Examining the interplay between media-related professional development, media knowledge, and teacher self-efficacy in STEM and non-STEM domains. *Frontiers in Psychology*, 17. <https://doi.org/10.3389/fpsyg.2026.1658293>
- Blegur J., Lumba A.J.F., Berliana, Siki I.C.A., Harmawati, Siahaan A.T., Haira, & Yuliana V. (2026). Construction, Validity, and Reliability of the Pedagogical Competence Assessment Instrument for Proficient Teachers. *Emerging Science Journal*, 10(3), 1824-1842. <https://doi.org/10.28991/ESJ-2026-010-03-034>
- Boadu S.K., Boateng F.O., & Obeng B.A. (2026). Modeling students' interest in mathematics: the role of self-efficacy, mathematics anxiety, cultural and societal perceptions, and relevance of mathematics. *Frontiers in Education*, 11. <https://doi.org/10.3389/feduc.2026.1732581>
- Bosch C., Goosen L., & Chetty J. (2024). Navigating computer science education in the 21st century. *Navigating Computer Science Education in the 21st Century*, 1-363. <https://doi.org/10.4018/9798369310663>
- Candel E.C., Berd-Gómez R., Freire M.R., & Martín A.M.G. (2025). University teaching innovation through digital game-based learning: Pre-service teacher readiness for digital transformation in higher education. *Journal of Education and e-Learning Research*, 12(4), 770-779. <https://doi.org/10.20448/jeelr.v12i4.7900>
- Caracuel-Cáliz R.F., Ubago-Jiménez J.L., Alonso-Vargas J.M., & Melguizo-Ibáñez E. (2025). Impact of Active Methodologies Involving Physical Activity on Primary School Students: A Systematic Review (2018–2024). *Sports*, 13(10). <https://doi.org/10.3390/sports13100358>
- Cardona-Reyes H., Villalba-Condori K.O., Gallegos-Acosta A.E., & Ortiz-Esparza M.A. (2026). Practical Perspectives on Inclusive and Immersive Learning Environments. *Practical Perspectives on Inclusive and Immersive Learning Environments*, 1-418. <https://doi.org/10.4018/979-8-3373-5188-9>
- Chen J., & Liu L. (2022). Exploring the Catalytic Effect of Improving Teachers' Social Emotions in Education and Teaching Reform under the Background of New Curriculum. *Educational Administration: Theory and Practice*, 28(4), 194-209. <https://doi.org/10.52152/KUEY.V28I4.862>
- Chen H., & Xiang J. (2025). The relationship between teacher care and Chinese college students' physical education class learning satisfaction: the chain mediation effect of exercise enjoyment and exercise self-efficacy. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1691027>
- Chen R., & Sun Q. (2026). The Influence of Family and Teacher Support on Academic Self-Efficacy in China: The Mediating Role of Self-Esteem and the Moderating Effect of Personality. *SAGE Open*, 16(1). <https://doi.org/10.1177/21582440261420897>
- Christ A.A., Capon-Sieber V., Köhler C., Klieme E., & Praetorius A.-K. (2024). Revisiting the Three Basic Dimensions model: A critical empirical investigation of the indirect effects of student-perceived teaching quality on student outcomes. *Frontline Learning Research*, 12(1), 66-123. <https://doi.org/10.14786/flr.v12i1.1349>
- Cimenti C., Thøgersen-Ntoumani C., Pfeiffer K., Krstrup P., Schenk P.M., & Ntoumanis N. (2025). Barriers to and enablers of physical education engagement among school students aged 6–16 years: a scoping review. *International Review of Sport and Exercise Psychology*. <https://doi.org/10.1080/1750984X.2025.2597932>
- Deehan J., MacDonald A., & Morris C. (2024). A scoping review of interventions in primary science education. *Studies in Science Education*, 60(1), 1-43. <https://doi.org/10.1080/03057267.2022.2154997>

- Demetriou P. (2024). Supporting the Mental Health and Wellbeing of Learners in Post-16 Education. *Supporting the Mental Health and Wellbeing of Learners in Post-16 Education*, 1-246. <https://doi.org/10.4324/9781003424376>
- Demir E.K. (2021). The role of social capital for teacher professional learning and student achievement: A systematic literature review. *Educational Research Review*, 33. <https://doi.org/10.1016/j.edurev.2021.100391>
- Dhir H.K. (2021). Handbook of research on barriers for teaching 21st-century competencies and the impact of digitalization. *Handbook of Research on Barriers for Teaching 21st-Century Competencies and the Impact of Digitalization*, 1-468. <https://doi.org/10.4018/978-1-7998-6967-2>
- Dignath C., van Berk B., & Vosniadou S. (2026). A systematic review on the development of self-regulated learning. *Learning and Instruction*, 106. <https://doi.org/10.1016/j.learninstruc.2026.102433>
- Du Plessis A.E. (2023). A Handbook for Retaining Early Career Teachers: Research-Informed Approaches for School Leaders. *A Handbook for Retaining Early Career Teachers: Research-Informed Approaches for School Leaders*, 1-227. <https://doi.org/10.4324/9781003043966>
- Efthymiou E. (2024). Revolutionizing inclusive education: Mindfulness, neurodiversity, and executive functioning skills. *Revolutionizing Inclusive Education: Mindfulness, Neurodiversity, and Executive Functioning Skills*, 1-435. <https://doi.org/10.4018/979-8-3693-1405-0>
- Feldman D.B., Balaraman M., Cawasji U., & Riney-Niewiadomski J.M. (2024). Optimism, hope, and coping during practicum: predicting changes in perceived clinical competence. *Counselling Psychology Quarterly*, 37(3), 333-353. <https://doi.org/10.1080/09515070.2023.2224243>
- Garcia M.B., Rosak-Szyrocka J., & Bozkurt A. (2025). Pitfalls of AI integration in education: Skill obsolescence, misuse, and bias. *Pitfalls of AI Integration in Education: Skill Obsolescence, Misuse, and Bias*, 1-545. <https://doi.org/10.4018/979-8-3373-0122-8>
- García-Vandewalle García J.M., García-Carmona M., Trujillo Torres J.M., & Moya Fernández P. (2023). Analysis of digital competence of educators (DigCompEdu) in teacher trainees: the context of Melilla, Spain. *Technology, Knowledge and Learning*, 28(2), 585-612. <https://doi.org/10.1007/s10758-021-09546-x>
- Gil-López A.J., Antelm-Lanzat A.M., Pérez-Navío E., & Cacheiro-González M.L. (2023). The relationship between teacher competence, classroom planning, and student engagement: A perspective from secondary education management teams. *Revista Complutense de Educacion*, 34(1), 109-119. <https://doi.org/10.5209/rced.77198>
- Gilroy A., McCloat A., & Harvey D. (2026). Self-determination theory in the secondary school classroom: A scoping review. *Social Sciences and Humanities Open*, 13. <https://doi.org/10.1016/j.ssaho.2026.102698>
- Granziera H., Collie R.J., & Slemp G.R. (2026). Teachers' work motivation: An examination of predictors and outcomes through the lens of job demands-resources theory. *Teaching and Teacher Education*, 170. <https://doi.org/10.1016/j.tate.2025.105290>
- Herrero-González D., López-Pastor V.M., Manrique-Arribas J.C., & Moura A. (2024). Formative and shared assessment: Literature review on the main contributions in physical education and physical education teacher education. *European Physical Education Review*, 30(3), 493-510. <https://doi.org/10.1177/1356336X231220995>
- Hinojosa-Torres C., Blázquez-Sánchez D., Barahona-Fuentes G., Espoz-Lazo S., Sanhueza-Mancilla C., Zavala-Crichton J.P., Hurtado-Guerrero M., Escobar-Jara N., & Yáñez-Sepúlveda R. (2025). Types of instruments for competency assessment in physical education teacher training: Systematic review. *Sportis: Scientific Technical Journal of School Sport, Physical Education and Psychomotricity*, 11(3). <https://doi.org/10.17979/sportis.2025.11.3.11548>
- Hirt C.N., Jud J., Rosenthal A., & Karlen Y. (2022). How Motivated are Teachers to Promote Self-Regulated Learning? A Latent Profile Analysis in the Context of Expectancy-Value Theory. *Frontline Learning Research*, 10(2), 45-63. <https://doi.org/10.14786/flr.v10i2.1113>
- Hoang A.-D. (2023). A bibliometrics analysis of research on teachers' satisfaction from 1956 to 2022. *International Journal of Educational Management*, 37(1), 164-185. <https://doi.org/10.1108/IJEM-01-2022-0009>
- Holguin-Alvarez J., & Cruz-Montero J. (2023). Gamified dances, digital and socio-emotional skills in collaborative virtual environments of university students surviving the Covid-19 virus. *Frontiers in Education*, 8. <https://doi.org/10.3389/feduc.2023.1179684>
- Huang D., Reeve J., Jang H.-R., Marsh H.W., Dicke T., & Cheon S.H. (2025). Teaching with confidence: How a skill-based intervention develops teacher self-efficacy and improves educational outcomes. *Teaching and Teacher Education*, 167. <https://doi.org/10.1016/j.tate.2025.105202>
- Huang H., Hu P., Ali F., Salmela-Aro K., & Tang X. (2026). Seeking effective school and family supports for adolescents' curiosity in learning: A cross-country comparison among China, the USA and Finland. *British Journal of Educational Psychology*, 96(3), 1140-1161. <https://doi.org/10.1111/bjep.70071>

- Ibda H., Syamsi I., & Rukiyati R. (2023). Professional elementary teachers in the digital era: A systematic literature review. *International Journal of Evaluation and Research in Education*, 12(1), 459-467. <https://doi.org/10.11591/ijere.v12i1.23565>
- Idris I., Bahasoan A.N., & Wahdaniah W. (2025). How does work motivation and emotional intelligence affect teacher competence in remote areas? A systematic review of the literature. *International Journal of Productivity and Quality Management*, 46(5), 1-44. <https://doi.org/10.1504/IJPQM.2025.148928>
- Kasim U., Muslem A., Mustafa F., & Ibrahim H. (2024). TPACK, English Proficiency, and Technology Applications in Pre-service English Teacher Professional Development Teaching Practice. *Language Related Research*, 15(5), 145-171. <https://doi.org/10.29252/LRR.15.5.6>
- Kesler M., Kaasinen A., & Kervinen A. (2024). Teaching Science Outdoors: Supporting Pre-Service Teachers' Skill Development with the Help of Available Mobile Applications. *Education Sciences*, 14(11). <https://doi.org/10.3390/educsci14111218>
- Khine M.S. (2024). Artificial Intelligence in Education: A Machine-Generated Literature Overview. *Artificial Intelligence in Education: A Machine-Generated Literature Overview*, 1-735. <https://doi.org/10.1007/978-981-97-9350-1>
- Kong X., Liang H., Wu C., Li Z., & Xie Y. (2025). The association between perceived teacher emotional support and online learning engagement in high school students: the chain mediating effect of social presence and online learning self-efficacy. *European Journal of Psychology of Education*, 40(1). <https://doi.org/10.1007/s10212-024-00932-4>
- Kyriakides L., Creemers B., & Panayiotou A. (2020a). Developing and Testing Theories of Educational Effectiveness Addressing the Dynamic Nature of Education. *International Perspectives in Educational Effectiveness Research*, 33-69. https://doi.org/10.1007/978-3-030-44810-3_3
- Kyriakides L., Creemers B.P.M., Panayiotou A., & Charalambous E. (2020b). Quality and equity in education: Revisiting theory and research on educational effectiveness and improvement. *Quality and Equity in Education: Revisiting Theory and Research on Educational Effectiveness and Improvement*, 1-298. <https://doi.org/10.4324/9780203732250>