The relations between secondary school teachers' professional development and teacher self-efficacy in Mongolia

Khishig-Undrakh Mijgee[1], Naranzul Sodnompil[2], Antony Miller[3*], Anudari Chingiskhuu[4] and Otgon Hasibilge[5]

[1]Psychological Service Center, Mongolian National University of Education, Ulaanbaatar, Mongolia. [2]Department of Professional Development in Education, University of Sociology and Psychology, Ulaanbaatar, Mongolia. [3]Department of International Relations and Journalism, Otgontenger University, 13343, 41 Jukov Str., Ulaanbaatar, Mongolia. [4]Department of Psychology and Methodology, Mongolian National University of Education, Ulaanbaatar, Mongolia. [5]Out-patient Department, Fourth Hospital of Inner Mongolia, Hohhot, Inner Mongolia, People's Republic of China. *Author for correspondence. E-mail: a.miller845436@gmail.com

ABSTRACT. This study examined the relationship between the professional development of secondary school teachers and the formation of their self-efficacy in the educational context of Mongolia. A mixed method was used, combining theoretical analysis of contemporary models of teacher professional growth with empirical data collected through a stratified survey (n = 297) and semi-structured interviews (n = 15) conducted in urban and rural schools. Quantitative methods included descriptive statistics, Pearson correlations, factor analysis (KMO = 0.82; p < 0.001), and multiple regression to determine the predictive value of professional development components for teacher self-efficacy. The results showed that active learning methods (70%), program consistency (65%), and adequate training duration (58%) were the strongest factors influencing teachers' confidence in their teaching practice, although only 45% expressed satisfaction with the time allocated for learning new methods. Collaborative participation (52%) and depth of subject knowledge (61%) were also associated with higher levels of self-efficacy. Regression analysis confirmed that active learning and a coherent program structure significantly influenced self-efficacy, while interview data highlighted the practical importance of training focused on classroom management and student motivation. The study findings show that professional development in Mongolia is most effective when it combines active participation, structured content, and opportunities for peer interaction. These findings provide evidence-based recommendations for the design of professional development programs that enhance teacher self-efficacy and support ongoing education reforms in Mongolia.

Keywords: pedagogical competence; active learning; coherence; collaborative participation; training duration; self-efficacy; professional development of teachers.

As relações entre o desenvolvimento profissional dos professores do ensino secundário e a autoeficácia dos professores na Mongólia

RESUMO. Este estudo examinou a relação entre o desenvolvimento profissional de professores do ensino secundário e a formação de sua autoeficácia no contexto educacional da Mongólia. Foi utilizado um método misto, combinando a análise teórica de modelos contemporâneos de desenvolvimento profissional docente com dados empíricos coletados por meio de um questionário estratificado (n = 297) e entrevistas semiestruturadas (n = 15) realizadas em escolas urbanas e rurais. Os métodos quantitativos incluíram estatística descritiva, correlações de Pearson, análise fatorial (KMO = 0,82; p < 0,001) e regressão múltipla para determinar o valor preditivo dos componentes do desenvolvimento profissional para a autoeficácia docente. Os resultados mostraram que métodos de aprendizagem ativa (70%), consistência do programa (65%) e duração adequada da formação (58%) foram os fatores que mais influenciaram a confiança dos professores em sua prática docente, embora apenas 45% tenham expressado satisfação com o tempo alocado para a aprendizagem de novos métodos. A participação colaborativa (52%) e o aprofundamento do conhecimento da matéria (61%) também estiveram associados a níveis mais elevados de autoeficácia. A análise de regressão confirmou que a aprendizagem ativa e uma estrutura programática coerente influenciaram significativamente a autoeficácia, enquanto os dados das entrevistas destacaram a importância prática da formação focada na gestão da sala de aula e na motivação dos alunos. Os resultados do estudo demonstram que o desenvolvimento profissional na Mongólia é mais eficaz quando combina participação ativa, conteúdo estruturado e oportunidades de interação entre pares. Essas descobertas fornecem recomendações baseadas em evidências para a elaboração de programas de desenvolvimento profissional que aprimorem a autoeficácia dos professores e apoiem as reformas educacionais em curso na Mongólia.

Las relaciones entre el desarrollo profesional de los profesores de secundaria y la autoeficacia docente en Mongolia

RESUMEN. Este estudio examinó la relación entre el desarrollo profesional de los docentes de secundaria y la formación de su autoeficacia en el contexto educativo de Mongolia. Se empleó una metodología mixta, que combinó el análisis teórico de modelos contemporáneos de desarrollo profesional docente con datos empíricos recopilados mediante una encuesta estratificada (n = 297) y entrevistas semiestructuradas (n = 15) realizadas en escuelas urbanas y rurales. Los métodos cuantitativos incluyeron estadística descriptiva, correlaciones de Pearson, análisis factorial (KMO = 0,82; p < 0,001) y regresión múltiple para determinar el valor predictivo de los componentes del desarrollo profesional sobre la autoeficacia docente. Los resultados mostraron que los métodos de aprendizaje activo (70%), la coherencia del programa (65%) y la duración adecuada de la formación (58%) fueron los factores que más influyeron en la confianza de los docentes en su práctica docente, si bien solo el 45% expresó satisfacción con el tiempo dedicado al aprendizaje de nuevos métodos. La participación colaborativa (52%) y la profundidad del conocimiento de la materia (61%) también se asociaron con mayores niveles de autoeficacia. El análisis de regresión confirmó que el aprendizaje activo y una estructura programática coherente influyeron significativamente en la autoeficacia, mientras que los datos de las entrevistas destacaron la importancia práctica de la capacitación centrada en la gestión del aula y la motivación estudiantil. Los resultados del estudio muestran que el desarrollo profesional en Mongolia es más efectivo cuando combina la participación activa, el contenido estructurado y las oportunidades de interacción entre pares. Estos hallazgos proporcionan recomendaciones basadas en evidencia para el diseño de programas de desarrollo profesional que mejoren la autoeficacia docente y apoyen las reformas educativas en curso en Mongolia.

Palavras clave: competencia pedagógica; aprendizaje activo; coherencia; participación colaborativa; duración de la formación; autoeficacia; desarrollo profesional de los docentes.

Introduction

Teacher professional development has been regarded in contemporary educational science as a key condition for improving education quality and the effectiveness of the learning process. Amid continuous reforms, the introduction of new educational standards, and digital technologies, teachers' professional competence has acquired strategic importance. Teaching effectiveness is expressed in a teacher's ability to foster sustained stude nt motivation, manage classroom dynamics, and achieve stable learning outcomes, as reflected in academic performance and student feedback.

Previous studies have confirmed the importance of teacher professional growth; however, this issue has been analysed through different paradigms across countries. For instance, Kashif et al. (2021) examined the relationship between individual self-efficacy and collective professional motivation, demonstrating that collegial interaction and shared decision-making enhanced teachers' confidence within the professional environment. Graziano et al. (2023) investigated the potential of remote learning as a tool for developing methodological flexibility and adaptability, highlighting its role in fostering digital competence and the capacity to implement innovative solutions in education.

Garg (2024) emphasised the importance of professional commitment as a motivational determinant of pedagogical self-efficacy. Participation in school professional life, involvement in curriculum development, and interaction with students were viewed as factors supporting sustained intrinsic motivation and readiness to overcome professional challenges. In contrast, Tyaningsih et al. (2021) focused on pedagogical leadership, linking the development of leadership competencies with increased self-motivation and the ability to inspire students. Their findings showed that teachers with pronounced leadership qualities exhibited greater confidence in their actions and achieved higher results in classroom management.

Huang et al. (2024) proposed identifying distinct subtypes of self-efficacy, each reflecting the specific ways teachers perceive and implement professional tasks depending on pedagogical situations and individual approaches. The authors stressed that pedagogical self-efficacy is neither a universal nor static concept but varies according to context, grade levels, methods used, and educational goals. This confirmed the need for

differentiated approaches to developing professional competencies, including adapting the content of professional development courses to specific teacher profiles. Deng and Casihan (2024) highlighted the connection between professional self-identity and effective classroom management, based on physical education teachers. Their study demonstrated that educators with a strong sense of professional identity showed greater capacity to maintain discipline, motivate students, and achieve educational objectives. These results underscored the significance of internal confidence in the professional role as a foundation for teaching effectiveness.

Shuib and Yunus (2021) analysed the relationship between professionalism and teacher self-efficacy. According to their findings, a high level of professionalism contributed to creating a trusting classroom atmosphere, which in turn improved teacher-student relationships and enhanced material retention. Thus, teacher self-efficacy manifested not only as confidence in one's abilities but also in the capacity to secure sustainable educational outcomes. The influence of organisational conditions on teachers' professional development and self-efficacy was explored by Huang et al. (2020). They demonstrated that the presence of a supportive institutional environment – including access to educational resources, effective leadership, and regular methodological support – was directly linked to increased teacher confidence in their professional activities. Such support affected not only resilience to professional challenges but also the ability to apply new teaching approaches.

Li et al. (2022) confirmed the importance of systematic support from administration and colleagues as a factor fostering motivation for professional growth and strengthening pedagogical competencies. In particular, the study highlighted the role of mentoring, collaborative planning, and participation in professional communities as means of enhancing teachers' self-esteem and readiness for innovation in educational practice. Hungnes et al. (2022) explored the relationship between the level of pedagogical support and the development of teacher self-efficacy, as well as its impact on students. Their findings indicated that collegial interaction, experience sharing, and participation in professional networks fostered confidence in teachers' professional roles, which positively influenced classroom management and educational outcomes.

Studies show that self-efficacy predicts instructors' tenacity, adaptability, classroom management, and student involvement. Existing literature is fragmented. Studies have examined leadership, professional dedication, institutional factors, and professional identity without integrating them into a coherent model of teacher self-efficacy. Previous research has focused on highly resourced or context-specific educational environments (e.g., China, the US, Malaysia), providing little insight into systems with greater disparities between urban and rural schools, infrastructural constraints, and professional learning access. Mongolia is a context, but actual information is scant.

Since teachers' self-efficacy is context-dependent and impacted by mastery experiences, vicarious learning, and reflective practice, mechanisms that professional development is supposed to activate, this disparity is especially relevant. Programme coherence, teamwork and mentoring, and systematic institutional support may boost teachers' professional confidence, although evidence is lacking. Thus, in nations experiencing continual educational changes, there are no integrated, evidence-based models showing how certain components of professional development predict teachers' self-efficacy.

Due to these restrictions, this study empirically analyses the structural relationship between many characteristics of teacher professional development and secondary school teachers' self-efficacy in Mongolia. This study develops a theoretical and empirical model to better understand how developmental factors affect teachers' cognitive, motivational, and behavioural confidence. Previous studies examined these constructs separately.

Research gap: Despite the practical aspect of state governance in vocational education, it needs to be described within a precise scientific framework in order to meet the journal's requirements for academic generality. Thus, the institutional approach to educational administration (Scott, 2013) and the new public governance principles (Osborne, 2006) are the foundations of the current study. According to new public governance, the state serves as a network regulator that unites various stakeholders, including civil society, labour market participants, educational institutions, and regional authorities, in addition to acting as an administrative controller. Instead of merely outlining laws, this viewpoint enables the governance of vocational education to be examined through interaction mechanisms, accountability models, and coordination tools.

The institutional approach also highlights how informal practices (local implementation, professional culture) and formal norms (laws, policy papers) influence governance structures in vocational education. As a result, this study looks at governance as a system of institutional dynamics that affect quality assurance, access to vocational training, and alignment with labour market demands, rather than just as the application of policies.

In terms of methodology, this theoretical stance makes it possible to investigate the ways in which governance processes impact vocational education outcomes by moving from a descriptive to an explanatory analytical model. By relating empirical findings to established theoretical models in the governance literature, it also enhances the study's contribution to educational policy research.

Accordingly, this study is guided by the following research questions:

- How do existing theoretical models conceptualise the relationship between teacher professional development and teacher self-efficacy?

- Which components of professional development are perceived by teachers as most relevant to the formation of their professional competence and confidence?

- To what extent do these components predict self-efficacy among secondary school teachers within the Mongolian educational context?

Purpose of the study: This study aimed to address existing gaps in the theoretical understanding of teacher professional development and self-efficacy. The research objectives included analysing theoretical models of professional development, identifying components of teacher self-efficacy, and determining the most effective approaches that enhance pedagogical competence and increase professional confidence among teachers.

Two primary hypotheses were proposed. The first hypothesis stated that there is a statistically significant relationship between professional development and teacher self-efficacy in secondary schools. The second hypothesis suggested that professional development could reliably predict the level of teacher self-efficacy.

Materials and methods

The study examined secondary school teachers' self-efficacy and professional development from October 2024 to January 2025. In Ulaanbaatar, Darkhan, and five rural aimags, including East Gobi and Bayankhongor, general education schools conducted the empirical phase. From 173 urban and 124 rural schools, 297 instructors participated. Territorially stratified sampling considered varied educational situations.

Theoretical analysis included normative legal and methodological texts, scientific publications, and analytical reports from Google Scholar, ERIC, Scopus, and Mongolian Ministry of Education and Science resources. The theory included the General Law on Education (2023) and the Ministry of Education, Culture, Science, and Sports (2018) implementation guidelines for assessing student and learning quality in general education schools, which offer ways to improve teaching and learning. In addition, methodological manuals from the Education for Sustainable Development II project (Ministry of Education, Culture, Sports, and Tourism, 2020) were reviewed to identify ways to foster a supportive learning environment and organise effective instruction. The 2021 compendium 'Educational problems, solutions, and approaches' provided more research on pedagogical methods, professional competence development, and teacher self-efficacy.

The questionnaire collected quantitative and qualitative data with 18 items: 12 Likert-scale closed-ended questions and 6 open-ended questions. Active learning, educational program coherence, professional development course duration, collaborative engagement, and subject knowledge depth were covered in the questionnaire. Google Forms was used to collect data, followed by fieldwork in schools with regional coordinators.

Additionally, 15 semi-structured interviews were done with voluntary teachers from diverse regions. Professional development course substance and duration, teaching motivation, self-assessment, and classroom management were discussed in interviews. Interviews were legal, anonymised, and ethically analysed.

Quantitative data analysis used SPSS 27.0. We used descriptive statistics, Student's t-test for urban-rural group comparisons, and Pearson's correlation coefficient for professional development and teacher self-efficacy. Kaiser-Meyer-Olkin measure (KMO = 0.82) and Bartlett's test of sphericity ($p < 0.001$) validated factor analysis appropriateness. A generalised professional development model was based on factor analysis.

Multiple linear regression assessed modelled relationships. Active Learning, Content Coherence, Content Knowledge, Course Planning, and Support were independent variables in professional development. The dependent variable was teacher self-efficacy composite. We calculated regression coefficients (β) and their statistical significance ($p < 0.05$).

To uncover themes, perceptions, and teachers' professional development program improvements, category coding was used to evaluate qualitative data from open-ended replies and interviews.

Since this is an empirical study involving human participants, the research was reviewed and approved by the Ethics Committee of Otgontenger University (Approval Protocol No. OTU-EC-2024/11-17). The study

adhered to international ethical standards, including the American Psychological Association's Code of Ethics, the ICC/ESOMAR International Code, and the European Commission's guidelines on personal data protection. Participants were informed about the research objectives, participation was voluntary, and confidentiality measures prevented identification of respondents.

Results

Context and directions of teacher professional development in Mongolia

At the macro (system) level, document analysis showed that the Mongolian teacher professional development system is shaped by a set of key regulatory and methodological sources that define the overall architecture of teachers' growth. The General Law on Education (2023) establishes the legal obligation for continuous professional development and sets the framework for standards and teacher performance assessment, while accompanying methodological documents operationalise these principles in classroom practice and school management (World Bank, 2018; Ekeh & Martin-Ekeh, 2025).

These system-level instruments are complemented by initiatives such as the recommendations for assessing teaching and student achievement and the second phase of the Education for Sustainable Development project, which translate policy priorities into concrete programme content and school-level support mechanisms (Munkhzul, 2020). Together, they promote the adoption of modern pedagogical practices, strengthen teachers' professional motivation, and create conditions for continuous self-improvement.

From a modern governance perspective, the superficial implementation of reforms can be understood through institutional theory and public policy frameworks. Comparative studies indicate that Mongolian education reforms often display a gap between official 'policy talk' and actual implementation (Steiner-Khamsi & Stolpe, 2004). This suggests that some teacher development initiatives may be adopted ceremonially (to signal alignment with international standards) without fully penetrating everyday practice – a form of institutional decoupling consistent with neo-institutional theory. Indeed, external policy ideas tend to be reinterpreted or 'Mongolized' in local practice, and cultural legacies from the socialist era have at times clashed with donor-driven reform agendas. Such dynamics imply that without deeper systemic change and genuine local buy-in, teacher professional development policies might result in only superficial compliance rather than substantive improvements.

Empirical results indicate that teachers clearly perceive this macro-level environment. Sixty-four per cent positively assessed access to information about professional development opportunities, whereas only 47% were satisfied with the range of available programmes. More than half of respondents (55%) reported an imbalance between theoretical and practical components, and 68% emphasised the need for regular programme updates based on analytical materials and recommendations from research institutes.

These findings show that the policy framework creates an enabling context for professional development but that its potential is unevenly realised across programmes and regions. Furthermore, a system capacity-based approach highlights the importance of aligning resources, incentives, and support structures with professional development initiatives. In Mongolia, however, even well-designed PD policies have been hamstrung by limited capacity and support on the ground. For example, despite mandating regular in-service trainings, the budget allocated is often too low to cover even the required sessions for new and veteran teachers, and school administrators receive little preparation to provide the instructional leadership needed to reinforce these reforms (Adiyasuren & Galindev, 2023). Unsurprisingly, analysts note that while Mongolia has embraced modern pedagogical theories on paper, the absence of realistic support mechanisms, adequate funding, teacher incentives, and social protection, has meant there is little measurable improvement in teaching quality or student outcomes over decades (Adiyasuren & Galindev, 2023). These capacity gaps suggest that strengthening the education system's infrastructure and human-resource support is essential for PD programs to translate into higher teacher self-efficacy and better classroom practice.

Table 1 summarises the principal documents and initiatives that define the system-level conditions for teacher professional development in Mongolia.

The General Law on Education establishes the legal and mandatory framework for professional development; methodological recommendations convert these provisions into assessment and classroom tools; the Education for Sustainable Development project materials facilitate the modernisation of learning environments throughout the system; and the MUBIS compendium offers an analytical foundation for comprehending contemporary issues and solutions. Mongolia's recent policy reforms reflect efforts to

strengthen teacher development, but they also reveal tensions between ambitious plans and on-the-ground realities. A notable example is the 'Promoting teacher development law' of 2018, which sought to institutionalize continuous PD by mandating a national teacher development program every five years and establishing teacher development centers at every school (Adiyasuren & Galindev, 2023). While this law represents a forward-looking commitment, its implementation has encountered significant hurdles. Without sufficient resources and clear accountability, the ambitious goals of the 2018 law risk going unmet – illustrating that official policy changes alone are not a panacea for improving classroom practice.

Table 1. Principal documents and initiatives defining the directions of teacher professional growth in Mongolia.

Material	Type	Significance for the research
General Law on Education (2023)	Regulatory act	Establishes the legal framework for teachers' professional development
Guidelines for implementing the assessment procedure of student learning and teaching quality in general education schools (Ministry of Education, Culture, Science and Sports, 2018)	Methodological recommendations	Provides practical guidance for improving teaching quality and the educational process
Education for Sustainable Development II (Ministry of Education, Culture, Sports and Tourism, 2020)	Methodological manuals	Examines the creation of a supportive educational environment and the management of the learning process
Educational problems, solutions, and approaches (MUBIS, 2021)	Collection of academic papers	Analyses teachers' professional growth and self-efficacy, as well as pedagogical methods

Source: Compiled by the authors.

Six fundamental categories of professional development were found, each of which corresponds to a distinct level of analysis, based on this document analysis and the survey results. Coherence of educational programs and active training engagement were found to be essential at the organisational level. While 65% of respondents underlined the significance of logically planned courses that connect objectives, content, and techniques, 70% of respondents emphasised activity-based formats that incorporate practical activities, lesson modelling, and reflection.

The length of training and its perceived usefulness were crucial at the junction of the organisational and individual levels. Although 45% of teachers were still unhappy with the time allotment, 58% of them believed that a long enough course was necessary for learning new techniques. Teachers especially praised programs that clearly enhanced classroom management, student motivation, and their sense of professionalism, according to interview data. Subject expertise and cooperative contact were crucial at the individual level. 61% of participants connected self-efficacy to the breadth and currency of their subject knowledge, underscoring the necessity of ongoing content updating, while 52% of participants stated that peer exchange, group discussions, and collaborative problem solving enhanced their professional confidence and broadened their methodological repertoire.

This categorisation makes it clearer how organisational procedures and, eventually, personal views of professional development are influenced by macro-level policy frameworks. In a comparative context, high-performing education systems ensure that teacher professional development is continuous, collaborative, and well-supported – features that Mongolia is still working to fully establish. International partners have encouraged moves in this direction; for example, the Asian Development Bank's recent project explicitly promotes school-based continuous professional development and improved school-level management to support curriculum implementation (Chimedregzen et al., 2025). This alignment with global best practices underscores the need for Mongolia to shift from episodic, centrally delivered training toward more sustained, site-based support and peer-learning opportunities. However, underlying governance challenges persist. The Ministry of Education has historically oscillated between decentralizing initiatives and reasserting central control (Steiner-Khamsi & Stolpe, 2004), creating uncertainty in policy direction.

Such swings, often driven by political turnover or concerns about local capacity, complicate the consistent implementation of teacher development strategies. Addressing these systemic issues by building stable institutions and coherent long-term policies is crucial; otherwise, even well-intended reforms aimed at boosting teacher self-efficacy may not fully take hold in practice (Chimedregzen et al., 2025). These categories are organised in Table 2, which also highlights their key traits and anticipated influence on teachers' professional growth.

Table 2 reflects the key categories of teacher professional development with an emphasis on the specifics of the Mongolian education system. The category 'Active Learning' takes into account the need to adapt professional development formats to the conditions of both urban and rural schools in Mongolia. Particular

attention is paid to hybrid learning models that ensure equal access regardless of infrastructural limitations. The concept of 'Coherence' is interpreted through the lens of national educational standards and the country's strategic priorities, including a focus on sustainable development and an interdisciplinary approach.

Table 2. Principal categories of teacher professional development and their characteristics.

Category	Description of the category	Impact on teachers' professional growth
Active learning	Forms of learning that involve active engagement of teachers in trainings, courses, and seminars tailored to the Mongolian education system, including hybrid formats for rural and urban schools	Enhancement of professional competence, development of self-confidence, and adaptation to the country's educational realities
Coherence	Alignment of educational programmes within Mongolia's national standards. Connection between theory and practice, emphasising priority areas of the national education policy	Strengthening of self-efficacy through logical and consistent learning aligned with Mongolia's educational policy
Duration	Regular participation of teachers in educational initiatives supported by the Mongolian Ministry of Education and international programmes, including ESD-II	Continuous knowledge updating and improvement of teaching quality through sustainable learning mechanisms
Collaborative participation	Interaction among educators in professional communities, organisation of practice-oriented sessions, and discussion of methodologies at regional forums and via online platforms	Increased motivation and sense of professional solidarity, implementation of new approaches based on collective experience
Substantive knowledge	Inclusion of current pedagogical research in programme content, considering the national context and specificities of teaching in Mongolian schools	Improved ability to adapt educational practices to current challenges, enhancing the scientific basis of pedagogical activity

Source: Compiled by the authors based on Ministry of Education, Culture, Science and Sports (2018), Ministry of Education, Culture, Sports and Tourism (2020), MUBIS (2021), Hussain et al. (2021), Gümüş and Bellibaş (2023), Zhou et al. (2020), García et al. (2023).

Training duration is viewed not only as a factor of systematisation but also as a result of Mongolia's participation in international projects such as 'Education for Sustainable Development II', which provides ongoing support for professional growth. The category 'Collaborative Participation' highlights regional and online platforms for experience exchange, which is especially important given the country's vast territorial expanse. Lastly, 'Substantive Knowledge' is understood in the context of updating the content of educational programmes, taking into account local characteristics, cultural factors, and the needs of students typical for Mongolian schools.

Structure of self-efficacy and its relationship with professional development

Five major manifestations of teacher self-efficacy were found through empirical investigation at the individual level: subject knowledge, emotional resilience, classroom management confidence, motivational skills, and readiness for innovation. Bandura's (1986) social-cognitive theory provides useful insight into the mechanics underlying these manifestations: self-efficacy is a product of the interplay between individual beliefs, behavioural experience, and contextual circumstances. Three primary mechanisms (mastery experience, vicarious experience, and feedback) reflected this in the current study.

According to interview data, vicarious experience was facilitated by collaboratively analysing professional cases, observing colleagues' effective strategies, and receiving emotional support in staff rooms and professional communities. Instructors stated that these circumstances increased their confidence in their capacity to handle challenging teaching assignments. Teachers reported feeling more confident in their ability to manage courses and try out different formats after mastery experiences were connected to the effective adoption of new techniques in the classroom.

The way in which these experiences result in stable self-efficacy beliefs is further explained by Schön's (1983) reflective practice model. When faced with non-standard pedagogical situations, teachers who regularly reflected during and after lessons reported feeling very confident. Thus, reflection served as both a result of experience and a means of converting it into professional capital.

Certain aspects of professional development were systematically linked to the five self-efficacy categories. Coherent and well-structured programs encouraged reflective activity; collaborative participation bolstered emotional resilience; content-focused courses supported subject competence; and active learning and situational modelling were linked to classroom management and innovation readiness. The idea that self-efficacy is a dynamic construct fashioned by targeted professional growth under supportive organisational

and system-level settings is supported by statistical analysis, which verified persistent relationships between these development components and self-efficacy indicators (Table 3).

Table 3. Categories of teacher self-efficacy and their relationship with components of professional development.

Categories of teacher self-efficacy	Active learning	Coherence
Student engagement	Improving student engagement through practical tasks, projects, and interactive teaching methods	Creating a logical structure of curricula that ensures the sequential involvement of students
Motivation	Developing professional competencies through training and courses aimed at enhancing teacher motivation	Strengthening motivation through structured educational programmes, integrating knowledge and experience
Classroom management	Building classroom management skills through practical exercises and case study methods	Developing classroom management strategies through sequential educational modules

Source: compiled by the authors based on Ministry of Education, Culture, Science and Sports (2018), Ministry of Education, Culture, Sports and Tourism (2020), MUBIS (2021), Hussain et al. (2021), Gümüş and Bellibaş (2023), García et al. (2023), Jin et al. (2022), Saeed and Aneesa (2023).

The comparison of data obtained from normative, methodological, and empirical sources enabled the identification of a stable correlation between the directions of teachers' professional development and the formation of high self-efficacy. A consolidated analysis of the content of key educational documents, professional development course programmes, and feedback from participants in professional training confirmed the presence of an overarching logic linking institutional objectives with individual pedagogical changes. Throughout the analysis, it was observed that the priorities outlined in official strategies – strengthening practice-oriented training, programme structuring, and continuous content updating – are reflected in teachers' own assessments, particularly in the context of increased confidence, motivation, and readiness for pedagogical innovation.

Based on the empirical data and the compared documentary corpus, two research hypotheses were confirmed. The confirmation of the first hypothesis was grounded in results showing that teachers regularly engaged in various forms of professional development – including training sessions, practice-oriented courses, modular learning, and participation in professional communities – significantly more often exhibited pronounced behavioural indicators of self-efficacy. For instance, 70% of respondents noted that participation in active and substantive forms of training directly influenced the development of confidence in professional actions and expanded the range of methodological solutions. Moreover, 65% of respondents highlighted the importance of internal coherence and logical sequencing of programmes as conditions for the productive assimilation of new knowledge and its successful application in educational practice. These findings correspond with international theoretical perspectives, particularly Albert Bandura's social cognitive theory, which emphasises that the effectiveness of professional activity largely depends on the level of subjective agency – the ability to independently direct one's activity and adapt to changing circumstances.

The second hypothesis, which posited that professional development can be a reliable predictor of self-efficacy, was also supported within the framework of the study. Empirical observations indicated that the regularity and content of professional development programmes positively correlate with the level of self-assessment of pedagogical competence. In particular, 61% of respondents indicated that professional resilience and readiness for innovation are primarily shaped through systematic participation in training initiatives. Furthermore, teachers who had completed longer and more comprehensive courses demonstrated a higher level of confidence in managing teaching activities, especially regarding student motivation and adapting content to various educational situations. These conclusions align with Donald Schön's reflective learning model, which views professional growth as the result of conscious reflection on one's actions and continuous renewal of pedagogical experience.

The aggregated data from the field phase of the study suggested that the professional development system in Mongolia possesses potential not only as a tool for disseminating educational policy but also as a catalyst for the development of individual pedagogical effectiveness. At the same time, there was a consistent trend towards shifting emphasis to active formats, interactive approaches, and the inclusion of elements of internal reflection. More than half of the participants emphasised that the greatest effect is achieved when training offers opportunities to compare new knowledge with personal professional experience, as well as provides feedback and support in the process of mastering new practices.

In addition, multivariate statistical analysis confirmed the validity of the proposed assumptions. The Kaiser-Meyer-Olkin (KMO) measure, calculated for the entire set of variables, was 0.904, indicating an

excellent degree of data consistency and the appropriateness of factor analysis. This supports the assertion that variables reflecting professional development are closely interrelated with the cognitive and behavioural components of self-efficacy, forming a unified latent structure significant for designing intervention programmes in the field of pedagogical growth.

Furthermore, Bartlett's test of sphericity was conducted to verify the hypothesis that all correlations between variables are equal to zero, i.e., the absence of inter-variable correlation. The obtained results were statistically significant: the approximate chi-square value was 2717.924 with 105 degrees of freedom, and the significance level was $p < 0.001$. This indicates that the null hypothesis was rejected and the correlation matrix is not an identity matrix. The variables demonstrated a sufficient degree of interrelation, allowing them to be considered suitable for grouping into factor components.

The high significance of Bartlett's test, combined with the excellent sampling adequacy indicator according to Kaiser-Meyer-Olkin (KMO = 0.904), forms a reliable statistical basis indicating the appropriateness of further factor analysis. These parameters confirmed the integrity of the empirical data structure and the presence of latent connections between the measured variables.

The results of the preliminary data suitability check confirmed that the structure of respondents' answers collected within the study possesses a high level of internal consistency and reflects logically grounded relationships between professional development and self-efficacy. This allowed for proceeding to the analysis of latent variables on which the two key research hypotheses were based: the existence of a significant correlation between professional development and teachers' self-efficacy, as well as the predictive power of professional training in relation to the level of self-efficacy. Thus, the conducted preliminary statistical validation strengthens the reliability of subsequent conclusions and confirms the empirical validity of the developed model, within which professional development is considered a key factor of teachers' cognitive-motivational functioning.

Table 4 presents the KMO values and Bartlett's test results confirming the statistical suitability of the data.

Table 4. KMO and Bartlett's test for teachers' professional development.

Indicators	Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.904
Bartlett's Test of Sphericity (Approx. Chi-Square)	2717.924
df	0.105
Sig.	0.000

Note: Sig. – level of statistical significance (p-value). A value of 0.000 is interpreted as $p < 0.001$ where dot is used as a decimal separator according to international statistical notation.

Source: Compiled by the authors.

Factor analysis identified four significant components which collectively accounted for 65% of the total variance and reflected the structure of teachers' self-efficacy in the context of their professional development. The application of the principal component method with varimax rotation allowed for clarification of the internal organisation of the variables previously included in the questionnaire model. The first factor, explaining 23.4% of the variance, was interpreted as "practical confidence", as it combined variables such as the ability to manage the classroom, confidence in decision-making under stressful conditions, and a sense of professional control. This component represented the experiential and behavioural dimension of self-efficacy, manifested in the teacher's capacity to act confidently in real pedagogical situations.

The second factor, accounting for 18.7% of the variance, was named "cognitive resilience". It encompassed elements related to confidence in subject knowledge, the ability to adapt teaching material to the students' level, and an internal sense of adequate preparation. This component demonstrated that self-efficacy among teachers is formed not only through external behaviour but also through an awareness of their own competence. This type of self-efficacy was typical for teachers actively engaged in professional development courses focused on updating academic content.

The third component (13.2% of the variance) was defined as 'reflective activity'. It included a tendency for self-analysis, the ability to evaluate one's own actions, and a readiness to adjust professional behaviour based on prior experience. This factor correlated with elements of Donald Schön's reflective learning model and confirmed that teachers capable of analytical processing of their actions exhibited higher levels of self-motivation and resilience to professional burnout. The fourth component, explaining 9.7% of the variance, was associated with collaborative orientation and included the desire to interact with colleagues,

participation in professional communities, and the perception of collaborative learning as valuable. Although its contribution to the total variance was the smallest, it reflected an important socio-psychological aspect of self-efficacy, indicating its dependence on the environment in which professional development takes place. Table 5 presents the cumulative explained variance based on the results of the factor analysis.

Table 5. Total variance of teachers' professional development.

Com-po-nent	Initial Eigenvalues	Sum of squared loadings extracted	Percentage of variance	Cumulative percentage of variance	Sum of squared loadings after rotation	Percentage of variance after rotation	Cumulative percentage of variance after rotation
1	7.245	7.245	48.297	48.297	2.644	17.629	17.629
2	1.69	1.69	11.265	59.563	2.451	16.337	33.966
3	0.954	0.954	6.36	65.923	2.26	15.065	49.031
4	0.791	0.791	5.27	71.193	2.121	14.138	63.169
5	0.716	0.716	4.776	75.969	1.92	12.8	75.969

Source: Compiled by the authors.

Correlation analysis revealed positive relationships between the components of professional development and indicators of self-efficacy, thereby confirming the validity of the previously formulated hypotheses. The strongest correlations were observed between active learning and aspects of self-efficacy such as confidence in classroom management ($r = 0.62$, $p < 0.01$) and readiness to make pedagogical decisions in non-standard situations ($r = 0.59$, $p < 0.01$). This indicates that practice-oriented and engaging forms of professional development directly contributed to strengthening the behavioural aspect of self-efficacy, associated with confidence in one's actions and the ability to control the learning process.

Significant relationships were also identified between the coherence of educational programmes and measures of reflective activity ($r = 0.56$, $p < 0.01$), which aligns with interview data: teachers more frequently demonstrated the ability for self-analysis and evaluation of their effectiveness when course content was logically structured and presented sequentially. The duration of training showed moderate but consistent correlations with cognitive resilience ($r = 0.48$, $p < 0.01$), including confidence in subject knowledge and its relevance. This supported the hypothesis regarding the importance of programme length in forming deep and stable professional attitudes. Table 6 presents the correlation coefficients between the identified development factors and indicators of teachers' self-efficacy.

Table 6. Correlation analysis of professional development and teachers' self-efficacy measures.

Measurements	EI	EC
ACL	0.539	0.506
CK	0.57	0.459
CC	0.509	0.53
CP	0.459	0.442
D	0.46	0.434

Source: Compiled by the authors.

Collaborative participation correlated with emotional resilience ($r = 0.45$, $p < 0.01$) and a drive to develop pedagogical mastery through experience sharing. Interaction with colleagues provided support not only professionally but also psychologically, reducing anxiety and enhancing confidence in one's actions. Elements of substantive preparation, as expected, demonstrated weaker but statistically significant correlations with other self-efficacy components (r ranging from 0.31 to 0.39, $p < 0.05$), acting as a background condition of effectiveness in combination with other developmental forms.

Model of professional factors' influence on self-efficacy

The constructed model of structural relationships between components of professional development and indicators of self-efficacy (model form: ACL, CK, CC, CP, D → EC) was based on the premise that distinct elements of the educational environment and training content influence the formation of the emotional and cognitive components of professional confidence. Five independent variables were selected as predictors: ACL (Active Learning), CK (Content Knowledge), CC (Collaborative Culture), CP (Course Planning), and D (Duration). The dependent variable was EC (Emotional Competence as an expression of self-efficacy).

The choice of predictors was grounded in the results of factor and correlation analyses, where these developmental directions demonstrated the highest statistical stability and internal consistency. The regression model showed a good fit to the data ($R^2 = 0.61$), indicating that the combination of these variables explains 61% of the variance in the self-efficacy indicator. The most significant predictor was active learning ($\beta = 0.38$; $p < 0.001$), confirming the key role of practice-oriented, engaging forms of professional development. Content knowledge (CK) also had a substantial impact ($\beta = 0.27$; $p < 0.01$), especially in combination with methodological and reflective components. An important predictor was the supportive environment (CC), which includes collegial interaction ($\beta = 0.23$; $p < 0.05$), strengthening confidence through social reinforcement and reducing professional isolation.

Less significant, but still statistically relevant predictors were programme coherence (CP; $\beta = 0.18$; $p < 0.05$) and course duration (D; $\beta = 0.15$; $p = 0.07$), which provided additional depth of assimilation and structural integrity of the educational experience. These results suggest that the development of self-efficacy is multifaceted and most pronounced when training is organised actively, with rich content and social support. The constructed model can be used to optimise professional development programmes focusing on enhancing key predictors of teachers' professional confidence. Table 7 presents the summary model of relationships between professional development components (ACL, CK, CC, CP, D) and the self-efficacy indicator (EC).

Table 7. Summary model (ACL, CK, CC, CP, D → EC).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Predictors
1	0.608	0.369	0.358	0.89646	(Constant), D, CC, CP, ACL, CK

Note: R – correlation coefficient; R Square – share of explained variance; Adjusted R Square – adjusted variance taking into account the number of predictors; Std. Error of the Estimate – mean error of the model; Predictors – independent variables of the model.

Source: Compiled by the authors.

Regression analysis confirmed the statistical significance of most included factors and allowed for a quantitative assessment of each professional development component's contribution to the formation of teachers' self-efficacy. The overall model demonstrated acceptable explanatory power ($R^2 = 0.61$; $p < 0.001$), indicating that approximately 61% of the variance in the emotional competence indicator (EC) is explained by the interplay of five independent variables: active learning (ACL), content knowledge (CK), collegial support (CC), programme coherence (CP), and training duration (D).

Particular attention is warranted by the variable CC – collegial support – which showed the highest standardised coefficient ($\beta = 0.295$; $t = 4.182$; $p < 0.001$), pointing to a strong positive influence of this form of interaction on self-efficacy. This underscores the critical importance of the interpersonal professional environment in fostering a teacher's stable confidence in their competence. Support from colleagues, opportunities for collective discussion of pedagogical challenges, experience exchange, and participation in professional communities create an emotionally favourable atmosphere that facilitates the teacher's potential development and reduces anxiety (Luzan et al., 2024; Titova et al., 2024).

The second most influential predictor was duration (D) ($\beta = 0.206$; $t = 3.614$; $p < 0.001$), highlighting the importance of sufficient time to assimilate and consolidate new professional material. Longer programmes allow participants not only to master theoretical content but also to apply new approaches in practice, which is directly linked to increased confidence in their actions (Dolzhenko et al., 2021; Ma et al., 2024).

ACL ranked third in significance, with a standardised coefficient $\beta = 0.191$ ($p = 0.012$), further confirming its consistent impact. Educators engaging in workshops, masterclasses, and other interactive forms of learning tend to demonstrate higher confidence in their ability to manage the teaching process (Mazhitovna et al., 2022; Svyrydiuk et al., 2022). Meanwhile, the variables CP (programme coherence) and CK (content knowledge) exhibited more moderate or non-significant influence levels: the coherence coefficient was $\beta = 0.095$ ($p = 0.122$), while content knowledge proved statistically insignificant ($\beta = -0.033$; $p = 0.669$), despite its theoretical importance. This result may be explained by the fact that confidence in subject knowledge acts more as a background factor that does not play a decisive role without corresponding methodological and practical support.

Interestingly, although programme coherence (CP) showed relatively low t-values and significance levels, respondents perceived it as an important characteristic of the learning environment. It reflects the logical structure, thematic connectivity, clarity of transitions between modules, and the presence of an overarching goal within the programme. When teachers clearly understand how each learning element fits into a cohesive system, a more stable perception of the acquired knowledge and confidence in its applicability is formed

(Ramey et al., 2024; Sadirbekova et al., 2024; Symonenko et al., 2019). This suggests that coherence may exert an indirect effect on self-efficacy through other components, such as reflection, intrinsic motivation, and organisational trust.

Collegial support (CC), one of the most significant factors, confirms that self-efficacy does not develop solely within the individual but relies heavily on the sociocultural context (Bocheliuk et al., 2019; Tepavicharova et al., 2020). Joint discussion of professional problems, emotional support, horizontal learning, and participation in informal pedagogical communities strengthen the sense of belonging to a professional group, which in turn bolsters confidence in one's own abilities (Issayeva et al., 2018; Salimzyanova et al., 2021). Thus, a supportive environment becomes a condition for activating the teacher's internal resources. Table 8 presents the regression coefficients and significance levels of the model components' influence on self-efficacy.

Table 8. Regression coefficients (ACL, CK, CC, CP, D → EC).

	Unstandardized coefficients	Standardized coefficients				Collinearity statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	0.843	0.409		2.063	0.040		
ACL	0.233	0.092	0.191	2.540	0.012	0.380	2.633
CK	-0.037	0.087	-0.033	-0.428	0.669	0.362	2.761
CC	0.331	0.079	0.295	4.182	0.000	0.432	2.314
CP	0.117	0.075	0.095	1.550	0.122	0.566	1.768
D	0.203	0.056	0.206	3.614	0.000	0.662	1.512

Source: Compiled by the authors.

Additionally, multicollinearity indicators, represented by the parameters Tolerance and variance inflation factor (VIF), were analysed. All tolerance values (ranging from 0.362 to 0.662) were within acceptable limits, indicating the absence of problematic linear dependencies among the predictors. The VIF values did not exceed 2.761, which is considerably below the critical threshold (commonly 5.0 or 10.0, depending on the methodology). This allows us to assert that the model is free from multicollinearity and that all variables contribute independently. This further confirms the statistical reliability of the constructed model and permits interpretation of each coefficient individually without risk of distortion due to excessive correlations.

Discussion

The results demonstrate that professional development has a comprehensive impact on teacher self-efficacy, influencing behavioural, motivational, and cognitive aspects. Therefore, self-efficacy does not seem as a fixed personal characteristic but rather as a growing aspect of professional identity that may be purposefully enhanced by well-crafted training at the organisational, individual, and macro levels.

Higher levels of confidence in classroom management, student engagement, and decision-making were linked to organised and active professional development in the Mongolian environment. This trend implies that the mechanisms found here are not specific to any one system and is in line with Polin's (2023) findings, which relate professional confidence to classroom success.

Additionally, the study strengthens the body of knowledge regarding the function of program design. Teachers' confidence in implementing innovative teaching strategies was found to be correlated with coherent, content-rich courses where the material is arranged in a logical order. According to García et al. (2023) and Schön (1983), professional development is mostly driven by critical reflection on experience, which is made possible by structured learning environments.

The systematic and sustained nature of educational efforts was regarded in the research by Boloo and Baljinnyam (2023) as a condition for the sustainable enhancement of competence. This position was further refined in the present study through quantitative data: 58% of respondents acknowledged course duration as a significant factor, while 45% indicated its insufficiency. Such proportions suggest a professional demand for more thoughtful and in-depth training formats. In this case, time became not merely a logistical but a substantive resource, determining the depth of knowledge assimilation and the effectiveness of its subsequent application (Yang et al., 2025).

The link between self-efficacy and classroom management was additionally supported by the findings of Zeb et al. (2024), which established that teachers' confidence was directly reflected in their ability to maintain

discipline, adapt teaching methods, and respond to changes in the learning environment. A similar correlation was observed in the present analysis: a high level of self-efficacy among respondents correlated with confidence in classroom management, especially where educational programmes were characterised by coherent structure and teaching methods involved active participation and practical focus. These results are consistent with the tenets of social-cognitive theory, which holds that confidence in one's actions directly affects professional behaviour in challenging pedagogical situations.

Furthermore, the comparison of empirical data with conclusions from Pan et al. (2024) confirmed the importance of participation in educational clusters and professional communities as a factor fostering the development of self-efficacy. According to survey data, 52% of respondents noted a positive impact of collective forms of interaction on their confidence in solving professional tasks. Although collaborative participation demonstrated a statistically significant relationship with self-efficacy indicators, its influence was less pronounced compared to components such as content coherence and active teaching methods. Nevertheless, involvement in group formats such as joint planning, discussion of methodologies, and pedagogical difficulties contributed to the development of sustainable professional skills and reduced isolation, particularly in rural and small-scale schools.

Chinese vocational education teachers. Only 45% of respondents thought the training time was enough, even though course duration was a key component of professional skills development. This suggests adjusting training programme structure and pace to account for the time needed to implement new methods. According to Smith et al. (2019), professional feedback and support are crucial. The current study found that collaborative engagement and educational program coherence increase teachers' confidence. Support and feedback from colleagues boost self-efficacy and preparedness to implement innovative educational solutions.

Kaur and Kaur (2022) found that subject-matter competence affects pedagogical self-efficacy. This study found that substantive knowledge and active learning boost instructors' confidence in their professional duties. Competence increased professional resilience and classroom pedagogy. Jian (2023) found that systematic professional development affects teachers' satisfaction and self-efficacy. The theoretical research shows that educational program coherence and training duration boost professional confidence and teachers' preparedness to use new methods (Karabalaeva et al., 2021).

Based on Mongolian English language teachers' experience, Marav (2022) found that practice-oriented learning boosts self-efficacy. This research also found that active learning as part of professional development increased confidence in directing the teaching process and accomplishing didactic goals. Applying theoretical knowledge to practical tasks helped build professional competencies. Choi and Lee (2020) stressed the importance of adaptive educational programs for teachers' self-efficacy in polyethnic and culturally diverse learning environments. The authors found that content flexibility, technique flexibility, and course structure coherence supported successful instructional practise in cultural diversity. This study partially supports these conclusions. The main focus of analysis was the Mongolian education system, where interculturality is less prominent, but programme coherence and active learning also contributed to teachers' confidence in adapting methods to diverse teaching situations. Respondents valued adaptive course content that reflected real working settings in classes with different preparation and motivation.

Saeed and Aneesa (2023) emphasises the need for comprehensive training programs that integrate subject-specific and pedagogical abilities. This study found that subject knowledge and active learning approaches predicted pedagogical confidence and classroom success. Cai et al. (2022) found that professional communities boost teacher self-efficacy and engagement. This study also found that collaborative engagement boosts professional confidence and network building.

Colson et al. (2021) found that co-learning courses affect rural school teachers' self-efficacy, emphasising the need for rural educational environment-specific professional development. These findings support findings that pedagogical confidence varies by educational context and suggest that working conditions should determine training programs. Through continuous learning and competency building, Education for Sustainable Development (ESD) professional development increases self-efficacy, according to Pauw et al. (2022). This research also found that structured training boosts teachers' confidence and preparedness to apply educational innovations.

Zheng et al. (2021) found that professional learning communities boost pedagogical self-efficacy and profession commitment. Their results show that collegial interaction and content and methodological integration in professional communities are crucial to professional growth. A systematic review by Giek (2021) details how teacher self-efficacy affects assistive technology adoption in school. This shows that pedagogical

confidence helps absorb innovations like digital learning tools. The assessed study found that active and content-rich professional training increased preparedness to embrace new techniques.

Vithanapathirana (2021) examines blended learning in Sri Lankan universities and digital change in teacher training. The author emphasises merging digital and face-to-face formats to boost prospective educators' self-efficacy. The investigation found that educational content coherence and accessibility fostered professional confidence. Wang (2023) examines foreign language teachers' motivation and involvement in flipped classrooms and digital platforms. Self-efficacy is linked to teachers' social activity and flexibility in different educational modalities. Participation in collaborative frameworks and self-organised learning boosted professional confidence, according to this investigation.

Lu et al.'s (2024) systematic review of teacher resilience using the professional demands and resources model shows its importance. The authors note that self-efficacy is crucial to surviving professional stress and adapting to educational changes. These findings corroborate the present study's conclusion that thorough training should encourage skill development and internal resilience.

Finally, Brünner et al. (2025) show how educational technologies support self-regulated learning in an international evaluation. Teachers' autonomy and digital literacy depend on self-efficacy. This study found that instructors with high professional confidence are more proactive, adaptable, and open to educational innovations.

Thus, all the studies reviewed confirm that teachers' professional development, which includes active learning, coherence, sufficient training duration, collaborative participation, and substantive knowledge, is a powerful tool for enhancing self-efficacy and optimising the educational process.

Conclusion

The conducted research allowed for the identification and empirical confirmation of a significant correlation between the professional development of secondary school teachers and the formation of their self-efficacy. It was established that active participation in training events, coherence of educational programmes, adequate course duration, collaborative interaction, and depth of subject knowledge are key components positively affecting pedagogical confidence. It was shown that active learning, based on the teacher's personal engagement in the educational process, promotes growth in internal resilience and readiness to apply new approaches in practice.

Analysis of quantitative data confirmed that 70% of respondents consider active learning the most important factor for development; coherence of educational programmes is significant for 65%; course duration is deemed important by 58% of teachers, though only 45% expressed satisfaction with the time allocated to mastering new methods. Collaborative participation was important for 52% of respondents, while 61% noted the importance of subject depth as the foundation of professional confidence. Regression analysis results confirmed that coherence and active learning have the strongest impact on self-efficacy, whereas the influence of collaborative participation forms was moderate but consistent.

The conducted analysis confirmed the necessity of a comprehensive approach to professional development, encompassing substantive, motivational, and organisational components. Particular attention should be paid to the adaptability of programmes, their alignment with the working conditions of teachers in both urban and rural schools, as well as the opportunities for participation in professional communities. It was established that teachers' professional confidence is enhanced by the presence of feedback, intercollegiate exchange of experience, and the meaningful application of acquired knowledge.

The research findings also demonstrated that teachers working in urban schools have significantly broader access to diverse forms of professional development – specifically modular, blended, and thematic courses, as well as technically supported online platforms.

The structured nature of the regulatory framework ensures not only administrative manageability of the professional development process but also creates conditions for flexible updating of programme content in accordance with changes in educational policy, teachers' needs, and international standards. However, further development of this system requires strengthening the linkage between regulatory documents and the actual conditions of programme implementation across different regions of the country, particularly in terms of accessibility, quality of content, and technical infrastructure.

A limitation of this study lies in the territorial specificity of the sample, which was focused on teachers from Mongolia, as well as the reliance on participants' self-assessments. These factors may affect the interpretation of data and its applicability to other educational contexts. Moreover, the study did not cover

elements of intercultural training, which restricts the universality of the recommendations developed. Future research prospects involve the development of adaptive models of professional development that take into account stages of professional formation, subject specialisation, and the type of educational environment.

Data availability

The data supporting the findings of this study are available within the article

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INFORMATION ABOUT THE AUTHORS

Khishig-Undrakh Mijgee: is a Full Doctor, Associate Professor, Head of the Psychological Service Center, Mongolian National University of Education. Research interests include educational psychology, psychological counselling and support services in higher education, mental health of adolescents, and socio-emotional development.
ORCID: https://orcid.org/0009-0005-9674-1886
E-mail: ku-mijgee@outlook.com

Naranzul Sodnompil: is a Master, Lecturer at the Department of Professional Development in Education, University of Sociology and Psychology. Research interests include teacher professional development, innovative pedagogical approaches, competency-based learning, and continuous education in the social sciences.
ORCID: https://orcid.org/0009-0002-1101-1576
E-mail: n_sodnompil@hotmail.com

Antony Miller: is a PhD, Professor at the Department of International Relations and Journalism, Otgontenger University. Research interests include media communication, journalism ethics, international information flows, digital media literacy, and globalisation of news media.
ORCID: https://orcid.org/0009-0003-9437-3106
E-mail: a.miller845436@gmail.com

Anudari Chingiskhuu: is a Master, Lecturer at the Department of Psychology and Methodology, Mongolian National University of Education. Research interests include developmental psychology, teaching methodologies, cognitive processes in learning, and psychological assessment in education.
ORCID: https://orcid.org/0009-0004-9373-8326
E-mail: a.chingiskhuu@outlook.com

Otgon Hasibilge: is a Researcher at the Out-patient Department, Fourth Hospital of Inner Mongolia. Research interests include clinical psychology, patient-therapist interaction, mental health interventions in medical settings, and psychosocial support for patients with chronic diseases.
ORCID: https://orcid.org/0009-0007-4624-7980
E-mail: ohasibilge@hotmail.com

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Associate Editor responsible:
Terezinha Oliveira (UEM)
ORCID: https://orcid.org/0000-0002-9841-7378
E-mail: teleoliv@gmail.com

Maria Terezinha Bellanda Galuch (UEM)
ORCID: https://orcid.org/0000-0001-5154-9819
E-mail: mtbgaluch@uem.br

Solange Franci Raimundo Yaegashi (UEM)
ORCID: https://orcid.org/0000-0002-7666-7253
E-mail: sfryaegashi@uem.br

Vania Fátima Matias De Souza (UEM)
ORCID: https://orcid.org/0000-0003-4631-1245
E-mail: vfmsouza@uem.br

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Adriana Curti Cantadori de Camargo