

Professional Development Access, Participation Persistence, and Completion Readiness among Education Personnel

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ABSTRACT

This study addressed the conditions that enabled education personnel to access professional development, sustain their participation, and prepare for successful completion. A cross-sectional explanatory-predictive latent-variable design was employed among education personnel in the DepEd Schools Division Office of Apayao. Data were gathered using a validated researcher-developed questionnaire and analyzed through descriptive statistics, partial least squares structural equation modeling, bootstrapping, mediation analysis, PLSpredict, and importance-performance map analysis. Results showed that professional development access was moderate, while participation persistence and completion readiness were high. Schedule and workload accommodation, financial and logistical support, technology and connectivity, recovery after interruption, and

organizational support for completion emerged as the main areas of concern. The measurement model demonstrated acceptable reliability, convergent validity, and discriminant validity. Professional development access significantly predicted participation persistence and completion readiness, while participation persistence also significantly predicted completion readiness. Mediation analysis confirmed that participation persistence partially transmitted the effect of access on completion readiness. The model demonstrated moderate explanatory and predictive power, indicating that access and persistence were important but not exclusive determinants of readiness. Importance-performance analysis identified schedule accommodation, supervisory support, and financial assistance as priority areas for intervention. The findings underscored that providing professional development opportunities was insufficient without sustained organizational support. Protected learning time, flexible recovery arrangements, reliable technology, logistical assistance, and continuous facilitator guidance were recommended to strengthen participation and completion outcomes.

Keywords: *completion readiness, education personnel, participation persistence, partial least squares structural equation modeling, professional development, professional learning*

INTRODUCTION

Professional development is a continuing part of work in education because the knowledge and skills required of personnel do not remain fixed throughout their careers. Changes in curriculum, assessment, technology, learner needs, administrative systems, and public expectations require education personnel to examine their practices and acquire competencies that respond to their actual responsibilities. Professional development is most useful when it goes beyond attendance at isolated seminars and provides opportunities for active learning, collaboration, practice, feedback, reflection, and sustained support. A review of methodologically rigorous studies found that well-designed professional development can strengthen professional practice and contribute to

improved learner outcomes, particularly when learning activities are connected to the daily work of educators (Darling-Hammond et al., 2017).

The value of professional development, however, depends first on whether personnel can gain fair and practical access to it. Access is not limited to the existence of a training program or the receipt of an invitation. It also concerns whether a learning opportunity is affordable, relevant, reachable, properly scheduled, supported by the institution, and delivered through a modality that participants can reasonably use. Findings from the Teaching and Learning International Survey showed that participation in professional development remained constrained by conflicts with work schedules, limited incentives, training costs, and insufficient employer support. These barriers suggest that a program may be available on paper while remaining difficult to attend for personnel whose duties, financial resources, or work arrangements prevent meaningful participation (Organisation for Economic Co-operation and Development [OECD], 2019).

Professional development access is especially important because learning opportunities are not always distributed according to personnel needs. Work assignment, employment category, location, experience, available technology, and institutional support may influence who receives information, who is nominated, and who can attend without sacrificing essential duties. Online and blended programs have widened the possible reach of professional learning by reducing some geographical and scheduling restrictions. At the same time, digital delivery does not automatically produce equitable access. Participants may still encounter limited connectivity, inadequate devices, unfamiliar learning platforms, or course designs that do not account for differences in professional roles and learning needs. A systematic review of online professional development for teachers found that successful programs required thoughtful course design, relevant content, participant interaction, facilitator support, and opportunities to apply learning rather than the simple transfer of conventional training materials to an online platform (Bragg et al., 2021).

Philippine policies recognize professional learning as a continuing responsibility shared by individual professionals and their institutions. Republic Act No. 10912 established a national policy for strengthening continuing professional development among regulated professionals and emphasized the continuing improvement of professional competence through formal, nonformal, informal, self-directed, and online learning. For teaching personnel, the Philippine Professional Standards for Teachers further defined professional growth across career stages and provided standards for identifying development needs and expected levels of practice. These policies treat professional development not merely as a requirement for certificates or promotion but as a means of improving the competence, ethical practice, and service of professionals (Department of Education, 2017; Republic of the Philippines, 2016).

The Department of Education has also sought to strengthen the quality and organization of professional learning through the National Educators' Academy of the Philippines. DepEd Order No. 001, s. 2020 provided guidelines for recognizing professional development programs and courses for teachers and school leaders, while DepEd Memorandum No. 50, s. 2020 identified professional development priorities intended to guide program planning and implementation. The NEAP professional development framework links learning programs with induction, career progression, professional standards, and the competencies required by personnel at different career stages. This policy direction places responsibility on education offices to provide learning opportunities that are quality-assured, responsive to identified needs, and connected with the work and career development of participants (Department of Education, 2020a, 2020b).

Access to a program does not necessarily mean that a participant will remain engaged until it ends. Education personnel may register or begin a course but later experience difficulty maintaining attendance, completing activities, participating in discussions, or meeting submission requirements. This concern points to participation persistence, which may be understood as the sustained effort to continue professional learning despite competing duties, interruptions, fatigue, or difficulty with the course. Persistence is shown not only by physical or virtual presence but also by consistent participation, timely completion of learning tasks, willingness to return after an interruption, and continued engagement with facilitators and fellow participants. Research has identified distinct patterns of professional development participation among teachers, with differences associated with

personal characteristics, professional experience, self-efficacy, job satisfaction, and school location. Such findings indicate that participation cannot be treated as a uniform experience across all personnel (Yoon & Kim, 2022).

The design and delivery of professional learning can either support or weaken persistence. Participants are more likely to remain involved when the content is connected to their responsibilities, expectations are clearly communicated, activities are manageable, and assistance is available when difficulties arise. Studies of formal online professional communities have shown that participation develops through the interaction of personal motivation, course content, facilitators, and peers. This means that persistence is influenced by both the participant and the learning environment rather than by personal determination alone (Dille & Røkenes, 2021). In a cross-national randomized controlled trial involving teachers enrolled in online courses, personalized messages and targeted support increased course completion among practicing teachers. The findings provide evidence that timely institutional assistance can help participants continue when their engagement begins to decline (Azzolini et al., 2023).

Completion readiness is another important condition because personnel may have access to professional development and may intend to participate but still feel unprepared to meet all course requirements. Completion readiness refers to the perceived ability and available conditions needed to finish a professional development activity successfully. It may include adequate time, access to required technology, confidence in using the learning platform, understanding of course expectations, ability to manage tasks, willingness to seek assistance, and support from supervisors, facilitators, and colleagues. Research involving secondary school teachers found that digital literacy and social presence influenced their acceptance and continued use of online professional development. Participants were more willing to remain engaged when they possessed the skills needed to use the platform and felt connected with other people in the learning environment (Mailizar et al., 2022).

Readiness also involves self-management. Professional development courses, particularly those delivered online or through blended arrangements, often require participants to organize their own study periods, monitor unfinished tasks, meet deadlines, and continue learning with less direct supervision. Evidence from large-scale online courses showed that self-regulated learning strategies, including goal setting, time management, strategic planning, and help-seeking, were associated with learner behavior and goal attainment (Kizilcec et al., 2017). For education personnel who combine professional learning with teaching, administrative, and family responsibilities, readiness to complete a program may therefore depend on whether they can manage these demands and whether the institution provides enough time, guidance, and technical assistance.

Professional development access, participation persistence, and completion readiness represent related but distinct parts of the professional learning experience. Access allows personnel to enter a program. Persistence reflects their capacity and willingness to continue participating after entry. Completion readiness concerns whether they possess the personal, technical, and organizational conditions needed to satisfy the requirements and reach the end of the program. A participant may have access but discontinue because of schedule conflicts or limited support. Another may participate regularly but feel unprepared to complete assessments, outputs, or technology-based requirements. These differences show why participation rates alone may provide an incomplete picture of professional development. A meta-analysis of 102 quantitative studies found that online professional development produced positive effects at the teacher and classroom levels, but the strength of these effects differed according to program quality and delivery characteristics. Professional learning must therefore be examined not only by counting participants but also by considering the conditions that enable them to remain engaged and complete their learning successfully (Morina et al., 2025).

Although earlier studies have examined barriers to professional development, patterns of participation, acceptance of online learning, participant retention, and the outcomes of completed programs, these areas are often studied separately. Less attention has been given to how access, persistence, and completion readiness operate together among education personnel working within the same organizational setting. Examining these variables jointly can help determine whether professional development concerns begin before enrollment, emerge while personnel are participating, or become more evident as participants approach the completion of requirements. Such evidence is needed because increasing the number of training opportunities will not be

sufficient when personnel cannot access them equitably, maintain their participation, or prepare themselves to complete the required work.

Understanding these conditions can support the planning of professional development programs that are responsive to the actual circumstances of education personnel. Information on access can guide decisions about scheduling, nomination, funding, communication, delivery modality, and technological support. Evidence concerning participation persistence can help program managers identify why personnel remain engaged or withdraw from learning activities. Findings on completion readiness can inform the provision of orientation, mentoring, technical assistance, protected learning time, and follow-up support. Thus, the study examines professional learning as a continuing process that begins with the opportunity to participate, develops through sustained engagement, and leads toward the capacity to complete the program successfully.

Literature Review

Equitable Access and Institutional Support

Professional development access refers to the extent to which education personnel can obtain and participate in learning opportunities that are relevant to their duties and professional needs. Access is affected by more than the number of programs offered. It also depends on the availability of information, selection procedures, scheduling, financial assistance, workload arrangements, internet connectivity, learning resources, and approval from supervisors. Online professional development can extend training to personnel who are geographically distant from major learning centers and can reduce expenses associated with travel and accommodation. Still, digital delivery may create another form of exclusion when participants have unstable internet service, limited devices, or insufficient technical assistance. Lay et al. (2020) explained that online professional development offers flexibility, broader reach, lower delivery costs, and opportunities for collaboration across locations, but its effectiveness depends on sound pedagogy, suitable technology, and meaningful participant interaction. Institutional conditions also shape whether personnel view participation as possible and worthwhile. Zhang et al. (2022) found that workplace conditions, including leadership support, autonomy, colleague relationships, and work-related pressure, were associated with teachers' autonomous motivation to undertake continuous professional development. These findings show that access should be examined through both opportunity and feasibility. Education personnel may be formally eligible for a program but remain unable to participate when institutional arrangements do not provide time, resources, encouragement, or practical accommodations for professional learning.

Motivation and Participation Persistence

Participation persistence concerns the sustained willingness and effort of education personnel to remain involved in professional development after they have entered a program. Initial registration may be prompted by certification requirements, promotion opportunities, supervisor instructions, or personal interest, but these reasons may not be sufficient to maintain participation when workloads increase or course requirements become difficult. Zhang et al. (2021) found that motivation to participate in continuous professional development was related to both personal and school-level factors. Prior learning experiences, teaching experience, self-efficacy, beliefs about learning, leadership, collegial support, and workplace pressure influenced how teachers approached professional learning. Persistence is therefore shaped by the value participants attach to the program, their belief that they can meet its demands, and the support available while they are enrolled. Personal determination also matters when professional learning requires independent study and sustained effort. Lan (2022) identified motivation and grit as important psychological qualities in self-directed professional development, particularly when educators must initiate learning activities, continue despite difficulty, and take responsibility for their own progress. Participation persistence should not be interpreted simply as compliance or attendance. It includes active involvement in learning tasks, continued communication with facilitators and peers, recovery from interruptions, and a willingness to complete demanding activities. Programs that connect learning with the participant's role, provide

manageable requirements, recognize progress, and offer timely support are more likely to sustain participation than programs built mainly around compulsory attendance.

Learning Conditions and Completion Readiness

Completion readiness describes the degree to which education personnel possess the personal capacity, technological resources, time, information, and institutional assistance required to finish professional development requirements. This form of readiness is particularly important in online and blended programs where participants are expected to manage deadlines, navigate digital platforms, monitor their progress, and complete activities with less direct supervision. Stavermaann (2025) reviewed 115 studies on online teacher professional development and found that online and blended arrangements generally produced positive outcomes, but synchronous interaction, collaborative activities, and facilitator support were decisive features of participants' evaluations. Course completion therefore depends not only on personal ability but also on whether the learning environment provides clear instructions, responsive guidance, and opportunities for interaction. Brugha et al. (2024) likewise found that course aims, structure, cost, relevance, and meaningful connections with other practitioners influenced educators' engagement and experience in an online professional development course. Readiness also requires an accurate understanding of one's learning progress. Li and Copur-Gencturk (2025) reported that teachers' self-reported knowledge gains did not significantly correspond with gains measured through direct assessments, although participants who regularly monitored their understanding demonstrated stronger measured improvement in content knowledge. Completion readiness should consequently include technological confidence, task management, metacognitive monitoring, help-seeking behavior, and awareness of course expectations. Personnel may intend to finish a program but remain insufficiently prepared when they lack protected learning time, suitable equipment, technical competence, or reliable feedback concerning their performance.

Program Quality and Meaningful Professional Learning

The completion of professional development becomes valuable when the program produces learning that can be applied to professional responsibilities. Completion certificates alone do not establish that participants have gained knowledge, improved practice, or developed competencies relevant to their work. Kennedy (2016) explained that professional development programs differ according to the ideas they seek to teach and the strategies used to help participants incorporate those ideas into their established practices. Effective programs must therefore address not only what education personnel should learn but also how they will understand, practice, evaluate, and apply the learning. Evidence from a randomized controlled trial conducted by Gore et al. (2017) showed that a structured and collaborative professional development model produced significant improvements in the quality of teaching. The program involved shared analysis, professional dialogue, and repeated opportunities to examine practice rather than participation in a single training event. Ventista and Brown (2023), through a systematic review of 125 studies, also found that professional learning supported by ongoing coaching, collaboration, frequent participation, and longer duration was more likely to contribute to favorable outcomes. These findings indicate that access, persistence, and completion readiness should be examined alongside program quality. Easy access to a weak program may lead to completion without meaningful professional growth, while a well-designed program may still fail when participants cannot remain involved or meet its demands. Professional development systems must therefore combine fair access, sustained support, sound learning design, and clear opportunities for applying acquired knowledge to educational work.

METHODS

Research Design

The study employed a cross-sectional explanatory-predictive latent-variable design. This design treated professional development access, participation persistence, and completion readiness as distinct constructs represented by several observable indicators. It was selected because the inquiry sought not only to describe the

standing of each construct but also to determine how professional development access explained participation persistence and completion readiness. The design further allowed participation persistence to be examined as a possible mechanism through which access contributed to readiness to complete professional development requirements. Data were gathered at one point in time without manipulating the work conditions, training opportunities, or learning experiences of the participants. Partial least squares structural equation modeling was integrated into the design because it supported the simultaneous assessment of measurement quality, direct relationships, indirect effects, and predictive performance.

Research Locale

The study was conducted within the DepEd Schools Division Office of Apayao, located at the Capitol Compound, San Isidro Sur, Luna, Apayao, and in the educational units operating under its administrative supervision. The locale provided an appropriate setting because professional development activities were implemented through division-level initiatives, school-based programs, learning and development sessions, professional learning communities, online courses, and other recognized training arrangements. Conducting the study across the division allowed the investigation to capture professional development experiences occurring in different work assignments and organizational units while maintaining a common administrative and policy environment.

Participants and Sampling Technique

The participants consisted of education personnel who were actively serving within the DepEd Schools Division Office of Apayao and its supervised educational units during the data collection period. Eligibility required current engagement in education-related work and prior exposure to, enrollment in, or eligibility for professional development activities. Personnel who had participated in the instrument validation or pilot administration were excluded from the main survey to prevent prior familiarity with the questionnaire from affecting their responses. A multistage proportionate stratified random sampling procedure was used. The population was first arranged according to work setting and functional cluster, after which the required share from each stratum was determined proportionately. Eligible personnel within every stratum were then selected through a computer-generated randomization process. The adequacy of the sample was evaluated through statistical power analysis and the inverse square root method for partial least squares structural equation modeling rather than through the use of a fixed-percentage sampling rule.

Research Instrument

Data were collected through a researcher-developed questionnaire titled the *Professional Development Access, Participation Persistence, and Completion Readiness Scale*. The instrument contained three substantive sections and did not request personal profile information. The first section measured the extent to which personnel could obtain program information, institutional approval, sufficient time, financial and logistical resources, technological support, and professional development opportunities relevant to their work. The second section assessed continuity of attendance, engagement in learning activities, recovery from participation interruptions, maintenance of effort, and continued involvement despite competing professional responsibilities. The third section examined time-management capacity, technological preparedness, understanding of program requirements, confidence in seeking assistance, capability to complete required outputs, and perceived organizational support for program completion. Responses were recorded through a five-point agreement scale ranging from 1, interpreted as strongly disagree, to 5, interpreted as strongly agree.

The initial item pool underwent content validation by specialists in educational management, professional learning, research methodology, and instrument development. The validators evaluated each statement according to relevance, clarity, representativeness, and alignment with the operational definition of its assigned construct. The item-level content validity indices ranged from 0.88 to 1.00, while the scale-level content validity index based on average agreement was 0.95. The professional development access, participation persistence, and completion readiness sections obtained S-CVI/Ave values of 0.95, 0.96, and 0.94, respectively. Statements that did not fully

satisfy the validation criteria were revised for precision, while overlapping items were removed. Cognitive checking was also conducted with education personnel who possessed characteristics similar to those of the intended participants. Their comments led to minor revisions in wording, instructions, and the sequencing of several statements.

The revised questionnaire was pilot-tested among education personnel who were not included in the final study. Corrected item-total correlations ranged from 0.47 to 0.79, indicating that the retained statements contributed adequately to their respective scales. The pilot administration yielded an overall Cronbach's alpha coefficient of 0.93. The professional development access scale obtained a Cronbach's alpha of 0.89, the participation persistence scale obtained 0.87, and the completion readiness scale obtained 0.91. McDonald's omega coefficients were 0.90, 0.88, and 0.92 for the three scales, respectively, while the overall omega coefficient was 0.94. These results demonstrated high internal consistency and confirmed that the instrument produced dependable measurements of the three constructs. Only items that satisfied the content-validity requirements, demonstrated corrected item-total correlations above the acceptable threshold, and contributed to reliability coefficients of at least 0.70 were retained in the final version.

Data Gathering

Permission to conduct the study was secured from the authorized officials of the DepEd Schools Division Office of Apayao. After approval had been granted, coordination was undertaken with the concerned office and school authorities to establish the distribution schedule and to ensure that participation did not interfere with regular duties. Eligible personnel received an information sheet explaining the purpose of the study, the nature of their participation, the expected completion time, the voluntary character of the survey, and the measures adopted to protect their responses. Only those who provided informed consent proceeded to the questionnaire.

The instrument was administered through secured electronic forms and printed copies when internet access or device availability made online completion impractical. The same instructions, item sequence, response scale, and consent provisions were used in both formats. Participants completed the questionnaire independently, and no immediate supervisor was permitted to observe individual responses. Neutral reminders were issued during the agreed collection period without identifying personnel who had not yet participated. Retrieved questionnaires were checked for substantial missing data, repetitive response patterns, and evident nonengagement. Valid responses were assigned numerical codes, encoded in a password-protected database, and reviewed against the original forms before statistical analysis. Identifying information was not included in the analytical dataset.

Data Analysis

The analysis was performed in several stages. Data quality was first examined through missing-value inspection, response-pattern screening, distribution assessment, and collinearity diagnostics. Median, interquartile range, composite score, and response distribution were used to describe each indicator and construct. These measures were chosen to provide a more defensible summary of ordered survey responses than reliance on the arithmetic mean alone.

Partial least squares structural equation modeling was used as the principal analytical procedure. The measurement model was assessed through indicator loadings, Cronbach's alpha, McDonald's omega, composite reliability, and rho_A. Convergent validity was evaluated using the average variance extracted, while discriminant validity was tested through the heterotrait-monotrait ratio. Items with weak loadings were considered for removal only when their deletion improved construct quality without narrowing the intended meaning of the scale.

After measurement adequacy had been established, the structural model was examined through variance inflation factors, standardized path coefficients, coefficients of determination, effect sizes, and predictive relevance. Statistical significance was evaluated using bias-corrected bootstrapping with 10,000 resamples and a .05 significance level. The direct paths from professional development access to participation persistence and completion readiness were tested, together with the path from participation persistence to completion readiness. The indirect effect of professional development access on completion readiness through participation persistence was also estimated.

Out-of-sample predictive ability was examined through PLSpredict rather than relying only on model fit within the collected dataset. Predictive errors from the structural model were compared with those generated by a linear benchmark model. An importance-performance map analysis was then conducted to identify professional development conditions that exerted relatively strong influence on completion readiness but received comparatively low performance scores. This final procedure provided a basis for identifying practical intervention priorities instead of limiting the interpretation to whether statistical relationships were significant.

Ethical Consideration

Ethical clearance was secured from the appropriate institutional review authority before the survey was administered. Participation remained voluntary, and no personnel were included through pressure, directive, or implied employment consequence. The consent form stated that participants could decline to answer any item or discontinue their participation without penalty. Supervisors and program coordinators were not informed about who accepted, refused, or withdrew from the study.

Confidentiality was maintained by excluding names, employee numbers, and other direct identifiers from the questionnaire. Electronic records were stored in an encrypted and password-protected location, while printed materials were kept in a secured cabinet accessible only to the researcher. Data were analyzed and reported in aggregate form so that individual responses could not be connected with a particular person, school, office, or functional unit. The study observed the principles of informed consent, privacy, minimal risk, fair participant selection, responsible data handling, and accurate reporting. Records were retained only for the period required by the research institution and were scheduled for secure deletion or destruction after that period.

RESULTS AND DISCUSSION

Table 1. *Data Screening and Preliminary Diagnostic Results*

Diagnostic Criterion	Result	Interpretation
Records retained after response-quality screening	96.20%	Adequate proportion of usable responses
Item-level missing responses	0.70%	Minimal missing data
Cases excluded for invariant or repetitive responses	2.10%	Potentially disengaged responses removed
Cases excluded for substantial missing information	1.70%	Incomplete records removed
Skewness range	-0.68 to 0.47	No serious distributional concern
Kurtosis range	-0.73 to 0.61	No serious concentration or dispersion issue
Full collinearity variance inflation factor	1.42 to 2.61	No critical collinearity or common-method concern
Indicator variance inflation factor	1.18 to 2.74	Acceptable indicator independence
Standardized root means square residual	0.061	Acceptable model approximation

The preliminary assessment showed that the dataset was suitable for partial least squares structural equation modeling. Most of the returned questionnaires passed the response-quality requirements, while only a small proportion was removed because of extensive missing information or repetitive answer patterns. Item-level missingness was below one percent and was addressed using the median of the corresponding construct after records with substantial omissions had been excluded. This procedure preserved valid responses without allowing incomplete questionnaires to distort the analysis.

The skewness and kurtosis values indicated that the survey responses did not display extreme distributional irregularities. Although partial least squares structural equation modeling did not require strict multivariate normality, the absence of severe distributional problems strengthened the stability of the estimates. The full collinearity and indicator variance inflation factors were also below critical levels. The results indicated

that the constructs were statistically distinguishable and that no predictor contained excessive redundant information.

The standardized root mean square residual of 0.061 further indicated that the differences between the observed and model-implied correlations were sufficiently small. Taken together, the screening results provided a sound basis for proceeding with the descriptive, measurement, structural, and predictive analyses.

Table 2. *Descriptive Results for the Study Constructs and Their Dimensions*

Construct and Dimension	Median	Interquartile Range	Interpretation
Professional Development Access	3.18	0.78	Moderate
Availability of program information	3.75	0.75	High
Relevance of available programs	3.68	0.69	High
Supervisory approval and encouragement	3.41	0.88	High
Schedule and workload accommodation	2.88	0.94	Moderate
Financial and logistical support	2.63	1.00	Moderate
Technology and connectivity support	3.00	0.88	Moderate
Participation Persistence	3.46	0.64	High
Continuity of attendance	3.69	0.63	High
Engagement in learning activities	3.56	0.69	High
Recovery after interruption	3.13	0.88	Moderate
Maintenance of effort	3.44	0.75	High
Interaction with peers and facilitators	3.48	0.75	High
Completion Readiness	3.58	0.61	High
Understanding of program requirements	3.88	0.63	High
Technological preparedness	3.50	0.75	High
Time-management capacity	3.19	0.88	Moderate
Confidence in seeking assistance	3.63	0.69	High
Confidence in completing required outputs	3.75	0.63	High
Perceived organizational support for completion	3.06	0.94	Moderate

Note. Interpretation ranges were as follows: 1.00 to 1.80, very low; 1.81 to 2.60, low; 2.61 to 3.40, moderate; 3.41 to 4.20, high; and 4.21 to 5.00, very high.

Professional development access received an overall median of 3.18, placing it at the moderate level. The result showed that education personnel had some opportunities to participate in professional learning, but access was not consistently supported across all conditions. Program information and relevance obtained high assessments, indicating that personnel generally knew about available learning opportunities and recognized their connection to professional responsibilities. Supervisory approval and encouragement also reached the high level, although its median was only slightly above the boundary for that interpretation.

The weakest access conditions concerned financial and logistical support, schedule and workload accommodation, and technology and connectivity. Financial and logistical support received the lowest median of 2.63. This indicated that expenses related to transportation, internet use, accommodation, materials, or other participation requirements remained a concern. Schedule and workload accommodation also received only a moderate rating. Personnel could therefore be informed about a relevant program and receive permission to attend, yet still experience difficulty because training schedules overlapped with official responsibilities or required them to complete regular work outside training hours.

The moderate rating for technology and connectivity showed that online and blended professional development had not fully removed access barriers. Digital delivery widened the possible reach of training but did not guarantee stable participation when connectivity, equipment, or technical assistance was inconsistent. This result supported the observation of Bragg et al. (2021) that online professional development depended not only on access to a platform but also on appropriate technology, interaction, guidance, and course design.

Participation persistence was rated high, with an overall median of 3.46. Education personnel generally continued attending learning sessions, performed assigned activities, and interacted with other participants. Continuity of attendance obtained the highest median within the construct. The result indicated a strong willingness to remain involved once personnel had entered a program. This persistence may have reflected professional responsibility, recognition of the value of the program, or the desire to meet training requirements.

Recovery after interruption, however, received a moderate median of 3.13. This was an important concern because professional development participation did not always proceed without disruption. Work demands, connectivity problems, family responsibilities, urgent office assignments, and scheduling conflicts could interrupt participation. The lower result showed that returning to the program and regaining learning momentum were more difficult than maintaining participation under stable conditions.

Completion readiness obtained a high overall median of 3.58. Personnel understood program expectations, felt capable of seeking assistance, and expressed confidence in completing required outputs. Understanding of program requirements received the highest score in the entire table. This indicated that the programs generally communicated their outputs, procedures, and completion standards clearly.

Despite this positive result, time-management capacity and perceived organizational support for completion remained moderate. Personnel may have known what they needed to accomplish but lacked protected time to finish it. The findings therefore distinguished cognitive readiness from situational readiness. Participants could understand the requirements and possess the confidence to complete them while still struggling to balance training work with official duties. The result was consistent with the barriers reported in the Teaching and Learning International Survey, where schedule conflicts, costs, and limited employer support constrained participation in professional development (Organisation for Economic Co-operation and Development [OECD], 2019).

Table 3. *Content Validation and Pilot-Test Results of the Research Instrument*

Scale	Item-Level Content Validity Index Range	Scale-Level Content Validity Index	Corrected Item- Total Correlation Range	Cronbach's Alpha	McDonald's Omega	Interpretation
Professional development access	0.88 to 1.00	0.95	0.48 to 0.76	0.89	0.90	Highly reliable
Participation persistence	0.88 to 1.00	0.96	0.47 to 0.73	0.87	0.88	Highly reliable
Completion readiness	0.88 to 1.00	0.94	0.51 to 0.79	0.91	0.92	Highly reliable
Entire instrument	0.88 to 1.00	0.95	0.47 to 0.79	0.93	0.94	Highly reliable

The content validation results showed that the questionnaire adequately represented the constructs examined in the study. The item-level content validity indices ranged from 0.88 to 1.00, which indicated strong agreement among the validators regarding the relevance and clarity of the statements. The scale-level indices ranged from 0.94 to 0.96. These findings showed that the instrument covered the intended meanings of professional development access, participation persistence, and completion readiness without depending on unrelated personal or employment profile variables.

The corrected item-total correlations were all positive and sufficiently substantial. This indicated that each retained statement contributed meaningfully to the scale to which it was assigned. No item displayed a weak or negative relationship with its construct during the pilot test.

Cronbach's alpha values ranged from 0.87 to 0.91 across the three scales, while the overall coefficient reached 0.93. McDonald's omega produced similarly strong estimates. The close correspondence between alpha and omega showed that the internal consistency results did not depend solely on the assumption that all items contributed equally to the constructs. The instrument was therefore sufficiently reliable for administration in the main study.

Table 4. *Reliability and Convergent Validity of the Measurement Model*

Construct	Retained Items	Loading Range	Cronbach's Alpha	McDonald's Omega	rho_A	Composite Reliability	Average Variance Extracted
Professional development access	18	0.704 to 0.862	0.901	0.905	0.907	0.920	0.589
Participation persistence	15	0.711 to 0.851	0.884	0.887	0.889	0.906	0.568
Completion readiness	18	0.719 to 0.874	0.915	0.918	0.921	0.931	0.601

All retained indicators loaded adequately on their assigned constructs. The loading ranges showed that each statement was sufficiently associated with the latent variable it was intended to measure. No indicator was removed solely to improve numerical results because the retained items also represented conceptually important elements of access, persistence, and readiness.

The internal consistency coefficients obtained from the main dataset confirmed the pilot-test findings. Cronbach's alpha, McDonald's omega, rho_A, and composite reliability all exceeded acceptable levels. Completion readiness obtained the strongest reliability estimates, while participation persistence produced slightly lower but still satisfactory values.

The average variance extracted values ranged from 0.568 to 0.601. Each construct therefore explained more than half of the variance in its indicators. This supported convergent validity and showed that the observed statements shared sufficient common meaning within their respective scales. The findings satisfied the measurement quality criteria commonly applied in partial least squares structural equation modeling (Hair et al., 2022).

Table 5. *Heterotrait-Monotrait Ratios*

Construct	Professional Development Access	Participation Persistence	Completion Readiness
Professional development access	1.000		
Participation persistence	0.672	1.000	
Completion readiness	0.618	0.741	1.000

The heterotrait-monotrait ratios ranged from 0.618 to 0.741. These values showed that the constructs were related but not interchangeable. Professional development access represented the opportunity and conditions for entering a program, while participation persistence represented the continuation of effort after entry. Completion readiness focused on the capacity and support needed to satisfy course requirements.

The highest ratio was found between participation persistence and completion readiness. This was expected because personnel who consistently engaged in learning activities were also more likely to feel capable of completing the program. The value remained sufficiently below the level that would indicate a lack of construct

distinction. The results confirmed that the study measured three connected stages of professional development participation rather than different labels for the same experience.

Table 6. *Direct Effects in the Structural Model*

Structural Path	Standardized Beta	Standard Error	t Value	p Value	95% Confidence Interval	Effect Size	Decision
Professional development access to participation persistence	0.490	0.050	9.800	< .001	0.389 to 0.585	0.316	Significant
Professional development access to completion readiness	0.260	0.059	4.407	< .001	0.143 to 0.373	0.095	Significant
Participation persistence to completion readiness	0.430	0.055	7.818	< .001	0.319 to 0.535	0.243	Significant
Endogenous Construct	R ²	Adjusted R ²	Q ²	Interpretation			
Participation persistence	0.240	0.236	0.151	Moderate explanatory relevance			
Completion readiness	0.362	0.356	0.238	Moderate explanatory relevance			

Professional development access exerted a positive and statistically significant influence on participation persistence. The standardized coefficient of 0.490 represented the strongest direct relationship in the model. Education personnel who experienced better access conditions were more likely to sustain attendance, complete learning activities, maintain effort, and continue after minor disruptions.

Access explained 24.0 percent of the variance in participation persistence. The remaining variance may have been associated with personal motivation, family demands, individual resilience, program difficulty, facilitator practices, or responsibilities not directly measured in the study. Even so, the effect size of 0.316 indicated that access was a practically important contributor rather than a statistically significant but minor factor.

The result showed that persistence began before participants entered the learning activity. When program information was clear, approval was accessible, schedules were manageable, and logistical support was available, personnel entered professional development under conditions that made continued participation more feasible. This finding supported Zhang et al. (2022), who found that workplace conditions influenced educators' autonomous motivation for continuous professional development.

Professional development access also had a positive direct effect on completion readiness. The coefficient of 0.260 was smaller than its effect on persistence but remained statistically significant. This indicated that access conditions contributed directly to personnel's readiness to finish program requirements. Reliable technology, reasonable schedules, relevant programs, and institutional assistance improved the likelihood that participants would possess the resources and confidence needed for completion.

Participation persistence had a stronger direct effect on completion readiness, with a standardized coefficient of 0.430. Personnel who remained actively engaged throughout the program were more likely to understand the requirements, manage unfinished tasks, seek assistance, and believe that they could complete the required outputs. Persistence therefore functioned as more than continued attendance. It helped participants develop familiarity with the program and maintain the learning momentum needed for completion.

The two predictors jointly explained 36.2 percent of the variance in completion readiness. This represented a meaningful but not exhaustive explanation. Readiness was also likely influenced by prior digital competence, experience with professional learning, personal time-management habits, health, family responsibilities, and the complexity of required outputs. Kizilcec et al. (2017) similarly emphasized the role of time management, strategic planning, self-monitoring, and help-seeking in the attainment of learning goals.

Table 7. *Indirect and Total Effects of Professional Development Access on Completion Readiness*

Effect	Standardized Beta	Standard Error	t Value	p Value	95% Confidence Interval	Result
Direct effect of access on completion readiness	0.260	0.059	4.407	< .001	0.143 to 0.373	Significant
Indirect effect through participation persistence	0.211	0.036	5.861	< .001	0.146 to 0.286	Significant
Total effect of access on completion readiness	0.471	0.049	9.612	< .001	0.374 to 0.563	Significant
Variance accounted for	44.80%					Complementary partial mediation

Participation persistence significantly mediated the relationship between professional development access and completion readiness. The indirect effect of 0.211 had a confidence interval that did not include zero, confirming the statistical importance of the mediating pathway.

The direct effect of access remained significant after participation persistence was included in the model. The result therefore represented complementary partial mediation. Better access improved completion readiness in two ways. It directly provided personnel with the time, resources, technology, information, and organizational conditions needed for completion. It also strengthened their capacity to remain involved, and sustained involvement further improved readiness.

The variance accounted for was 44.80 percent, indicating that almost half of the total influence of access on completion readiness passed through participation persistence. The result showed that access alone did not guarantee completion. Education personnel needed to convert the opportunity to participate into continued engagement. A participant could receive approval and enter a relevant program but still become unprepared for completion when participation was interrupted and not restored.

The mediation result also showed why one-time access interventions might produce limited outcomes. Providing invitations, enrollment slots, or internet access was useful, but support had to continue after program entry. Timely reminders, facilitator communication, recovery options, peer assistance, and manageable deadlines could protect participants from withdrawal. Evidence from Azzolini et al. (2023) likewise showed that personalized support increased course completion among teachers enrolled in online professional development.

Table 8. *PLSPredict Results for Completion Readiness Indicators*

Completion Readiness Indicator	Q ² Predict	PLS RMSE	Linear Model RMSE	Lower Prediction Error
Understanding of program requirements	0.274	0.664	0.676	PLS model
Time-management capacity	0.198	0.742	0.730	Linear model
Technological preparedness	0.221	0.701	0.716	PLS model
Confidence in seeking assistance	0.186	0.754	0.747	Linear model
Confidence in completing required outputs	0.311	0.622	0.641	PLS model
Perceived organizational support for completion	0.238	0.688	0.702	PLS model

All completion-readiness indicators obtained positive Q² predict values. The structural model therefore had predictive relevance for observations that were not used in estimating the model. The strongest predictive result concerned confidence in completing required outputs, followed by understanding of program requirements.

The partial least squares model produced lower prediction errors than the linear benchmark for four of the six indicators. It performed less effectively for time-management capacity and confidence in seeking assistance. Based on the comparative error pattern, the model demonstrated medium out-of-sample predictive power.

The weaker prediction of time-management capacity was reasonable because time management may have depended on circumstances beyond professional development access and persistence. Work emergencies, household responsibilities, health concerns, additional assignments, and personal study habits may have changed from one period to another. Confidence in seeking assistance could also have been influenced by personality, relationships with supervisors, perceived psychological safety, or prior experiences with facilitators.

The medium predictive result showed that the model was useful for identifying personnel who might experience difficulty with completion readiness, but it should not be treated as a complete prediction system. Shmueli et al. (2019) emphasized that predictive assessment should compare a structural model against a reasonable benchmark rather than relying only on explanatory statistics. The present findings showed that the model achieved both moderate explanatory power and practical predictive value.

Table 9. *Importance-Performance Map for Completion Readiness*

Professional Development Condition	Total Importance Performance Score		Priority Interpretation
Schedule and workload accommodation	0.228	44.60	Highest intervention priority
Supervisory support and approval	0.213	54.20	High intervention priority
Financial and logistical support	0.194	42.70	High intervention priority
Recovery after participation interruption	0.181	50.50	High intervention priority
Technology and connectivity support	0.168	48.90	Moderate to high priority
Maintenance of participation effort	0.157	61.30	Moderate priority
Relevance of professional development programs	0.142	69.50	Maintain current strength
Interaction with peers and facilitators	0.126	63.80	Maintain and improve

Schedule and workload accommodation emerged as the most important improvement area. It had the highest total importance for completion readiness but obtained a relatively low performance score. The result indicated that protected learning time, reduced schedule conflict, and realistic deadlines could generate substantial improvement in readiness. Program organizers could therefore examine whether professional development requirements were added to existing workloads without corresponding time adjustments.

Financial and logistical support recorded the lowest performance score. Although its importance was slightly lower than schedule accommodation and supervisory support, the combination of low performance and meaningful influence made it a major intervention concern. Transportation assistance, communication allowances, learning materials, access to devices, and other participation-related resources could help personnel continue and complete programs without carrying excessive personal costs.

Supervisory support and approval also remained a priority. Approval appeared relatively available based on the descriptive results, but the importance-performance analysis showed that approval alone was insufficient. Supervisory support had to include workload adjustment, recognition of training tasks as legitimate work, timely endorsement, and assistance when participants experienced difficulty.

Recovery after interruption was another critical area. This result reinforced the descriptive finding that personnel found it harder to return after a disruption than to remain engaged under ordinary conditions. Professional development programs could address this concern through recorded sessions, flexible catch-up periods, alternative tasks, progress consultations, and facilitator follow-up.

Technology and connectivity also required improvement, particularly for online and blended learning. The moderate performance score indicated that personnel did not experience uniform access to stable digital participation. Technical orientation, offline materials, downloadable resources, and access to reliable devices or workstations could reduce this difficulty.

Program relevance received the highest performance score among the listed conditions. This showed that the professional development activities were generally connected to the participants' work. Relevance should therefore be preserved while the division strengthens the practical conditions that allow personnel to remain

engaged and finish. Kennedy (2016) argued that professional learning becomes meaningful when participants can connect its content and learning processes with their established professional practice.

Overall, the results showed that education personnel demonstrated persistence and completion readiness despite only moderate professional development access. Their willingness and confidence were evident, but these strengths were partly constrained by schedule conflicts, financial demands, uneven technological support, limited recovery arrangements, and insufficient protected time. The structural model confirmed that professional development access significantly shaped both persistence and readiness, while the mediation analysis showed that continued participation was a key process connecting opportunity with completion. The findings therefore supported a professional development system that did not stop at providing programs. It also needed to protect participation, reduce avoidable burdens, and assist personnel until the required learning activities were completed.

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