African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 38 Octobre 2026

Assessing the External Effectiveness of Training for Preschool Educators in Morocco: Satisfaction, Perceived Competencies, and Self-Reported Work Performance

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Déclaration de divulgation : L'auteur n'a pas connaissance de quelconque financement qui pourrait affecter l'objectivité de cette étude.

Conflit d'intérêts : Les auteurs ne signalent aucun conflit d'intérêts.

Pour citer cet article : M'SILI .L, EL OMARI .K & ESSIYEDALI .A (2026) « Assessing the External Effectiveness of Training for Preschool Educators in Morocco: Satisfaction, Perceived Competencies, and Self-Reported Work Performance », African Scientific Journal « Volume 03, Num 38 » pp: 001 – 036.

DOI : 10.5281/zenodo.24275595.
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African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 38 Octobre 2026

Abstract

This study examines the external effectiveness of professional training for preschool educators in Morocco, using the Moroccan Foundation for Preschool Education (FMPS) as a case study. It draws on the first three levels of Kirkpatrick's training evaluation model (reaction, learning, and behavior) and Koopmans' framework of individual work performance. In May 2025, an online survey comprising 39 measured items (Cronbach's $\alpha = .929$) was conducted among educators from the 2022 cohort who had completed the 950-hour training program and had at least two years of professional experience. Of the 500 educators contacted, 326 provided valid responses (response rate: 65.2%). The questionnaire covered satisfaction with training design, delivery, and assessment; nine competencies from the FMPS framework; and self-reported task, contextual, and counterproductive work behaviors. Satisfaction ($M = 4.07$ out of 5) and perceived competencies ($M = 4.59$) were rated highly, whereas self-reported work performance received a lower mean rating ($M = 3.49$). Perceived competency scores were concentrated near the upper end of the response scale, indicating limited variation among respondents with high self-ratings. Because the score distributions departed from normality, Spearman correlations were used. Positive associations emerged between satisfaction and perceived competencies ($\rho = .591$) and between perceived competencies and self-reported work performance ($\rho = .384$). In simple linear regressions, satisfaction accounted for 42.3% of the variance in perceived competencies, while perceived competencies accounted for 17.2% of the variance in self-reported performance. These findings suggest favorable self-reported outcomes for reactions to training and perceived learning but a more limited relationship with work performance. Given the cross-sectional design and reliance on self-reports, the associations cannot establish causal effects of training. Future research should integrate independent assessments of learning and classroom practice and examine workplace conditions that influence the transfer of training.

Keywords: External training effectiveness; Professional training; Preschool education; Skills development; Satisfaction; Individual work performance

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ISSN : 2658-9311
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Introduction

Professional training is widely regarded as a strategic investment, yet evaluating its effectiveness requires looking beyond participants' immediate reactions. In addition to asking whether participants appreciated a training program, evaluators need to examine how its intended outcomes relate to everyday professional practice (Kirkpatrick & Kirkpatrick, 2006; Salas et al., 2012). This issue is particularly important in preschool education, where the quality of interactions with educators contributes to children's cognitive, emotional, and social development. Meta-analytic evidence indicates that in-service professional development for early childhood teachers can improve externally rated pedagogical quality and, to a lesser extent, children's development (Egert et al., 2018), which makes it important to understand what follows from such training.

Assessing these relationships is nevertheless complex. Participant satisfaction is widely measured because it is relatively straightforward and inexpensive to collect, yet research reviews have found only weak correlations with learning and behavioral change (Alliger & Janak, 1989; Alliger et al., 1997). Similarly, learning during training does not automatically translate into professional practice: transfer also depends on learner characteristics, training design, and the work environment (Baldwin & Ford, 1988; Holton, 1996). In this article, external training effectiveness refers to outcomes beyond the training setting, particularly those relating to participants' professional practice.

This issue is especially relevant because much training evaluation research has focused on organizational and business contexts, where information about satisfaction and perceived learning is often easier to obtain than evidence of workplace behavior. Preschool teaching, which involves daily interaction with young children and collaboration with colleagues, cannot be adequately evaluated through end-of-course indicators alone. Professional practices develop over time and are enacted in the classroom, away from the immediate training setting. To our knowledge, relatively few studies in Morocco have jointly examined preschool educators' satisfaction with training, perceived competencies, and individual work performance.

Morocco has embarked on a national effort to expand access to high-quality preschool education, making educator professionalization a priority. Framework Law No. 51-17 on the education, training, and scientific research system provides for compulsory preschool education (Kingdom of Morocco, 2020), which further increases the importance of a qualified preschool workforce. The

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Moroccan Foundation for Preschool Education (Fondation Marocaine du Préscolaire, FMPS), established in 2008, contributes to this effort through its Moroccan Training Center for Early Childhood Professions (CFPE), which offers a 950-hour pathway supplemented by annual continuing professional development (FMPS, n.d.). Immediate and delayed evaluations are conducted, but none had yet examined the individual work performance of educators who completed the entire training pathway.

The subject of this article is the external effectiveness of the FMPS initial training pathway for preschool educators, that is, the extent to which this training is associated with the competencies that educators report having acquired and with their self-reported work performance once in post.

Against this background, examining outcomes associated with the 950-hour training pathway may contribute both to scientific understanding and to the continuous improvement of training provision.

Focusing on the 2022 cohort, whose members had at least two years of professional experience, made it possible to survey educators who had completed the training pathway and spent time applying their skills in practice.

To address this gap, we draw on two frameworks: Kirkpatrick's model, which distinguishes four potentially interrelated evaluation levels (reaction, learning, behavior, and results) (Kirkpatrick & Kirkpatrick, 2006), and Koopmans' conceptualization of individual work performance as a multidimensional construct encompassing task performance, contextual performance, and counterproductive work behavior (Koopmans et al., 2011, 2013, 2014).

The central research question is: To what extent does the training provided by the FMPS effectively address preschool educators' professional needs? Three subsidiary questions follow: How satisfied are the participants? To what extent do they acquire the intended competencies? Is there an association between satisfaction, acquired competencies, and individual work performance? These questions lead to two hypotheses. H1: Educators who report greater overall satisfaction with their training also report greater acquisition of the intended competencies. H2: Educators who report greater competency acquisition are more likely to report higher individual work performance in their work environment.

The overall objective of this research is to examine the external effectiveness of this training pathway through three related indicators. Specifically, the study pursues three objectives: first, it

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describes educators' satisfaction, perceived competencies, and self-reported work performance; second, it tests the association between satisfaction and perceived competencies and that between perceived competencies and performance; and third, it considers the magnitude of these associations, rather than statistical significance alone, in light of Kirkpatrick's model.

The study uses a cross-sectional questionnaire survey of 326 educators. Descriptive statistics, Spearman correlations, and simple linear regressions are used to analyze satisfaction, competency, and performance scores. The analysis focuses on the first three levels of Kirkpatrick's model, since Level 4 concerns organizational outcomes beyond the individual-level scope of the study. Because the data are self-reported and cross-sectional, the findings are interpreted as associations among respondents' assessments rather than as established causal effects.

The study contributes to research on training evaluation in Moroccan preschool education by bringing together two complementary frameworks: one concerned with training outcomes and the other with individual work performance.

The remainder of this article is structured as follows. Section 1 sets out the theoretical framework and research model, covering training evaluation, Kirkpatrick's model, Koopmans' framework of individual work performance, and the two hypotheses. Section 2 presents the methodology, including the study setting, the epistemological positioning and mode of reasoning, the sample, the instrument, and the analyses. Section 3 reports the results on satisfaction, perceived competencies, self-reported performance, and the hypothesis tests. Section 4 discusses these findings, the study's contributions, and its limitations, and outlines directions for future research. The Conclusion summarizes the main findings and their implications.

1. Theoretical Framework and Research Model

1.1. Conceptual Foundations of Training Evaluation

Training evaluation involves judging the value of a program on the basis of observations, impressions, or measurements. It differs from measurement, which assigns numerical values according to predefined rules. Kirkpatrick and Kirkpatrick (2006) identify three central purposes of evaluation: demonstrating the training function's contribution to organizational priorities, informing decisions about continuing or discontinuing programs, and generating evidence for improvement. Phillips (1997) broadens this scope to ten functions, from checking the achievement

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of learning objectives to comparing costs and benefits. In these approaches, evaluation supports both decision-making and continuous improvement.

Two complementary dimensions can be distinguished in the evaluation of training. The first concerns the efficiency of program design and delivery; the second concerns training effectiveness, including learning, behavioral change, and organizational outcomes (Kraiger et al., 1993). Here, internal effectiveness is defined as the extent to which a program achieves its learning objectives within the training setting, whereas external effectiveness refers to the extent to which outcomes are sustained and manifested in everyday professional practice. This second dimension is the focus of the present study.

Assessing training outcomes also requires a concept of competence, understood here as the capacity to mobilize knowledge, skills, and attitudes to act effectively in professional situations. A competency framework translates occupational requirements into training objectives and evaluation criteria. Training organizations must therefore establish not only whether the intended competencies have been acquired by the end of training, but also whether they are subsequently applied in the workplace. The evaluation models discussed below address precisely this concern. A recent synthesis of early childhood workforce training likewise underscores the value of examining educator-level outcomes, particularly perceived professional self-efficacy, while avoiding the assumption that these perceptions constitute direct observations of practice (Hentschel et al., 2026).

1.2. Models of Training Evaluation

Several established models provide complementary perspectives on training evaluation. Stufflebeam's CIPP model (2003) examines Context, Input, Process, and Product, explicitly taking account of the environment in which a program operates; related integrated frameworks include CIRO and IPO. Phillips' return-on-investment (ROI) approach (1997) adds a fifth, financial level to Kirkpatrick's model by comparing training benefits with costs. However, attributing benefits to training rather than to other determinants of performance remains challenging. The return-on-expectations (ROE) approach proposed by J. D. Kirkpatrick and W. K. Kirkpatrick (2011) begins with intended organizational results, identifies the behaviors needed to achieve them, and then defines learning objectives, with stakeholders involved from the needs-assessment stage. Table 1 compares these approaches and explains their relevance to the present study.

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1.3. Kirkpatrick's Model: Principles and Rationale for Selection

Donald Kirkpatrick's model, introduced in the late 1950s, remains widely used because of its simplicity and practical relevance, despite longstanding criticism (Kirkpatrick & Kirkpatrick, 2006). It distinguishes four levels. Level 1 (reaction) addresses participants' responses to training, often measured through satisfaction; Level 2 (learning) concerns the acquisition of knowledge, skills, and attitudes; Level 3 (behavior) considers the application of learning in the workplace; and Level 4 (results) concerns organizational outcomes. These levels are often presented as a sequence from favorable reactions to learning, behavioral change, and organizational results, although the links should be examined rather than assumed.

Table N°1 : Major training evaluation models and their relevance to the study

Model	Principle	Main limitations	Relevance to this study
CIPP (Stufflebeam, 2003)	Assessment of Context, Input, Process, and Product	Broad program-level framework rather than an individual focus	Not retained: the study concerns effects on participants' practices
ROI (Phillips, 1997)	Five levels, with the fifth expressing return on investment	Difficulty isolating training effects; financial data required	Not retained: beyond the study's individual-level scope
ROE (Kirkpatrick & Kirkpatrick, 2011)	Backward approach starting from expectations and intended organizational results	Expectations must be defined before training design	Not retained as the main approach; participants' expectations are nevertheless collected
Kirkpatrick (1998); Kirkpatrick & Kirkpatrick (2006)	Four potentially interrelated levels: reaction, learning, behavior, results	Assumed linear progression; Level 4 seldom assessed; Level 2 may be too broad	Retained through Level 3

Source: Prepared by the authors based on Stufflebeam (2003), Phillips (1997), and Kirkpatrick and Kirkpatrick (2006, 2011).

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Different methods are commonly associated with each level: satisfaction questionnaires for reaction; tests and examinations for learning; interviews or questionnaires administered to trainees, colleagues, or supervisors after training for behavior; and productivity, quality, or cost indicators for organizational results. The term 'level' implies increasing evaluative value and, at the same time, greater difficulty in obtaining evidence. Kirkpatrick and Kirkpatrick (2006) recommend treating the levels as complementary components of a comprehensive evaluation. A meta-analysis of organizational training likewise showed that observed training effectiveness varies with, among other features, the evaluation criteria chosen (Arthur et al., 2003), which supports the use of several indicators rather than a single one.

The model has nevertheless been criticized on several grounds. Level 4 is rarely assessed because organizational outcomes are difficult to attribute to training alone, while Level 2 may encompass outcomes that are too diverse to be represented by a single measure. Kraiger et al. (1993), for example, distinguish cognitive, skill-based, and affective learning outcomes. Bates (2004) further argues that the model is incomplete, because it leaves out contextual and individual influences on training outcomes, and that it rests on an assumption of causal linkages between levels. Training research also emphasizes that conditions before and after training can be as important for transfer as the training event itself (Salas et al., 2012).

The first level deserves particular attention. Satisfaction is the most frequently used evaluation indicator because it is simple, inexpensive, and can be measured immediately after training. Kirkpatrick (1998) considers it important for two reasons: participant feedback informs decisions about whether to continue a program, and dissatisfied trainees may be less motivated to learn. Yet a causal link between satisfaction and learning has not been established, and research syntheses report weak correlations: approximately .07 with learning and .05 with behavioral change according to Alliger and Janak (1989), with somewhat stronger associations when reactions reflect perceived usefulness ($r = .26$ for knowledge acquisition and $r = .18$ for transfer; Alliger et al., 1997). A later meta-analysis found that reactions primarily capture characteristics of the training course, although trainee characteristics and organizational support also have a moderate effect on them (Sitzmann et al., 2008).

Satisfaction is also multidimensional. Warr and Bunce (1995) distinguish enjoyment, perceived usefulness, and perceived difficulty; Alliger et al. (1997) differentiate affective and utility-related

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reactions; and Morgan and Casper (2000), through a factor analysis of responses from 9,000 participants, identify six dimensions: satisfaction with the instructor, program management, learning assessment, program usefulness, learning resources, and course structure. Some authors suggest that satisfaction may mediate or moderate learning rather than directly predict it (Mathieu et al., 1993), while negative affective reactions can occasionally predict learning more effectively among experienced participants whose high expectations were unmet (Tan et al., 2003). These distinctions justify our multidimensional measure of satisfaction (design, delivery, assessment) and our decision to test its association with learning outcomes empirically rather than assume it.

The second level concerns learning outcomes. Kirkpatrick (1998) distinguishes knowledge (facts, principles, rules), skills (job-related capabilities), and attitudes (workplace dispositions). Assessing learning establishes whether objectives have been achieved, helps judge program relevance by relating learning to satisfaction, and provides formative feedback to participants. Ideally, such assessment combines pre- and post-training tests, performance-based tasks for practical skills, and, where feasible, a control group. When these measurements are unavailable, self-assessed competencies provide a useful but self-reported approximation, which must be considered when interpreting our results (Section 4.3). Meta-analytic evidence reinforces this caution: self-assessments of knowledge correlate most strongly with motivation and satisfaction, and only moderately with cognitive learning (Sitzmann et al., 2010).

The third level concerns transfer. Baldwin and Ford (1988) identify two criteria for successful transfer: the maintenance of acquired behaviors over time and their generalization beyond the training context. Kirkpatrick (1998) recommends assessing this level two to six months after training, allowing participants time to return to work and try out new behaviors. Conventional approaches posit a linear sequence from learning to performance and organizational outcomes (Yamnill & McLean, 2001), but transfer should not be conflated with performance: workplace performance is also influenced by factors unrelated to training, including work processes, the availability of tools and resources, goal clarity, and feedback. Baldwin and Ford (1988) group transfer determinants into three categories: trainee characteristics (motivation, ability, expectations), training design (clarity of objectives, relevance of content, methods), and the work environment (peer and supervisor support, opportunities to apply learning, organizational culture). Holton (1996) emphasizes that these influences form an interdependent system. Subsequent

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reviews identify transfer climate, support, opportunity to perform, and follow-up as the work-environment factors most consistently related to transfer (Grossman & Salas, 2011). Accordingly, successful learning does not ensure full transfer or improved performance. A review of 45 studies further highlights the heterogeneity of training-transfer measurement instruments, which assess either behaviors enacted at work or factors that facilitate or hinder their enactment (Ardondi et al., 2026).

Kirkpatrick's model was selected for three reasons. First, it provides a clear basis for organizing the questionnaire's three domains—satisfaction, competencies, and performance—and examining their associations. Second, it is familiar to FMPS teams, whose evaluation system distinguishes satisfaction, learning, behavioral change, and results, making the findings easier to interpret in practice. Third, its first three levels correspond to the study's individual-level focus; Level 4, which addresses organizational outcomes, was therefore excluded.

Table 2 summarizes the main empirical findings on the relationships between evaluation levels and their implications for the present study.

Table N°2 : Summary of empirical findings on training evaluation and transfer

Study	Focus	Main finding	Implication for this study
Alliger & Janak (1989)	Relations among Kirkpatrick's levels	Weak correlations of reactions with learning (about .07) and behavior (about .05)	Associations between levels are tested rather than assumed
Alliger et al. (1997)	Meta-analysis of training criteria	Utility reactions relate more strongly to knowledge acquisition (r = .26) and transfer (r = .18)	Perceived usefulness is included in the satisfaction measure
Arthur et al. (2003)	Meta-analysis of training design and evaluation features	Medium to large effects (d = 0.60–0.63 across criteria); effectiveness varies with method, skill trained, and criterion	Several outcome indicators are used
Sitzmann et al. (2008)	Meta-analysis of trainee reactions	Reactions mainly capture course characteristics; trainee characteristics and organizational support also matter	Satisfaction is not treated as evidence of learning

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Study	Focus	Main finding	Implication for this study
Sitzmann et al. (2010)	Meta-analysis of self-assessed knowledge	Strongest correlations with motivation and satisfaction; moderate correlation with cognitive learning	Competencies are interpreted as perceived, not demonstrated
Blume et al. (2010)	Meta-analysis of 89 transfer studies	Relationships are inflated when measured with the same source and context	Self-reported associations are interpreted cautiously
Egert et al. (2018)	Meta-analysis of in-service training for early childhood teachers	Medium effect on quality ratings at teacher level (ES = 0.68); small effect at child level (ES = 0.14)	Independent classroom observation is identified as a priority for future research

Source: Prepared by the authors based on the studies cited.

1.4. Individual Work Performance: Koopmans' Framework

Assessing workplace behavior first requires a clear definition of individual work performance. Rather than being limited to a numerical outcome, performance is understood as work-related behavior that contributes to organizational objectives. Viswesvaran and Ones (2000) distinguish three broad dimensions: task performance, contextual performance, and counterproductive work behavior.

Drawing on a systematic review of existing conceptual frameworks (Koopmans et al., 2011), followed by instrument development and validation (Koopmans et al., 2013, 2014), Koopmans and colleagues developed the *Individual Work Performance Questionnaire (IWPQ)*, which has been validated across occupational sectors. It comprises three dimensions. **Task performance** refers to the execution of core job duties, corresponding here to facilitating educational activities, managing groups of children, and implementing the educational curriculum. **Contextual performance** covers discretionary behaviors that improve collective functioning, such as helping colleagues, showing initiative, and adapting to change. **Counterproductive work behavior** refers to conduct detrimental to the organization, including complaints about minor issues, focusing on negative aspects of work, and making negative comments about colleagues. This multidimensional

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perspective is particularly relevant to preschool education, where teamwork and flexibility are essential.

Individual work performance can refer to behavior, the outcomes of behavior, or perceived success, depending on the purpose of the assessment. In workplace research, multidimensional behavioral frameworks have increasingly supplemented purely quantitative conceptions of performance. Murphy (1989) distinguishes technical tasks, interpersonal behavior, withdrawal behavior, and dysfunctional behavior; Campbell (1990) proposes eight dimensions, including competence, communication, and leadership; Viswesvaran and Ones (2000) identify three broad domains; and Koopmans et al. (2011, 2014) provide a corresponding operational framework. These approaches are summarized in Table 3.

Table N°3 : Models of individual work performance

Author(s)	Dimensions	Comment
Murphy (1989)	Technical tasks; interpersonal behavior; withdrawal behavior; dysfunctional behavior	Early framework that informed subsequent studies
Campbell (1990)	Eight dimensions, including competence, communication, and leadership	Primarily theoretical; widely cited in the literature
Viswesvaran & Ones (2000)	Task performance; contextual performance; counterproductive work behavior	Clear categorization widely used in research
Koopmans et al. (2011, 2013, 2014)	Same three dimensions; 18-item questionnaire (5 task, 8 contextual, 5 counterproductive)	Based on a systematic review; validated across sectors; adopted here

Source: Prepared by the authors based on Murphy (1989), Campbell (1990), Viswesvaran and Ones (2000), and Koopmans et al. (2011, 2014).

1.5. Research Model and Hypotheses

The research model combines these frameworks and focuses on the first three levels of Kirkpatrick's model. Reaction is represented by satisfaction with training; learning by self-assessed professional competencies; and behavior by self-reported individual work performance measured using the Koopmans scale. Level 4 is excluded because it concerns outcomes beyond the individual level addressed here.

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H1 concerns the association between reactions to training and perceived learning. Favorable assessments of training content, trainers, and assessment procedures may accompany higher perceived competency acquisition (Kirkpatrick & Kirkpatrick, 2006). H2 concerns the association between perceived competencies and work performance, assessed using the three dimensions described by Koopmans et al. (2014). Because opportunities to apply learning also depend on conditions before and after training (Salas et al., 2012), the magnitude as well as the presence of this association warrants examination. Figure 1 illustrates the research model and the two hypotheses.

Neither hypothesis should be taken for granted. Earlier reviews have reported weak correlations between satisfaction, learning, and behavior (Alliger & Janak, 1989). However, the satisfaction measure used here covers not only enjoyment but also perceived usefulness, content clarity, trainer competence, and assessment procedures. Utility-related reactions have shown stronger associations with learning and transfer in previous research (Alliger et al., 1997). For H2, the transfer literature suggests a positive but potentially limited association because the application of learning also depends on the work environment (Baldwin & Ford, 1988).

Figure N°1 : Research model and hypotheses



Level 4 (results) is excluded: the study focuses on individual outcomes.

Source: Prepared by the authors based on Kirkpatrick and Kirkpatrick (2006) and Koopmans et al. (2014).

2. Methodology

2.1. Study Setting: The FMPS Training Program

The study concerns the preschool educator training program delivered by the Moroccan Foundation for Preschool Education (FMPS) through its Moroccan Training Center for Early Childhood Professions (CFPE). The initial program comprises 950 hours: 400 hours before educators take up

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their positions, followed by 550 hours combining face-to-face and distance learning and a professional project. The program is complemented by six days of continuing professional development each year (FMPS, n.d.).

The FMPS conducts immediate and delayed evaluations using questionnaires, classroom observations, and interviews. This study focuses specifically on relationships among satisfaction with training, perceived professional competencies, and self-reported individual work performance.

2.2. Epistemological Positioning, Mode of Reasoning, and Methodological Approach

The study adopts a positivist orientation, understood in its contemporary post-positivist sense, and a hypothetico-deductive approach: hypotheses derived from the theoretical framework are examined using quantitative questionnaire data. It has an evaluative purpose, in investigating reported outcomes associated with the training pathway, and an explanatory purpose, in exploring associations among the study variables.

This positioning follows from the research question and the theoretical frameworks mobilized. The study examines whether relationships postulated by established models can be observed among measurable constructs, which corresponds to the post-positivist assumption that knowledge develops through careful observation and measurement and through the testing and refinement of theory (Creswell & Creswell, 2018). A post-positivist stance also recognizes that such knowledge remains fallible and that claims must be supported by warrants rather than presented as certainties (Phillips & Burbules, 2000). The results are therefore formulated as statistical associations among respondents' assessments, not as demonstrated causal effects of the training.

The mode of reasoning is hypothetico-deductive and proceeds from general propositions to their empirical examination. H1 and H2 were derived from Kirkpatrick's model, the transfer literature, and Koopmans' framework; the constructs were then operationalized through measurable indicators; and the hypotheses were confronted with data capable of contradicting them (Popper, 1959). A result consistent with a hypothesis thus corroborates it provisionally without proving it, and the term "supported" is used in this limited sense throughout the article.

A quantitative cross-sectional survey was chosen for three reasons. First, the objective was to estimate the strength of relationships among several constructs, which requires standardized measures and statistical analysis. Second, the target population was dispersed across Morocco's

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twelve regions, and an online questionnaire made it possible to reach a large number of educators with the same instrument within a short period. Third, Koopmans' scale and the FMPS competency framework provided established bases for measurement. This choice also has limits. Desimone (2009) cautions against automatic biases for or against observations, interviews, or surveys in studies of professional development. A qualitative or mixed-methods design would have offered a deeper understanding of how educators experience transfer, and classroom observations would have provided an independent view of practice, but these lay beyond the scope and timetable of the present study (Section 4.3). Because the sample was purposive, the findings concern the educators surveyed and are not generalized statistically to all preschool educators in Morocco. Table 4 summarizes these methodological choices.

Table N°4 : Summary of methodological choices

Dimension	Choice made	Justification
Epistemological positioning	Positivist orientation, in its post-positivist sense	Examination of relationships among measurable constructs; knowledge regarded as fallible
Mode of reasoning	Hypothetico-deductive	H1 and H2 derived from theory and confronted with empirical data
Research purpose	Evaluative and explanatory	Reported outcomes of the training pathway; associations among variables
Research approach	Quantitative	Estimating the direction and strength of associations
Research design	Cross-sectional online survey (May 2025)	Reaching educators across twelve regions with a single instrument
Population and sampling	2022 FMPS cohort; purposive sampling; 500 invited; 326 valid responses (65.2%)	Educators who completed the full pathway and had at least two years' experience
Instrument	Questionnaire with 39 measured items ($\alpha = .929$)	Operationalization of Kirkpatrick's Levels 1–3 and Koopmans' framework
Data analysis	Descriptive statistics, Spearman correlations, simple linear regressions, Cohen's f^2	Non-normal distributions; attention to magnitude as well as significance

Source: Prepared by the authors.

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2.3. Population, Sample, and Survey Procedure

The target population comprised FMPS preschool educators from the 2022 cohort who had completed the full 950-hour initial training program, participated in continuing training, and acquired at least two years of professional experience. Purposive sampling was used to invite 500 educators across Morocco's twelve regions. On May 12, 2025, the questionnaire link was sent to their professional email addresses, with a three-day response window and follow-up reminders coordinated at the provincial level. A total of 326 valid responses were retained, corresponding to a response rate of 65.2%. Submissions from personal email addresses were excluded because institutional addresses were required to match responses with the original sampling database. Participants were informed that the information would be used exclusively for academic research. The inclusion criteria were threefold: completion of 950 hours of initial training, participation in continuing training, and at least two years of work experience. To reflect diverse territorial settings, participants were selected across all twelve regions of Morocco. The invitation, sent to educators' professional email accounts with the relevant provincial coordinators copied, described the study's purpose and guaranteed confidential treatment of the data. The three-day response period was supplemented by targeted reminders, which may partly explain the 65.2% response rate, a satisfactory level for an online survey.

2.4. Data Collection Instrument

The questionnaire was administered online through Google Forms and translated into Arabic to make the items accessible to respondents. It comprised five components (Table 5): pre-training expectations, satisfaction, perceived competency acquisition, individual work performance, and open-ended suggestions for improvement. Satisfaction was assessed across three dimensions—design, delivery, and assessment—using a five-point Likert scale. Nine key competencies were selected jointly with the FMPS educational content team from the institutional competency framework and the 950-hour curriculum. Performance was assessed with a slightly adapted version of Koopmans' 18-item scale, using five-point frequency response options.

Each model variable was operationalized as the mean score across the relevant items (Table 5). Scores range from 1 to 5. Higher scores on the satisfaction and competency scales indicate more favorable self-assessments; the performance composite combines positively and negatively worded behavioral indicators.

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Table N°5 : Structure and composition of the questionnaire

Questionnaire domain	Kirkpatrick level	Content assessed (number of items)	Scale and score calculation
Pre-training expectations	—	Participants' perceived needs and objectives	Multiple choice
Satisfaction	Level 1: Reaction	Training design (4), delivery (5), assessment (3): 12 items	Five-point Likert scale; mean of 12 items
Acquired competencies	Level 2: Learning	Nine key competencies in the FMPS framework: 9 items	Five-point Likert scale; mean of 9 items
Individual work performance	Level 3: Behavior	Task performance (5), contextual performance (8), counterproductive work behavior (5): 18 items	Five-point frequency scale; mean of 18 items
Open-ended questions	—	Improvements suggested by participants	Free text (not analyzed here)
Total measured items		39 items (12 + 9 + 18)	Cronbach's α = .929

Source: Prepared by the authors.

Satisfaction was measured with twelve items covering three domains: training design (four criteria: content usefulness, clarity, alignment with practical needs, and relevance of practical activities); delivery (five criteria: trainer competence, session duration, timetable organization, the iLearn e-learning platform and synchronous online sessions, and logistical conditions); and assessment (three criteria: alignment with the training framework, usefulness for monitoring progress, and clarity). The nine selected competencies concerned communication, professional ethics, reflective practice, understanding early childhood characteristics, support for children's social and emotional development, inclusive reception of children, activity delivery through active learning, classroom discipline in a safe environment, and organization of space and time in accordance with children's biological rhythms. Work performance was assessed using 18 Koopmans items: five addressing

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task performance, eight contextual performance, and five counterproductive work behavior. Open-ended suggestions were not analyzed because they would require a separate qualitative study. Table 5 summarizes the instrument; its 39 measured items were used to calculate the reported overall reliability coefficient.

2.5. Data Analysis

Data were cleaned in Excel and analyzed with IBM SPSS Statistics. The analysis included Cronbach's alpha for internal consistency; descriptive statistics (means, standard deviations, and skewness); Spearman correlations; and simple linear regressions to examine H1 and H2. Performance was represented by an overall score based on all 18 items, rather than by separate scores for each subdimension.

Before selecting a correlation coefficient, we examined the assumptions associated with Pearson's correlation, including linearity (assessed using scatterplots) and the distributions of the variables. Kolmogorov–Smirnov tests with Lilliefors correction and Shapiro–Wilk tests rejected normality for all three variables (satisfaction: K–S = 0.091 and W = 0.945; competencies: K–S = 0.250 and W = 0.704; performance: K–S = 0.059 and W = 0.982; $p < .01$ in all cases, n = 326). Spearman's rank correlation was therefore used to assess the associations. Simple linear regressions were also estimated for the two hypothesized relationships, with overall F tests and regression coefficients (B, β, t) reported. Regression was retained alongside Spearman's coefficient because parametric methods have been shown to be robust to departures from normality, including with rating-scale data (Norman, 2010), and because the sample was sufficiently large (n = 326).

The two regressions test the hypothesized relationships: Competencies = $\beta_0 + \beta_1 \times$ Satisfaction + ε for H1, and Performance = $\beta_0 + \beta_1 \times$ Competencies + ε for H2, at a significance threshold of .05.

3. Results

3.1. Participants' Expectations and Satisfaction

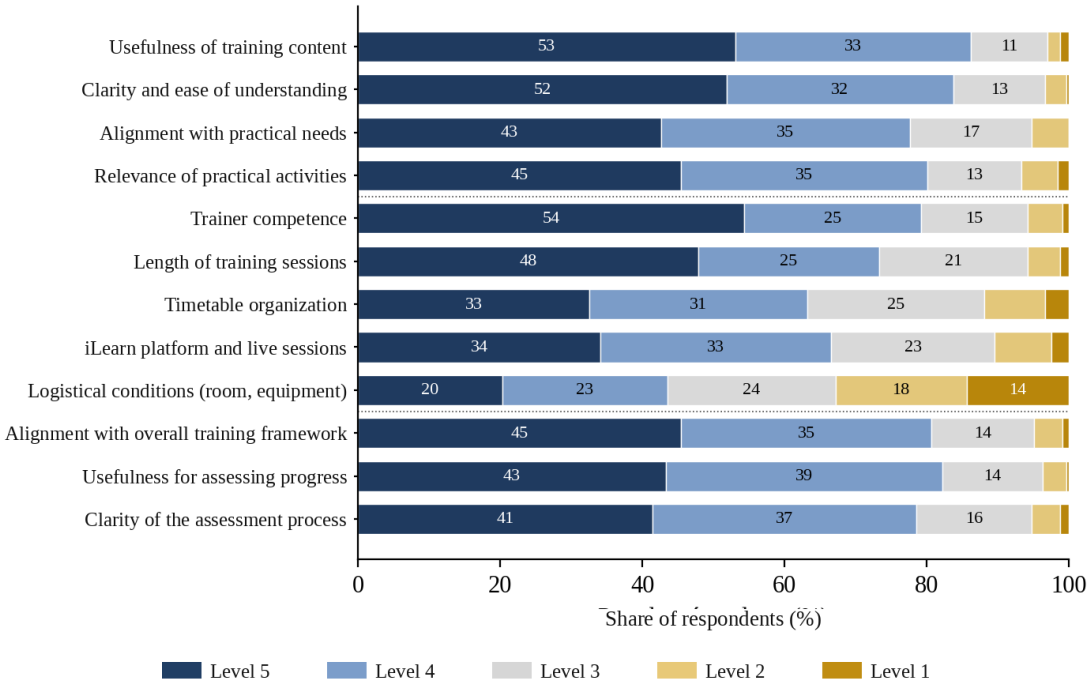
Before training, respondents' expectations centered primarily on understanding children's growth and development (nearly 300 responses), followed by learning how to facilitate educational activities and apply the FMPS approach to preschool education. Developing broader professional pedagogical competencies was mentioned less frequently.

Overall satisfaction was high (M = 4.07; SD = 0.69), with a median of 4.17. Regarding training design, content usefulness (173 of 326 respondents selecting a rating of 5) and clarity (169

respondents) received the highest ratings, whereas alignment with practical needs and the relevance of practical activities attracted more mid-range responses. For delivery, trainer competence was the most appreciated aspect (177 respondents selecting a rating of 5), followed by session duration (156); logistical conditions received more mixed ratings.

Figure 2 presents the distribution of ratings across the twelve satisfaction criteria. In the design domain, ratings of 4 or 5 represented 86.2% of responses for content usefulness, 83.7% for clarity, 80.1% for the relevance of practical activities, and 77.6% for alignment with practical needs. The criteria most directly related to classroom practice thus attracted comparatively more middle or lower ratings. In the delivery domain, trainer competence (79.1% rating 4 or 5, including 54.3% rating 5) and session duration (73.3%) were evaluated most positively, ahead of the iLearn platform and online sessions (66.6%) and timetable organization (63.2%). Logistics stood out as the weakest rated element: only 43.6% assigned a rating of 4 or 5, whereas 32.8% selected 1 or 2. Assessment criteria were rated favorably, with 82.2% selecting 4 or 5 for usefulness in tracking progress, 80.7% for alignment with the training framework, and 78.5% for clarity.

Figure N°2 : Distribution of responses across satisfaction criteria (n = 326)



Source: Survey data (n = 326), counts converted to percentages. Segments below 9% are not labeled.

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3.2. Acquired Competencies and Perceived Performance

Perceived competencies were rated highly (M = 4.59; SD = 0.62; median = 4.89), with a strongly negatively skewed distribution (skewness = −2.31), indicating clustering near the upper end of the scale. Self-reported work performance was more moderate (M = 3.49; SD = 0.45). Table 7 and Figure 4 summarize these findings. Cronbach's alpha was .929 for the full set of 39 items and .837 for the 18 performance items. As these sets cover multiple constructs, these coefficients do not establish unidimensionality.

Among the nine competencies, effective communication (245 ratings of 5), reflective practice for continuous improvement (219), and classroom-related competencies such as managing discipline and delivering planned active-learning activities (more than 200 ratings of 5 each) received particularly favorable assessments. For performance, planning (approximately 161 responses of 'always') and meeting deadlines (approximately 157) were frequently reported, while most counterproductive behaviors were reported infrequently.

Table 6 details ratings for the nine competencies. More than 90% of participants rated each competency 4 or 5, with relatively little variation, ranging from 90.2% for managing classroom discipline to 93.9% for professional ethics. This concentration of scores, together with negative skewness (−2.31) and high kurtosis (6.52), suggests a ceiling effect. The limited spread at the upper end of the scale may reduce its capacity to differentiate among respondents with high self-assessments and constrain the observed association with work performance.

Table N°6 : Perceived acquisition of the nine key competencies (n = 326)

Competency	Rating 5 (n)	Rating 4 (n)	Ratings 4–5 (%)
Demonstrating ethical professional behavior	251	55	93.9
Organizing space and time around children's biological rhythms	216	89	93.6
Communicating effectively	245	59	93.3
Organizing an inclusive welcome for children	234	70	93.3
Supporting children's social and emotional development	224	77	92.3

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Competency	Rating 5 (n)	Rating 4 (n)	Ratings 4–5 (%)
Delivering planned activities through active learning	205	96	92.3
Using reflective practice for continuous improvement	219	81	92.0
Understanding the characteristics of early childhood	206	92	91.4
Managing classroom discipline while ensuring a safe environment	205	89	90.2

Source: Survey data (n = 326), analyzed using SPSS.

Figure 3 presents item-level self-reports of work performance. For task performance, between 79.4% and 91.7% of respondents reported performing the expected behaviors 'always' or 'frequently'. Keeping intended results in mind (91.7%), planning effectively (89.3%), and meeting deadlines (89.3%) were the most frequently reported, while working efficiently with minimal time and effort was least frequent (79.4%). Contextual performance varied more: keeping professional knowledge and skills up to date (90.2% and 89.6%) and seeking new professional challenges (82.8%) were frequently reported, whereas accepting challenging assignments (63.2%), participating actively in meetings, and initiating new tasks (72.1% each) were less common. Counterproductive behaviors were generally reported as infrequent: 'rarely' was the predominant answer for five items, with 75.5%–77.0% selecting it for making negative comments to outsiders, focusing on negative aspects, and exaggerating problems. The corresponding shares were lower for complaining about minor issues (50.6%) and making negative comments to colleagues (42.3%), suggesting that these two behaviors were reported more often.

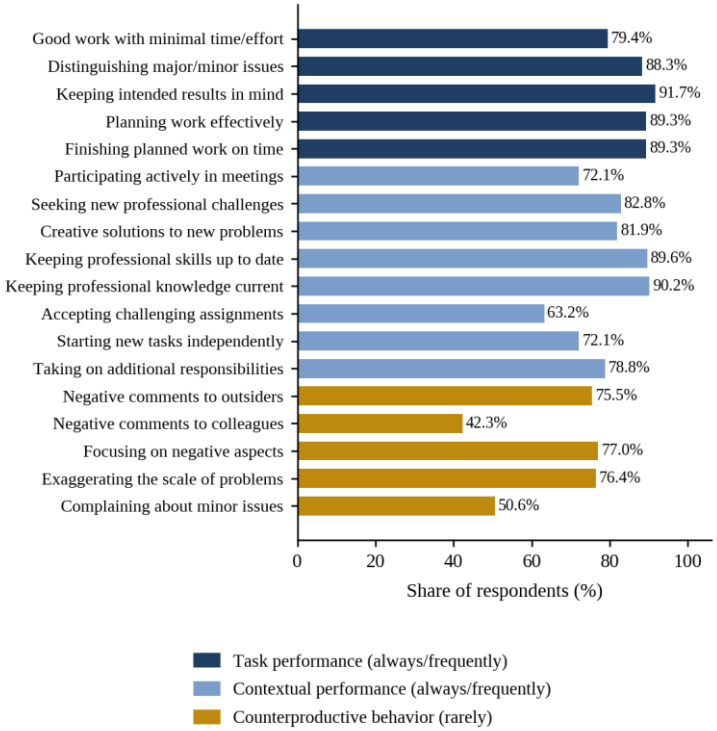
The overall mean of 3.49 combines three distinct dimensions and should therefore not be interpreted as indicating uniformly moderate performance. Item-level responses were more favorable for task performance and more varied for contextual performance. Separate analyses of the subdimensions, which were not undertaken in this study, could provide a more differentiated interpretation.

Table N°7 : Descriptive statistics for the main variables (n = 326)

Variable	M	SD	Median	Min–Max	Skewness
Satisfaction	4.07	0.69	4.17	1.67–5.00	−0.76
Acquired competencies	4.59	0.62	4.89	1.33–5.00	−2.31
Individual work performance	3.49	0.45	3.56	1.94–4.89	−0.39

Source: Survey data, analyzed using SPSS.

Figure N°3 : Perceived performance by item (n = 326)



Source: Survey data (n = 326). For counterproductive work behavior, the proportion answering 'rarely' is shown; higher values thus indicate lower reported frequency of the behavior.

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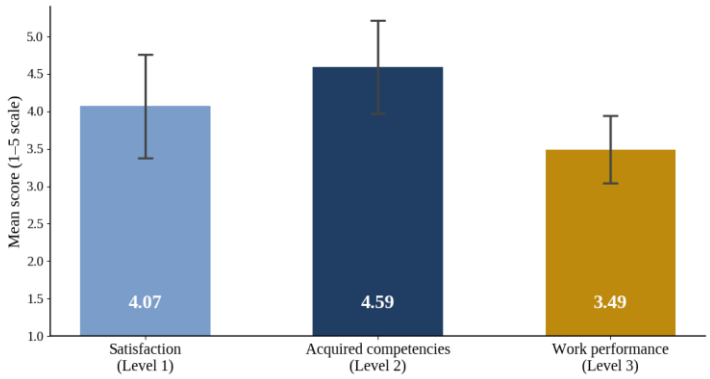
Figure N°4 : Mean satisfaction, competency, and performance scores



Source: Survey data (n = 326). Error bars indicate one standard deviation.

3.3. Hypothesis Testing

Spearman correlations were positive and statistically significant ($p < .001$): the association was stronger between satisfaction and perceived competencies ($\rho = .591$) than between perceived competencies and work performance ($\rho = .384$). The simple linear reg ression results were consistent with this pattern (Table 8). Satisfaction was positively associated with perceived competencies ($B = 0.579$; $\beta = 0.650$; $F(1, 324) = 237.11$; $p < .001$), with the model accounting for 42.3% of the variance. Perceived competencies were also positively associated with work performance ($B = 0.302$; $\beta = 0.415$; $F(1, 324) = 67.28$; $p < .001$), with the model accounting for 17.2% of the variance. Both H1 and H2 were supported as hypotheses of association, although the H2 relationship was weaker. Under commonly used descriptive conventions, correlations of .591 and .384 can be characterized as relatively strong and moderate, respectively.

Table N°8 : Results of simple linear regressions

Tested relationship	B	β	t	R^2	F(1, 324)	p
Satisfaction → Competencies (H1)	0.579	0.650	15.40	0.423	237.11	< .001
Competencies → Performance (H2)	0.302	0.415	8.20	0.172	67.28	< .001

Source: Survey data, analyzed using SPSS.

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In simple linear regression with one predictor, the standardized regression coefficient β is equal to Pearson's correlation coefficient. The coefficients obtained here (.650 and .415) are positive and directionally consistent with the Spearman coefficients (.591 and .384), although the two statistics are not identical and represent different measures of association.

Additional regression statistics were as follows. The first model yielded an adjusted R^2 of .421 (standard error of the estimate = 0.468), with a significant F test ($F(1, 324) = 237.11$; regression sum of squares = 51.97 out of a total of 122.99); the intercept was estimated at 2.232 ($t = 14.40$). The second model yielded an adjusted R^2 of .169 (standard error of the estimate = 0.408), with a significant F test ($F(1, 324) = 67.28$; regression sum of squares = 11.21 out of a total of 65.18); its intercept was 2.108 ($t = 12.38$).

To assess effect magnitude, we converted the coefficients of determination into Cohen's (1988) f^2 index, calculated as $R^2/(1 - R^2)$. The resulting f^2 was .73 for H1, conventionally interpreted as a large effect (.02, .15, and .35 denote small, medium, and large effects), and .21 for H2, a medium effect. The difference in the magnitude of the two associations is therefore substantial. The association between satisfaction and perceived competencies was stronger than that between perceived competencies and self-reported performance. The second model left 82.8% of the variance in performance unexplained.

Three cautions are important when interpreting these results. First, the variables departed from normality, and Spearman's correlation was therefore prioritized. The direction of the relationships was nevertheless consistent with the standardized coefficients from the linear regressions (Spearman's $\rho = .591$ and .384; standardized $\beta = .650$ and .415). Second, the ceiling effect in perceived competencies may constrain their observed association with performance. Third, all three variables were self-reported by the same respondents in a single questionnaire, creating a potential for common method bias (Section 4.1).

Table 9 summarizes the results of the hypothesis tests.

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Table N°9 : Summary of hypothesis tests

Hypothesis	Relationship tested	Spearman's ρ	R^2	Cohen's f^2 (magnitude)	Decision
H1	Satisfaction → Perceived competencies	.591	.423	.73 (large)	Supported as an association
H2	Perceived competencies → Self-reported work performance	.384	.172	.21 (medium)	Supported as an association; weaker relationship

Source: Survey data, analyzed using SPSS.

4. Discussion, Limitations, and Future Directions

4.1. Discussion of Findings

The findings offer partial support for the associations suggested by Kirkpatrick's model while also highlighting the need to interpret its levels cautiously. Participants who reported greater satisfaction with training content, trainer competence, and learning conditions also reported higher competency acquisition. A training environment perceived as structured and relevant may support engagement, although the present design cannot determine whether it directly improves learning.

This finding contrasts with the weak correlations between reaction and learning reported in classic reviews (Alliger & Janak, 1989). Several factors may explain the difference. First, satisfaction was assessed using twelve criteria covering the usefulness, clarity, and relevance of content, trainer competence, and evaluation procedures—dimensions of perceived utility that the literature associates with stronger relationships with learning outcomes (Alliger et al., 1997). Second, learning outcomes were measured through self-assessed competencies rather than objective tests: respondents who regarded training as useful and well delivered may also have perceived themselves as more competent. This raises the issue of common method variance, widely documented in self-administered questionnaire research (Podsakoff et al., 2003). Research on self-assessment points in the same direction: self-assessed knowledge correlates most strongly with satisfaction and motivation (Sitzmann et al., 2010), and relationships with transfer are inflated

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when variables come from the same source and measurement context (Blume et al., 2010). Finally, the survey was administered well after completion of the pathway (2022 cohort surveyed in 2025), whereas immediate evaluations capture satisfaction at the end of training sessions. Reported satisfaction therefore represents a retrospective judgment of the pathway, perhaps more considered but also vulnerable to recall reconstruction. The strong relationship should consequently be read as an association between perceptions rather than evidence that satisfaction causally improves learning.

The association between perceived competencies and self-reported work performance was weaker. In the regression model, perceived competencies accounted for 17.2% of the variance in performance. This does not demonstrate that learning occurred or was transferred: work performance may also depend on professional circumstances, supervisor support, expectations, and resources, as emphasized in the transfer literature (Salas et al., 2012). The findings therefore support examining training-related perceptions alongside the contexts in which educators carry out their work, rather than assuming a causal progression across evaluation levels.

The weaker second association can also be considered in relation to research on training transfer. Baldwin and Ford (1988) emphasize the joint importance of trainee characteristics, training design, and the work environment. The present model measures perceived competencies but does not include workplace conditions such as supervisory and peer support, opportunities to use newly developed skills, or resource availability. Yet work-environment factors of this kind are among those most consistently linked to transfer (Grossman & Salas, 2011). The remaining 82.8% of performance variance may reflect unmeasured contextual or individual factors, measurement error, and other determinants; their contributions cannot be isolated with these data. Post-training follow-up by FMPS pedagogical supervisors may be relevant, but it was not measured and therefore remains a subject for future research.

The item-level results also help qualify the overall self-reported performance mean of 3.49 out of 5 (Section 3.2). Task performance and behaviors linked to professional development, such as maintaining knowledge and skills and seeking new challenges, were rated favorably. These patterns are compatible with a training pathway emphasizing reflective practice and continuous improvement; 92.0% of respondents rated their ability to 'use reflective practice for continuous improvement' as 4 or 5. By contrast, some contextual performance behaviors—accepting

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challenging assignments, taking additional responsibility, and participating actively in meetings—were reported less frequently. These behaviors may depend partly on opportunities within the workplace rather than on individual competencies alone (Baldwin & Ford, 1988). The available responses cannot distinguish limited opportunities from limited willingness to engage in such activities.

The low reported frequency of counterproductive work behavior also warrants caution. It may reflect a generally healthy working environment, but it could also result from social desirability bias, particularly because the survey was distributed through professional email accounts and respondents were identifiable in the initial database. Notably, the two most frequently acknowledged behaviors—negative comments made to colleagues and complaints about minor issues—are also relatively commonplace and less socially costly to admit.

The findings can also be situated within debate about the interpretation of Kirkpatrick's model. Holton (1996) challenges a strictly causal or hierarchical reading of its levels and calls for attention to intervening variables, including motivation, individual characteristics, and the transfer environment. In the present study, the association between Levels 1 and 2 was stronger than that between Levels 2 and 3, which is inconsistent with assuming an automatic progression (Yamnill & McLean, 2001). The study cannot distinguish the effects of omitted variables from measurement error; doing so would require additional variables and independent measurements. In the related field of teachers' professional development, a meta-analysis of 128 studies found considerable variation in effects on student achievement (Visscher et al., 2025), which was not measured here. In early childhood settings specifically, the effects of in-service training on child outcomes appear to operate largely through gains in pedagogical quality (Egert et al., 2018), which underlines the value of observing classroom practice directly.

Table 10 brings together the main findings by level of Kirkpatrick's model and the interpretive caution attached to each.

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Table N°10 : Summary of findings by level of Kirkpatrick's model

Level	Indicator	Main findings	Interpretive caution
Level 1: Reaction	Satisfaction (12 items)	M = 4.07 (SD = 0.69); trainer competence most appreciated in delivery (54.3% rating 5); logistics weakest (43.6% rating 4 or 5)	Retrospective judgment, vulnerable to recall reconstruction
Level 2: Learning	Perceived competencies (9 items)	M = 4.59 (SD = 0.62); 90.2%–93.9% rating each competency 4 or 5	Self-assessed rather than tested; ceiling effect
Level 3: Behavior	Self-reported work performance (18 items)	M = 3.49 (SD = 0.45); task behaviors reported 'always' or 'frequently' by 79.4%–91.7%; contextual behaviors more varied; counterproductive behaviors generally infrequent	Composite of three dimensions; possible social desirability bias
Level 4: Results	Not measured	—	Beyond the study's individual-level scope; a subject for future research

Source: Prepared by the authors based on the survey data (n = 326).

The different magnitudes of the two associations (f^2 = .73 and .21) must also be considered in light of how the variables were measured. The restricted range of competency scores, concentrated near the top of the scale, may attenuate the observed association with performance. Moreover, performance was assessed as the frequency of behaviors, whereas competencies were rated in terms of perceived proficiency; these are not equivalent measurement scales. The competency–performance relationship may therefore be partly underestimated for measurement-related reasons, although the available data do not allow this attenuation to be quantified.

Two implications follow. First, the mean for self-reported performance (M = 3.49) was numerically lower than that for perceived competencies (M = 4.59). Because the scales measured different

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constructs using different response anchors, this comparison is descriptive only; it should not be treated as evidence of a competency–performance gap of a particular size. Nevertheless, examining reported workplace behavior provides information beyond satisfaction and perceived competencies. Second, both satisfaction and competencies were reported by the same respondents. Independent assessments of learning and classroom practice would help distinguish competency acquisition from favorable perceptions of training.

4.2. Contributions of the Study

The study makes three contributions. Theoretically, it combines Kirkpatrick's framework for evaluating training outcomes with Koopmans' multidimensional approach to individual work performance, allowing the reaction–learning–behavior sequence to be examined using distinct indicators. Methodologically, it describes a survey protocol involving a defined cohort, educators with at least two years of professional experience, and reported internal consistency coefficients of $\alpha = .929$ for the 39 items and $\alpha = .837$ for the performance items. Contextually, it provides an assessment of self-reported work performance among FMPS educators who completed the entire training pathway, extending the discussion of training effectiveness in Moroccan preschool education.

4.3. Study Limitations and Directions for Future Research

This study has several limitations. Kirkpatrick's model was applied only through Level 3, without measuring organizational outcomes or effects on children's learning. The data rely on educator self-reports, which are susceptible to social desirability bias and common method variance (Podsakoff et al., 2003). Classroom observations, which could not be conducted within the survey timetable, would have allowed these perceptions to be compared with actual practice.

The cross-sectional design allows associations to be described but not causal effects to be established. A ceiling effect in competency scores may constrain the observed associations, and means derived from competency and performance scales are comparable only in a limited descriptive sense. Nonresponse bias remains possible despite the 65.2% response rate. Finally, focusing on one cohort within a single organization limits the extent to which findings can be generalized.

Future studies could integrate questionnaire responses with classroom observations and supervisor assessments, follow several cohorts over time, and include characteristics of the workplace and

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training environment in the research model. This would allow a more comprehensive examination of satisfaction, perceived competencies, and professional behavior and could support evaluation of organizational outcomes at Kirkpatrick's fourth level. Such designs could draw on Desimone's (2009) conceptual framework, which links the core features of professional development to teachers' knowledge, practice, and student outcomes.

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Conclusion

Evaluating the external effectiveness of training requires more than documenting participants' satisfaction or the competencies they believe they have acquired. It also involves examining the extent to which training-related competencies are reflected in professional practice. This study approached that question by linking the first three levels of Kirkpatrick's model with Koopmans' framework of individual work performance.

The principal finding is that the association between satisfaction and perceived competencies was stronger than the association between perceived competencies and self-reported work performance. This distinction highlights the need to examine workplace behavior separately rather than inferring transfer from favorable training-related perceptions.

Among educators from the 2022 cohort, satisfaction was high (M = 4.07 out of 5) and perceived competency acquisition was very high (M = 4.59), whereas the mean for self-reported performance was lower (M = 3.49). In the regression models, satisfaction accounted for 42.3% of the variance in perceived competencies (f^2 = .73, large effect), while perceived competencies accounted for 17.2% of the variance in self-reported performance (f^2 = .21, medium effect). H1 and H2 were supported as hypotheses of statistical association, with a weaker relationship for H2.

The study contributes to research on training evaluation in Moroccan preschool education by integrating a model of training outcomes with a multidimensional framework of individual performance. It emphasizes the value of examining the relationships between evaluation levels empirically rather than assuming a linear progression.

In the Moroccan context, this research provides evidence about the self-reported performance of educators who completed the same FMPS training pathway. Although the 18-item performance measure yielded an overall alpha of .837, the internal consistency of its individual subdimensions and its factor structure were not assessed. These features should be examined in subsequent studies to refine the interpretation of performance and facilitate comparisons across contexts.

The findings are also consistent with the view that training transfer depends on learner characteristics, training design, and the work environment (Baldwin & Ford, 1988; Holton, 1996). Because the present model includes neither workplace conditions nor individual characteristics, the unexplained share of performance variance (82.8%) points to areas for further investigation, not to evidence of any specific determinant or causal effect of training.

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The conclusions should be interpreted in view of the cross-sectional design, reliance on self-reported measures, and absence of independent observations of classroom practice.

Future research could examine organizational outcomes at Kirkpatrick's fourth level, including children's learning, while combining questionnaires with classroom observations and supervisor ratings. Longitudinal studies across several cohorts could assess workplace conditions and jointly model the associations among satisfaction, perceived competencies, and professional performance, including through mediation analyses or structural equation modeling.

Ultimately, evaluating training involves understanding not only participants' reactions but also the conditions in which acquired competencies can be used in professional practice. Such an approach can support more integrated evaluation systems that connect learning outcomes, reported or observed work behavior, and the organizational environment.

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