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Professional Growth Through FDPs: Insights from the Kirkpatrick Model

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ABSTRACT

This study investigates the effectiveness of Faculty Development Programs (FDPs) in promoting professional growth among educators, utilizing the Kirkpatrick Model as a framework for evaluation. Specifically, the research aims to determine the contributions that professional development programs make in three areas: first, the amount of knowledge and skills gained, second, confidence in use of the newly acquired knowledge and skills, and third, organizational impact over time. The study has learning outcomes assessment of faculty members attending FDPs by means of a structured questionnaire. It also assesses the ability of the participants to report levels of confidence regarding the use of knowledge and skills gained in the NFTs in practice. It also looks into the wider organizational benefits arising from the effective utilization of skills obtained through the FDPs.

The present research evaluates the implications of the provided information in more than one dimension, therefore bringing the contribution to educational institutions and policy makers. These results are also important for the professional development discussions in higher education and serve as a foundation for the improvement of design and implementation of FDPs in order to enhance the effectiveness of faculty members and the other organizations' results.

KEYWORDS: Faculty Development Programs, Professional Growth, Kirkpatrick Model, Higher Education, Organizational Impact

Introduction

Higher education institutions are witnessing a deep transformation, the ongoing professional advancement of faculty members has turned into a fundamental strategy for stabilizing and enhancing the efficiency of teaching, scientific research, and management. Hence, such programs, referred to as Faculty Development Programs (FDPs), have become increasingly popular as they have been formalized as programs aimed at nurturing of all rounded educators. The programs seek to improve the general class optimization including quality of classes, advancement of research as well as other professional advancement of faculty members.

The future of higher education and the role of edification in it cannot be discussed without underlining the merit

of these programs. There is the increasing urgency for a well-trained faculty as the demands of the students shift and institutions need to incorporate technology in the education they offer. That being said, the use of FDPs is not enough to address the issues raised in the objectives of this study. There has to be a measure of the extent to which the use of the programs achieves the purposes for which it was meant to help both the people and the institutions. Given these considerations, the Kirkpatrick model has become a popular and often used model for the purposes of reading training and developing evaluation. Initially intended for use in corporate training settings, the model also saw considerable use in education. The Kirkpatrick's four-level method, which deals with reactions, learning, behaviour and results, seems to be a fitting model to utilize in measuring performance of farmer development programs in their entirety. However updates included in the Kirkpatrik model as expressed in (Kirkpatrik, & Kirkpatrik, 2024.) has made the model more appropriate in today's teaching approaches.

On the other hand, the use of such models in terms of organization in the education system, i.e. Kirkpatrick's model, does come with more than a few challenges. As it's quite common for some authors to analyze a model they devote themselves to, Esq. Bates (2020) provides arguments both for and against the use of the model in assessing education. This criticism emphasizes the importance of finding the right balance when incorporating increasingly complex ideas into such evaluations once again in faculty development. Consistent with these endorsements, there are variations. One such example has been provided by Praslova (2021), who has sought for and proposed a modification of the Kirkpatrik model, specifically targeting higher education. This and other changes address the challenge of measuring educational outcomes and the respective satisfaction of and value of the programs from the perspective of the academics and their educational institution which contributes to this type of FDP evaluation.

This study attempts to enrich the existing body of knowledge by evaluating the efficacy of FDPs based on a modified Kirkpatrick model. Such aim implies that the understanding of elements related to faculty professional development, such as increasing knowledge and skills, application of those concepts learnt, as well as, the organizational benefits accrued over time from the use of such developed programs, will be enhanced.

While institutions of higher learning are devoting a considerable amount of money into faculty development, the need for evidence based approach to program design and evaluation is growing stronger. Therefore, this study not only helps fill the existing literature void but also helps design more effective FDPs in the future by providing evidence based ideas.

1. Review of Literature

The effectiveness of FDPs has been a subject of numerous studies in recent years. Ahmed and Khan (2022) undertook a systematic review of education since medical education encompassing Faculty Development Programs, and found them to have a positive influence on teaching skills, attitudes and knowledge of the participants. They believe effective classroom designs help to enhance the performance of teachers in the class to the students' favour. In the context of Asian medical education, Lee and Shin (2022) performed a scoping review that revealed a growing emphasis on FDPs across the region. They noted that while FDPs are becoming more prevalent, there is a need for more rigorous evaluation methods to assess their long-term impact. Steinert et al. (2022) provided a comprehensive 10-year update on faculty development initiatives designed to enhance teaching effectiveness. Their systematic review underscored the importance of context, the use of multiple instructional methods, and the need for longitudinal program designs to achieve lasting changes in teaching practices.

Chen and Li (2023) conducted a longitudinal study evaluating the long-term impact of FDPs on teaching effectiveness. Their research highlights the importance of sustained support and follow-up activities to ensure the transfer of learned skills to the classroom environment. Qian and Zhang (2024) explored the return on investment of FDPs in Chinese universities, providing a quantitative perspective on the long-term organizational outcomes resulting from these programs. Their study emphasizes the need for comprehensive evaluation methods that capture both immediate and long-term benefits of FDPs. The recent shift towards online and blended learning has also impacted FDPs. Liu and Johnson (2023) conducted a mixed-methods study on the impact of online FDPs on teaching practices. Their findings suggest that well-designed online programs can be as effective as traditional face-to-face FDPs, but they require careful consideration of technological and pedagogical factors.

Zhu and Liu (2024) examined the role of leadership in promoting effective FDPs across multiple institutions in East Asia. Their study underscores the importance of institutional support and leadership commitment in the success and sustainability of FDPs.

Research Gaps and Future Directions

Faculty Development Programs (FDPs) play a crucial role in enhancing the professional capabilities of educators in higher education. However, despite their widespread implementation, there remain significant gaps in understanding their effectiveness and long-term impact. This study aims to address these gaps by applying the Kirkpatrick Model to evaluate FDPs comprehensively. Although there is a growing body of literature on FDPs, several research gaps persist:

i. Limited comprehensive application of the Kirkpatrick Model in FDP evaluation
ii. Lack of long-term impact assessment of FDPs on faculty performance and,
iii. Insufficient quantifiable measurement of FDP outcomes at the organizational level

These gaps present opportunities for future research to deepen the understanding of FDP effectiveness and to improve their design and implementation. The study, focusing on knowledge and skills enhancement, confidence levels, and long-term organizational outcomes, addresses these gaps and has the potential to contribute significantly to the field of faculty development and evaluation.

Objectives

•To evaluate the knowledge and skills enhancement of faculty members as a result of FDPs using a structured questionnaire.

•To measure the confidence levels of faculty in applying new knowledge to their professional roles after FDP participation.

•To identify long-term organizational outcomes resulting from the successful implementation of FDP-acquired skills and knowledge.

2. Research Methodology

The population for this study includes faculty members who have participated in FDPs across various academic institutions. A structured questionnaire was shared with faculty members, and 248 valid responses were collected. The sample was selected through convenience sampling, ensuring a diverse range of respondents from different academic backgrounds and institutions.

Data Collection:

Primary data were collected using a structured questionnaire based on the four levels of the Kirkpatrick Model. The questionnaire included sections on:

•Reaction: Faculty members' initial impressions of the FDP.

•Learning: The knowledge and skills acquired during the FDP.

•Behaviour: The application of newly acquired knowledge in their professional roles.

•Results: The long-term outcomes of implementing FDP-learned skills in the organization.

The questionnaire used Likert-scale items to measure the responses for each variable.

Model: The Kirkpatrick Model was used as the theoretical framework for evaluating the effectiveness of FDPs. The model's four levels were treated as independent variables, with knowledge enhancement as the dependent variable. The objective was to measure the faculty's confidence in applying newly acquired knowledge and to identify the long-term organizational outcomes resulting from FDP participation.

3. Data Analysis

The data were analysed using the following statistical techniques:

- **Factor Analysis:** Conducted to evaluate the communalities of the variables (Reaction, Learning, Behaviour, and Results) and the total variance explained by the factors.
- **Multiple Regression Analysis:** Used to examine the relationship between the Kirkpatrick Model's four levels and knowledge enhancement.
- **ANOVA (Analysis of Variance):** Performed to test the significance of the regression model.
- **Coefficients Analysis:** To assess the influence of each variable (Reaction, Learning, Behaviour, Results) on knowledge enhancement.

Table1. Communalities

	Initial
Reaction	1.00
Learning	1.00
Behaviour	1.00
Results	1.00

The communalities are all 1.00, meaning that each of the four variables (Reaction, Learning, Behaviour, and Results) explains all the variance in the initial dataset. This is aligned with the Kirkpatrick model's structure, as each component plays a crucial role in the evaluation process. In relation to the objective, the table indicates that all variables are essential in assessing knowledge and skill enhancement after FDPs.

Table 2. Total Variance Explained

	Total	% of Variance	Cumulative %
1	3.12	77.9%	77.9%
2	.38	9.6%	87.5%
3	.30	7.6%	95.1%
4	.20	4.9%	100.0%

The first component explains 77.9% of the total variance, while the subsequent components account for smaller portions of the variance. The cumulative variance explained reaches 100%, meaning that the four components (Reaction, Learning, Behaviour, and Results) together fully account for the variance in the faculty members' responses. This underscores that the Kirkpatrick Model effectively captures all dimensions of the participants' growth in the FDPs, which aligns with the first objective to evaluate knowledge and skills enhancement.

Table 3. Component Matrix

	1	2	3
Reaction	.89	-.30	-.32
Learning	.91	.33	-.26
Behaviour	.87	-.01	.19
Results	.86	-.03	.42

The first component, with high positive loadings for Reaction (0.89), Learning (0.91), Behaviour (0.87), and Results (0.86), suggests that these elements are strongly correlated with the faculty members' overall professional growth after FDP participation. This directly relates to the second objective, which seeks to measure faculty members' confidence in applying new knowledge. The strong positive loadings show that all four levels of the Kirkpatrick model are instrumental in boosting confidence and professional capabilities.

Table4.ModelSummary (Knowlege_Enhancement)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.79	.62	.61	.72

An R-square value of 0.62 indicates that 62% of the variance in knowledge enhancement can be explained by the variables (Reaction, Learning, Behaviour, Results) from the Kirkpatrick Model. The model fits well and confirms that the predictors play a substantial role in determining the knowledge enhancement of faculty members. This aligns with the first objective of evaluating skill and knowledge enhancement through FDPs.

Table 5. ANOVA (Knowlege_Enhancement)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	205.15	4	51.29	98.23	.000
Residual	127.40	244	.52		
Total	332.55	248			

The ANOVA results reveal that the model is statistically significant ($p < 0.001$). This means that the four

predictors (Reaction, Learning, Behaviour, Results) significantly explain the knowledge enhancement observed among the faculty members. The high F-value of 98.23 suggests that the model is robust. This confirms the effectiveness of FDPs in enhancing faculty skills, supporting both the first and second objectives of the study.

Table6. Coefficients (Knowlege_Enhancement)

	B (standardized Coefficients)	Std. Error	Beta	t	Sig.
(Constant)	.30	.16	.00	1.89	.060
Reaction	.27	.08	.24	3.47	.001
Learning	.18	.07	.17	2.37	.019
Behaviour	.26	.06	.26	4.17	.000
Results	.20	.06	.21	3.57	.000

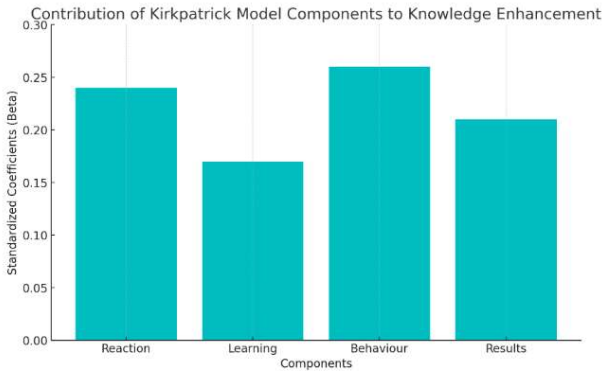

Figure 1. Knowledge Enhancement

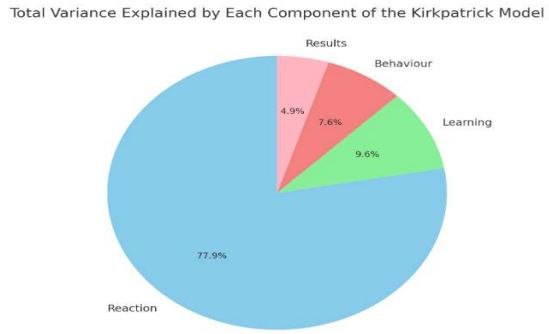

Figure 2. Variance

The coefficients indicate the contribution of each component to knowledge enhancement. The standardized coefficients show that Behaviour (β = 0.26) has the highest influence, followed by Reaction (β = 0.24), Results (β = 0.21), and Learning (β = 0.17). All coefficients are statistically significant, except the constant. The findings align with the third objective by indicating how various components of the Kirkpatrick Model (especially Behaviour and Reaction) contribute to long-term organizational outcomes, as faculty apply their newly acquired skills in professional settings.

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4. Conclusion

This study sought to assess the efficacy of Faculty Development Programs (FDPs) through the application of the Kirkpatrick Model, with particular emphasis on three key areas: enhancement of knowledge, confidence in skill application, and long-term organizational impacts. The findings provide robust empirical support for the effectiveness of FDPs in fostering professional growth among faculty members.

Factor analysis results revealed the critical importance of all four levels of the Kirkpatrick Model (Reaction, Learning, Behaviour, and Results) in elucidating the variance in faculty responses (Table 1). This finding corroborates previous research underscoring the comprehensive nature of the Kirkpatrick Model in evaluating

professional development initiatives (Kirkpatrick & Kirkpatrick, 2024). Notably, the principal component of the model accounted for 77.9% of the total variance (Table 2), demonstrating its capacity to capture the multidimensional aspects of professional development effectively.

The multiple regression analysis yielded a coefficient of determination (R^2) of 0.62, indicating that 62% of the variance in knowledge enhancement could be attributed to the four levels of the Kirkpatrick Model (Table 4). This statistically significant result lends credence to the model's predictive validity regarding learning outcomes, aligning with Praslova's (2021) adapted framework for higher education contexts.

Of particular significance, all four levels of the Kirkpatrick Model emerged as statistically significant predictors of knowledge enhancement (Table 6). The standardized regression coefficients revealed that Behavior ($\beta = 0.26$) and Reaction ($\beta = 0.24$) were the strongest predictors, followed by Results ($\beta = 0.21$) and Learning ($\beta = 0.17$). These findings highlight the importance of not only immediate learning outcomes but also the practical application of acquired knowledge and its enduring impact. This addresses a crucial gap in the literature identified by Chen and Li (2023) regarding the long-term assessment of FDPs.

To sum up, this study provides empirical evidence supporting the effectiveness of the Kirkpatrick Model in evaluating FDPs within higher education settings. The results underscore the multifaceted nature of professional development, emphasizing the interconnectedness of immediate reactions, learning outcomes, behavioural changes, and long-term results. These findings have significant implications for the design, implementation, and evaluation of FDPs in academic institutions.

5. Recommendations and Suggestions

Based on the findings, the study proposes the following recommendations:

1. Emphasis on Behavioural Change: Given the strong influence of the Behaviour component, FDPs should incorporate more practical, hands-on activities that encourage the application of learned skills in real-world scenarios.
2. Enhanced Reaction Measurements: The significant impact of Reaction suggests that immediate feedback mechanisms should be refined to capture more nuanced responses from participants.
3. Long-term Follow-up: To better assess the Results component, institutions should implement systematic long-term follow-up evaluations, perhaps 6-12 months post-FDP.
4. Customized Learning Pathways: While the Learning component had the lowest impact, it remains significant. FDPs could be designed with more personalized learning paths to enhance this aspect.
5. Integrated Evaluation Framework: Institutions should adopt a comprehensive evaluation framework that incorporates all four levels of the Kirkpatrick Model, ensuring a holistic assessment of FDP effectiveness.

Additionally, the significant impact of Reaction suggests that immediate feedback mechanisms should be refined to capture more nuanced responses from participants. Improvements could include developing a more granular satisfaction scale for FDP content and delivery.

6. Limitations of the Study

While this study provides valuable insights, several limitations should be acknowledged:

- Cross-sectional Design: The study's cross-sectional nature limits researchers' ability to track changes over time. A longitudinal design could provide more robust evidence of long-term impacts.
- Self-reported Data: The reliance on self-reported measures may introduce bias. Future studies could incorporate more objective measures of performance and organizational outcomes.
- Contextual Factors: The study did not account for institutional or cultural factors that might influence FDP effectiveness. As suggested by Lee and Shin (2022), these contextual elements could play a significant role.
- Sample Representation: The study's sample may not be fully representative of all higher education institutions. Replication across diverse settings would enhance generalizability.
- Quantitative Focus: The purely quantitative approach, while providing statistical rigor, may miss nuanced qualitative insights. A mixed-methods approach could offer a more comprehensive understanding.

Despite these limitations, this study contributes significantly towards building understanding of FDP effectiveness and provides a strong foundation for future research and practice in faculty development.

7. Ethical considerations

The authors affirm that informed consent was obtained from all participants in this study before administering the questionnaire, in accordance with ethical research standards.

8. Conflict of Interest

The authors declare no conflicts of interest.

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