IMPLEMENTATION OF THE PDCA CYCLE WITHIN IN-SERVICE TRAINING PROCESSES: A CASE STUDY OF UZUNKÖPRÜ VOCATIONAL SCHOOL

HİZMET İÇİ EĞİTİM SÜREÇLERİNDE PUKÖ DÖNGÜSÜNÜN UYGULANMASI: UZUNKÖPRÜ MESLEK YÜKSEKOKULU ÖRNEĞİ

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Abstract

This study examines the integration of the PDCA (Plan-Do-Check-Act) cycle into In-Service Training (IST) processes as a mechanism for continuous quality assurance in higher education. Presented as a case analysis, the research details the final evaluation

findings and strategic interventions of the Internal Service Development Program at Uzunköprü Vocational School (UMYO). The program underwent a mixed-methods evaluation involving 20 academic and administrative staff members, utilizing both Likert-type surveys and qualitative interviews. Quantitative results indicated exceptionally high satisfaction levels in the dimensions of Professional Contribution (5.00) and Content Relevance (4.89), yielding an Overall Satisfaction score of 4.93. These metrics validate the efficacy of the "Plan" and "Do" phases. Conversely, the Time Management dimension recorded a relatively lower mean of 4.12, highlighting an organizational constraint. Qualitative analysis attributed this variance to heavy workloads and extended session durations, with participants explicitly requesting advanced data analysis (SPSS/NVivo) workshops. In response to findings from the "Check" phase, structural improvements were devised for the "Act" phase. Key strategic actions include Calendar Optimization—spreading the program across the 2025-2026 Fall and Spring semesters—alongside Module Content Standardization and Digital Archiving. Aligning with the perspective of leadership as a "designer," these strategic initiatives facilitate the transformation of individual learning into institutional memory. Ultimately, the study demonstrates that the PDCA cycle serves as a dynamic and effective management framework in higher education, fostering not only curriculum quality but also organizational agility and data-driven continuous improvement. This systematic approach significantly reinforces the quality culture at UMYO.

Keywords: Higher Education, In-Service Training, PDCA Cycle, Quality Assurance, Organizational Learning

Öz

Yükseköğretimde sürekli kalite güvencesi için PUKÖ (Planla–Uygula–Kontrol Et–Önlem Al) döngüsünün Hizmet İçi Eğitim (HİE) süreçlerine entegrasyonu incelenmiştir. Bu vaka analizi, Uzunköprü Meslek Yüksekokulu (UMYO) Birim İçi Hizmet Geliştirme Programı'nın kapanış değerlendirme bulgularını ve stratejik aksiyonlarını sunmaktadır. Program, 20 akademik ve idari personel tarafından Likert anketleri ve nitel görüşmeler kullanılarak karma yöntemlerle değerlendirilmiştir. Nicel sonuçlar, Mesleki Katkı (5.00) ve İçerik Uygunluğu (4.89) boyutlarında çok yüksek memnuniyet (Genel Memnuniyet 4.93) olduğunu göstermiştir. Bu yüksek skorlar, Planla ve Uygula aşamalarının etkinliğini doğrulamaktadır. Ancak, organizasyonel bir kısıtlamaya işaret eden Zaman Yönetimi boyutu 4.12 gibi görece düşük bir ortalamada kalmıştır. Nitel analiz, bu düşük skorun nedeninin yoğun iş yükü ve uzun oturum süreleri olduğunu doğrulamış, katılımcılar ileri düzey veri analizi (SPSS/NVivo) atölyeleri talep etmiştir. Kontrol Et aşamasındaki bu bulgulara yanıt olarak, Önlem Al aşamasında yapısal iyileştirmeler planlanmıştır. Ana aksiyonlar, programın 2025-2026 Güz ve Bahar dönemlerine yayılmasıyla Takvim Optimizasyonu, Modül İçerik Standardizasyonu ve Dijital Arşivleme'dir. Bu stratejik eylemler, liderliği 'tasarımcı' olarak konumlandıran yaklaşıma paralel olarak, bireysel öğrenmenin kurumsal hafızaya dönüştürülmesini sağlamaktadır. Sonuç, PUKÖ döngüsünün, yükseköğretimde sadece müfredat kalitesini değil, aynı zamanda organizasyonel çevikliği ve veri temelli sürekli iyileştirmeyi sağlayan dinamik ve etkili bir yönetim çerçevesi olduğunu kanıtlamaktadır.

Bu sistematik yaklaşım, UMYO'nun kalite kültürünü güçlendirmektedir.

Anahtar Kelimeler: Yükseköğretim, Hizmet İçi Eğitim, PUKÖ Döngüsü, Kalite Güvencesi, Kurumsal Öğrenme.

Introduction

In-Service Training (IST) represents a pivotal institutional learning mechanism within higher education, designed to systematically augment the professional knowledge, skills, and attitudes of personnel. Beyond merely enhancing individual competencies, this process serves as a catalyst for cultivating an institutional quality culture and fostering the continuous improvement of academic standards (Goldstein & Ford, 2002; Noe, 2020). As the assurance of academic quality and alignment with accreditation benchmarks remain global priorities in higher education, the efficacy of IST programs necessitates the application of a systematic management framework across all phases, from design to evaluation. The Plan–Do–Check–Act (PDCA) Cycle serves as an iterative management instrument that underpins the Total Quality Management (TQM) philosophy and facilitates continuous improvement (Deming, 1986, p. 88). The recursive nature of this cycle effectively converts implementation outcomes into vital inputs for institutional learning. This comprehensive case analysis documents the "Closing Evaluation" phase of the PDCA cycle regarding the In-Service Development Program, which was organized through a collaboration between Uzunköprü Vocational School (UMYO) and the UMYOpark Coordination Office (Uzunköprü Meslek Yüksekokulu, n.d.). The program evaluation engaged 20 academic and administrative staff members, utilizing a mixed-methods approach to collect and analyze both quantitative and qualitative data (Uzunköprü Meslek Yüksekokulu, 2025). The primary objective of this study is to delineate the management of the program across the four PDCA stages, elucidate how mixed-method findings highlighted organizational challenges, and demonstrate how these insights were translated into strategic corrective actions (Act).

Literature Review

The extensive contribution of In-Service Training (IST) to organizational performance is well established in the literature (Goldstein & Ford, 2002; Noe, 2020). The effects of IST on institutional learning and competency enhancement are critical,

particularly given the complex and dynamic environment of higher education. Consequently, the utilization of quality management methodologies is essential for ensuring the effectiveness and sustainability of IST programs. The PDCA (Plan–Do–Check–Act) Cycle is an iterative management model utilized for process control and continuous improvement (Deming, 1986, p. 88). Deming argues that this cycle is a foundational framework that supports not only error correction but also the design of new products and processes, alongside learning-by-doing (Deming, 1986, p. 88). The integration of PDCA into higher education strengthens academic quality assurance mechanisms and offers a data-driven foundation for accreditation processes.

Within the scope of organizational learning theory, the 'Act' phase of the PDCA cycle is recognized as a primary mechanism for institutionalizing learning. Peter Senge (1990, p. 340) maintains that leaders must adopt a 'designer' role to build the learning organization's vision through the design of learning processes. Additionally, the Knowledge Creation Model (SECI), developed by Nonaka and Takeuchi (1995), explains how individuals' tacit knowledge is converted into explicit knowledge—such as standardized procedures and digital archives—and permanently added to institutional memory. This conversion process underpins the PDCA function of providing input for the next cycle.

Challenges regarding the professional development of academic staff are closely associated with excessive workloads and workplace stress. Research highlights that a majority of higher education personnel suffer from heavy workloads, which significantly increase burnout rates. This context necessitates that IST programs focus not only on the quality of content but also on logistical planning and time management perceptions. Furthermore, innovative assessment methods like e-portfolios and analytical rubrics are critical IST topics that support both student-centered approaches and digital literacy.

Development and Findings: The UMYO Program's PDCA Cycle

The UMYO “In-Service Development Program,” orchestrated to advance the goal of "Continuous Improvement of Education Quality" outlined in the UMYO 2023–2027 Strategic Plan, was executed in strict adherence to the four phases of the PDCA cycle (Uzunköprü Meslek Yüksekokulu, n.d.; Uzunköprü Meslek Yüksekokulu, 2025). The program’s primary objective was to conduct internal training processes in

a systematic and participant-centric manner, underpinned by a continuous improvement philosophy, thereby enhancing the pedagogical, managerial, and technical competencies of academic and administrative staff. Within this scope, the program successfully realized its objectives concerning innovative teaching methods, small group discussions, scientific publication and project writing processes, the diversification of assessment techniques, and the optimization of workflow efficiency through time management applications.

The Plan phase encompassed a critical needs assessment, serving as the foundation of the IST program. During this phase, performance gaps were identified through a situational analysis, and objectives were delineated using measurable Key Performance Indicators (KPIs) (Slade, 2017). The UMYO program explicitly targeted deficiencies among staff regarding legal obligations, academic ethics, publication processes, project development, and innovative pedagogical methods (e.g., e-portfolios, analytical rubrics). Strategic goals, such as a participation ≥ 80%, were established via these measurable KPIs (Uzunköprü Meslek Yüksekokulu, 2025).

The Do phase entailed the implementation of the defined plan on a pilot scale. In the IST program, training sessions were delivered utilizing interactive presentations, case analyses, group collaborations, and applied workshops. Aligning the execution phase with project management methodology (Project Management Institute, 2013) significantly improved output quality. Furthermore, a commitment to continuous support ensured that obstacles encountered during implementation were rapidly mitigated.

The Check phase represented the critical juncture where the outcomes of the implemented training were scrutinized using both quantitative and qualitative data. The program was evaluated by a cohort of 20 personnel using data collection instruments that included Likert-scale surveys, open-ended inquiries, and semi-structured group interviews (Uzunköprü Meslek Yüksekokulu, 2025). In the quantitative analysis, survey data were summarized through mean, frequency, and 5% percentile analyses. A univariate t-test conducted on the "Time Management" parameter yielded a p-value of $p=0.08$, indicating no statistically significant difference.

Table 1. Quantitative Evaluation Scores for UMYO In-Service Development Program (N=20)

Dimension	**General Satisfaction**	**Content Relevance**	**Material Quality**	**Instructor Performance**	**Time Management**	**Professional Contribution**
Mean	4.93	4.89	4.91	4.95	4.12	5.00
Lower 5th Percentile	4.80	4.70	4.75	4.85	3.50	5.00
Upper 5th Percentile	5.00	5.00	5.00	5.00	4.50	5.00

This table presents descriptive statistics derived from Likert-scale participant feedback, quantifying perceptions of effectiveness and quality across key training dimensions. The consistently high mean scores across the majority of metrics—particularly the perfect score for Professional Contribution—demonstrate the program's robust alignment with stated competency goals. The General Satisfaction score (4.93) and the low standard deviation (SD=0.15) confirm that participants attended the program with high satisfaction and that the planned learning outcomes met expectations. The perfect score recorded for Professional Contribution (5.00) serves as concrete evidence that the modules yielded outputs directly applicable to professional workflows. Conversely, the markedly lower mean in Time Management (4.12) reflects feedback regarding the program's intensity, highlighting a critical organizational constraint regarding logistical execution amidst existing workload pressures.

Qualitative analyses elucidated the underlying causes of the lower Time Management score; specifically, participants requested that sessions be segmented into 1.5–2-hour intervals. Regarding content, the Scientific Publication Processes, Project Management, and Legal Framework modules were identified as the most beneficial. Furthermore, development suggestions included increasing the frequency of applied case analyses, scheduling advanced workshops on data analysis software such as SPSS and NVivo, and improving the physical conditions of training rooms (e.g., air conditioning and air purifiers). Finally, the Act phase functions as the strategic bridge where corrective actions based on Check findings are planned and institutionalized. UMYO’s action plan, devised in this phase, provides a strategic response to these identified structural challenges (Uzunköprü Meslek Yüksekokulu, 2025).

Table 2. Strategic Action Plan (Act Phase) Derived from UMYO PDCA Closing Evaluation (2025–2026)

No.	Action Title	Responsible Unit	Timeline	Success Criterion
1	Module Content Standardization	UMYO–UMYOPARK Coordination Office	July–September 2025 (Fall Semester)	Publication of updated curriculum guide
2	Schedule Optimization	UMYO–UMYOPARK Coordination Office	September 2025 – February 2026 (Fall & Spring)	30% increase in weekly module load
3	Improvement of Physical Conditions	UMYO–UMYOPARK Coordination Office	October 2025	Installation of AC & 1 air purifier
4	Applied Data Analysis and Software Workshops	UMYO–UMYOPARK Coordination Office	November 2025 – March 2026 (Fall & Spring)	Workshop satisfaction ≥ 4.5
5	Crisis Management & Professional First Aid Training	UMYO–UMYOPARK Coordination Office	December 2025 – April 2026	75% of staff certified
6	Digital Archiving and Content Accessibility	UMYO–UMYOPARK Coordination Office	January 2026 – May 2026	Intranet access $\ge 80\%$, monthly measurement of download count
7	Annual PDCA Monitoring & Report Preparation	UMYO–UMYOPARK Coordination Office	June 2026	Completion of the prepared annual monitoring report

This strategic action plan synthesizes the critical empirical findings from the Check phase into measurable, time-bound organizational interventions, thereby underscoring the institution's steadfast commitment to continuous quality enhancement. The proposed measures simultaneously address curricular refinements—specifically through standardization and the introduction of advanced workshops—and the structural impediments identified by stakeholders, such as schedule optimization and physical infrastructure upgrades. This systematic framework guarantees that insights derived from the current PDCA cycle are immediately utilized as pivotal inputs for the subsequent planning phase, effectively institutionalizing the organizational learning process. Ultimately, these initiatives ensure that the lessons learned are codified into institutional memory, positioning the Plan phase of the next PDCA cycle to commence with a revised and enriched pedagogical foundation.

Discussion and Conclusion

The deployment of the UMYO program within the PDCA framework articulates a holistic paradigm for achieving sustainable quality assurance in higher education institutions. Orchestrating the program through the cyclical nature of PDCA endows quality assurance units with the capacity for rigorous, evidence-based reporting, substantiated by systematic data acquisition and sophisticated mixed-methods analysis. The deliberate integration of these empirical outputs into accreditation dossiers—specifically through dissemination and accreditation readiness initiatives—serves as more than a mere internal mechanism for process optimization; rather, it constitutes a strategic proclamation of the institution's fidelity to external quality benchmarks and its accountability to stakeholders.

The findings derived from this case study substantiate that the efficacy of In-Service Training is predicated not merely on the pedagogical rigor of the curriculum, but fundamentally on the institutional leadership's capacity to architect organizational frameworks that facilitate learning. The intervention regarding calendar optimization, devised to ameliorate the diminished perception of Time Management, underscores the paramount imperative for leadership to assume the mantle of the "organizational architect." In this capacity, leadership transcends conventional administrative oversight to delineate the mission, vision, and core values of the learning organization, thereby fostering an ecosystem where professional development fosters without logistical friction. Moreover, the standardization of pedagogical materials and the inauguration of a Digital Content Repository signify a paradigm shift in knowledge management strategies. These initiatives resonate with the theoretical underpinnings of knowledge creation, effectively transmuting ephemeral, tacit individual knowledge into immutable, explicit organizational capital. This codification guarantees the preservation of intellectual assets within the institutional memory, rendering the organization resilient to personnel attrition. Consequently, the strategic interventions formulated during the Act phase validate the PDCA cycle as a resilient and dynamic governance framework capable of navigating complex structural impediments, thereby directly fortifying a data-centric quality culture at UMYO.

Prospectively delineating the strategic trajectory, these findings establish a foundation for the evolution of the institution's professional development ecosystem.

In future iterations, the program envisions the integration of AI-driven adaptive learning modalities to customize training pathways, thereby addressing individual competency variances with unprecedented precision. Concurrently, to augment the tangible value proposition of participation, the institution projects the implementation of an immutable, blockchain-verified micro-credentialing system, enabling staff to certify and showcase acquired competencies with digital integrity. Finally, longitudinal inquiries are anticipated to gauge the enduring impact of these pedagogical interventions on student satisfaction and overarching institutional performance metrics. These forward-looking initiatives aim to metamorphose the contemporary linear training model into a cyclical, self-regulating, and scalable learning ecosystem, positioning UMYO as a vanguard in innovative higher education management.

References

Deming, W. E. (1986). Out of the crisis. MIT Press.

Goldstein, I. L., & Ford, J. K. (2002). Training in organizations: Needs assessment, development, and evaluation (4th ed.). Wadsworth.

Noe, R. A. (2020). Employee training and development (8th ed.). McGraw-Hill Education.

Nonaka, I., & Takeuchi, H. (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation. Oxford University Press.

Project Management Institute. (2013). A guide to the project management body of knowledge (PMBOK guide) (5th ed.). Project Management Institute.

Senge, P. M. (1990). The fifth discipline: The art and practice of the learning organization. Doubleday.

Slade, M. (2017). Essential questions. In J. Stefaniak (Ed.), Instructional design needs assessment: Theory, process, and practice. Routledge.

Uzunköprü Meslek Yüksekokulu. (n.d.). UMYO Birim İçi Hizmet Eğitimi. Trakya Üniversitesi. Retrieved November 15, 2025, from https://bys.trakya.edu.tr/file/open/60277578

Uzunköprü Meslek Yüksekokulu. (2025). UMYOPARK Birim İçi Hizmet Geliştirme Programı PUKÖ Döngüsü Kapanış Değerlendirme Raporu. Trakya Üniversitesi. Retrieved November 15, 2025, from https://bys.trakya.edu.tr/file/open/83324816