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DEVELOPING AND EVALUATING AN INTEGRATED EDUCATIONAL SERVICE MODEL FOR IT ACADEMY STUDY CENTERS IN THE DIGITAL SKILLS MARKET

Nodirbek Yokubov[1],
Khodjaeva Gulchekhra Anvarjonova[2],
Davronova Odina[3]

[1,3]Bachelor of Business Administration, Faculty of Management, Sharda University, Uzbekistan
nodirbekyokubovnewyork99@gmail.com; rushadavronova@gmail.com

[2]Assistant Professor, Faculty of Management, Sharda University, Uzbekistan
gulchekhra.khodjaeva@shardauniversity.uz

Abstract

The rapid expansion of the digital economy has intensified global demand for qualified IT professionals and accelerated the growth of private IT study centers operating as intermediary institutions between labor-market demand and skill formation. Despite their increasing significance in emerging economies, limited empirically grounded research exists concerning how such institutions can systematically design, evaluate, and improve their educational service models in ways that ensure sustainable learner satisfaction, retention, and employability outcomes.

This study develops and empirically evaluates an integrated educational service model for an IT Academy study center operating within a competitive digital skills market. The research adopts a mixed-method case study approach combining institutional document analysis, learner perception surveys, semi-structured interviews with administrators, instructors, and employer representatives, as well as cohort-level learning analytics.

The findings demonstrate that educational quality in short-cycle IT training is multidimensional and structurally produced through organizational alignment rather than individual instructional performance alone. Curriculum currency, practice-intensive instruction, and formative support reliability emerged as the most influential determinants of learner satisfaction. Retention was strongly associated with structured onboarding, feedback timeliness, and early-stage instructional support rather than admission selectivity. Perceived employability was linked to coherent project sequencing, milestone-based assessment, and external expert review processes aligned with workplace expectations.

A major institutional bottleneck was identified in instructor capacity and pedagogical standardization, where excessive dependence on a limited group of high-performing instructors created operational fragility and inconsistent learner experiences. Based on the empirical findings, the study develops a three-subsystem educational service model consisting of pedagogical, service-support, and governance subsystems whose alignment determines institutional effectiveness.

The study contributes theoretically by integrating human capital theory, service-dominant logic, vocational education research, and organizational governance literature into a unified framework applicable to non-university IT training organizations. Practically, it provides study center leaders and policymakers with an actionable model for organizational diagnosis, quality assurance, and sustainable educational management.

Keywords: IT training, educational service model, study center management, digital skills market, service quality, learner retention, employability, educational governance, vocational education, human capital

1. Introduction

1.1 Background of the Study

The rapid digitalization of economic systems has fundamentally transformed labor-market structures and skill requirements across the global economy. Over the last two decades, employers have

increasingly shifted demand away from routine cognitive work toward specialized digital competencies in areas such as software development, data analytics, cybersecurity, cloud infrastructure, and user experience design.

According to the International Labour Organization (2022), occupations requiring digital capabilities continue to expand significantly across both developed and emerging economies. This transformation has created substantial pressure on educational institutions to produce technologically skilled labor capable of adapting to continuously evolving digital environments.

Traditional higher education institutions frequently struggle to respond quickly to technological change due to lengthy curriculum approval cycles, bureaucratic governance structures, and limited responsiveness to rapidly shifting industry requirements. In response, private non-university IT training centers have emerged as critical intermediary organizations connecting labor-market demand with accelerated skill development.

These institutions typically provide short-cycle, practice-oriented training programs ranging from several months to one academic year. Their primary value proposition lies in offering market-relevant skills more rapidly and flexibly than traditional university systems.

Within Central Asian and post-Soviet contexts, particularly in Uzbekistan, the growth of private IT training has accelerated following state-led digital economy initiatives. Government programs such as the “Digital Uzbekistan 2030” strategy have emphasized the importance of developing an IT-skilled workforce capable of supporting national modernization and economic diversification objectives.

The IT Academy system represents one of the most visible institutional responses to this policy environment. Study centers operating under the IT Academy framework provide training in web development, mobile applications, data analytics, UI/UX design, and digital marketing.

Despite the sector’s rapid growth and policy significance, limited research has systematically examined how such institutions can design sustainable educational service models capable of ensuring consistent quality, learner retention, and employability outcomes.

This study addresses that gap by developing and empirically evaluating an integrated educational service model for an IT Academy study center operating within a competitive digital skills market.

1.2 Problem Statement

The central challenge facing private IT study centers is not the absence of learner demand but the difficulty of sustaining educational quality under conditions of technological volatility, instructor scarcity, and learner heterogeneity.

Programs that fail to maintain curriculum relevance risk producing graduates with outdated competencies disconnected from current labor-market requirements. Similarly, institutions lacking structured pedagogical support mechanisms often experience high dropout rates and inconsistent learner outcomes.

In many cases, curriculum updates occur informally through individual instructor initiative rather than through systematic governance mechanisms. Instructor recruitment prioritizes technical expertise while neglecting pedagogical capability and standardized assessment practices. Employer engagement frequently remains ceremonial and disconnected from actual curriculum design and evaluation.

As a result, educational quality becomes heavily dependent on a small number of highly capable instructors rather than sustainable organizational systems. This creates operational fragility, inconsistent learner experiences, and difficulty scaling institutional quality.

The broader scientific problem underlying these operational challenges is the absence of an integrated and empirically validated organizational model connecting pedagogy, service support, and governance in non-university IT training institutions.

1.3 Research Questions

The study addresses the following research questions:

1. What dimensions of educational quality are perceived as most important by learners in short-cycle IT training?

2. Which organizational mechanisms most strongly influence learner retention and completion?
3. How do curriculum design, instructional delivery, and assessment practices influence perceived employability readiness?
4. What governance structure enables sustainable educational quality and institutional scalability in IT study centers?

1.4 Research Objectives

The major objectives of the study are:

- To identify the dimensions of educational quality within short-cycle IT training.
- To analyze organizational factors affecting learner retention and completion.
- To examine the relationship between program architecture and employability readiness.
- To develop an integrated educational service model applicable to IT study center management.

1.5 Significance of the Study

The significance of the study exists on theoretical, practical, and policy levels.

Theoretically, the study contributes to educational management research by integrating service-dominant logic, human capital theory, vocational education research, and organizational governance literature into a unified framework applicable to private IT training institutions.

Practically, the research provides study center leaders with an operational framework for diagnosing organizational weaknesses and improving educational quality.

From a policy perspective, the findings are relevant for countries such as Uzbekistan where private digital skills training sectors are expanding rapidly without fully institutionalized quality assurance systems.

2. Literature Review

2.1 Human Capital Theory and IT Training

Human capital theory argues that investment in education and training generates productive capabilities that contribute to economic performance and labor-market competitiveness.

Becker (1993) emphasized that the economic value of education depends not only on skill acquisition but also on the labor-market relevance and credibility of the competencies developed.

Within the IT training sector, this implies that the effectiveness of a study center cannot be evaluated solely through enrollment or completion statistics. Instead, institutional effectiveness depends on whether learners acquire competencies recognized and valued by employers.

Autor (2015) further argues that technological change has polarized labor markets by reducing demand for routine work while increasing demand for high-skill digital competencies. IT study centers therefore occupy an increasingly important position within workforce development systems.

2.2 Service Quality in Educational Contexts

Parasuraman, Zeithaml, and Berry's SERVQUAL framework identifies reliability, responsiveness, assurance, empathy, and tangibles as major dimensions of service quality.

In educational settings, these dimensions manifest through instructional reliability, feedback timeliness, administrative responsiveness, and learner support.

Service-dominant logic further suggests that educational value is co-created through interaction between instructors, learners, and institutional systems.

Within short-cycle IT training environments, the quality of learner experience depends heavily on real-time instructional support, mentoring access, and timely feedback.

2.3 Vocational Education and Employability

Vocational education literature emphasizes the importance of practice-based learning and authentic assessment.

Billett (2011) argues that competence development is most effective when learning activities mirror real occupational tasks and workflows.

In IT training environments, this requires project-based learning structures, milestone assessments,

portfolio development, and exposure to collaborative digital tools commonly used within industry settings.

2.4 Organizational Governance and Educational Capability

Research on educational governance demonstrates that sustained institutional quality depends on organizational systems rather than individual excellence alone.

Fullan (2016) emphasized that educational improvement requires coherent governance structures, collaborative professional development, and systematic feedback mechanisms.

Similarly, higher education quality assurance literature demonstrates that institutional quality must be continuously monitored, evaluated, and improved through structured governance cycles.

These insights are particularly relevant to IT study centers where quality frequently depends excessively on a limited number of highly capable instructors.

2.5 Theoretical Framework

The literature synthesis supports a three-dimensional theoretical framework:

1. Educational quality functions as a labor-market signal.
2. Educational value is co-produced through organizational interaction.
3. Sustainable quality depends on governance capability rather than isolated instructional performance.

The study operationalizes these dimensions through a three-subsystem educational service model consisting of:

- pedagogical subsystem,
- service-support subsystem,
- governance subsystem.

3. Research Methodology

3.1 Research Design

The study adopts a mixed-method case study design appropriate for examining organizational mechanisms within complex educational environments.

The mixed-method approach enables both quantitative analysis of learner perceptions and qualitative exploration of institutional processes.

3.2 Research Setting

The research site is an IT Academy study center offering programs in:

- full-stack web development,
- mobile application development,
- data analytics,
- UI/UX design.

The learner population primarily consists of secondary school graduates, technical college graduates, and early-career professionals aged between 18 and 28.

3.3 Data Collection Methods

Institutional Document Analysis

Institutional documents analyzed included:

- curriculum frameworks,
- syllabi,
- assessment rubrics,
- instructor qualification records,
- enrollment and completion statistics,
- academic policies.

Learner Perception Survey

A structured questionnaire was distributed to 186 learners, including both current participants and recent graduates.

The survey contained six major dimensions:

- curriculum relevance,
- instructional quality,
- feedback reliability,
- administrative support,
- project and portfolio quality,
- employability readiness.

A total of 148 usable responses were obtained.

Semi-Structured Interviews

Seventeen interviews were conducted with:

- administrators,
- instructors,
- employer representatives.

Interview topics included curriculum governance, instructional quality, employer expectations, and learner support mechanisms.

Learning Analytics

Behavioral data from approximately 340 learner journeys were analyzed, including:

- attendance rates,
- assignment submission timing,
- project completion,
- final assessment outcomes.

3.4 Data Analysis

Quantitative data were analyzed using descriptive statistics and correlation analysis.

Qualitative interview data were analyzed thematically through coding procedures focused on governance mechanisms, instructional quality, retention dynamics, and employability outcomes.

Triangulation across multiple data sources strengthened analytical validity.

4. Data Analysis and Interpretation

4.1 Learner Perceptions of Educational Quality

The findings demonstrate that learners perceive educational quality as a multidimensional construct rather than a single generalized experience.

Instructional quality received relatively positive evaluations, particularly regarding instructor technical expertise and conceptual explanation.

However, formative feedback and mentoring reliability received lower ratings and demonstrated high variability across instructional tracks.

Curriculum currency emerged as one of the most influential dimensions affecting learner confidence and satisfaction. Learners expressed stronger satisfaction in tracks where content reflected current industry tools and technologies.

Programs using outdated software libraries or obsolete frameworks generated significantly lower confidence regarding employability outcomes.

These findings indicate that educational quality in IT training environments is closely tied to labor-market relevance.

4.2 Retention and Completion Dynamics

The analysis identified the first four to six weeks of enrollment as the critical retention period.

Learners maintaining high attendance and assignment completion during this early phase demonstrated substantially higher program completion rates.

The findings further revealed that delayed feedback and unclear workload expectations contributed significantly to early withdrawal behavior.

Importantly, admission selectivity showed little relationship with completion outcomes.

This suggests that learner retention depends more heavily on institutional support mechanisms than

on restrictive admission processes.

4.3 Employability Readiness

Perceived employability readiness represented the most variable dimension across learner experiences.

Three factors consistently predicted stronger employability confidence:

1. coherent portfolio sequencing,
2. milestone-based assessment structures,
3. external expert review.

Learners participating in programs with iterative project defenses and multi-stage portfolio development demonstrated greater confidence in interviews and job applications.

Employer representatives identified communication ability, project explanation skills, and collaborative workflow familiarity as critical hiring criteria.

These findings suggest that employability is shaped more by program architecture than by program duration alone.

4.4 Instructor Capacity and Quality Fragility

Instructor capacity emerged as the most significant operational bottleneck.

The center relied heavily on a limited group of highly capable instructors whose departure would substantially weaken institutional quality.

Pedagogical inconsistency across instructors produced substantial variation in feedback quality, grading transparency, and learner satisfaction.

Tracks implementing shared rubrics and instructor calibration meetings demonstrated significantly stronger learner perceptions regarding fairness and instructional consistency.

The findings therefore indicate that organizational standardization rather than instructor replacement represents the most effective strategy for sustainable quality improvement.

4.5 Employer Engagement and Curriculum Governance

The study identified a major difference between ceremonial employer partnerships and operationally integrated employer engagement.

Partnerships functioning primarily as marketing assets produced limited educational value.

However, programs incorporating employer representatives into project evaluation and curriculum feedback processes generated stronger learner motivation and improved labor-market alignment.

Employer integration into assessment and curriculum governance therefore emerged as a strategically important mechanism for educational relevance.

5. Findings, Conclusions, and Suggestions

5.1 The Three-Subsystem Educational Service Model

The central contribution of the study is the development of a three-subsystem educational service model.

Pedagogical Subsystem

The pedagogical subsystem includes:

- curriculum currency,
- project sequencing,
- milestone assessment,
- portfolio architecture,
- shared assessment rubrics.

Service-Support Subsystem

The service-support subsystem includes:

- structured onboarding,
- mentoring systems,
- feedback reliability,
- administrative responsiveness,
- learner progress tracking.

Governance Subsystem

The governance subsystem includes:

- curriculum review cycles,
- instructor development,
- employer advisory integration,
- quality monitoring systems,
- institutional feedback loops.

The study demonstrates that sustainable educational quality depends on alignment across all three subsystems.

Weakness in any subsystem negatively affects the others and reduces overall organizational effectiveness.

5.2 Theoretical Implications

The findings extend human capital theory by demonstrating that learners continuously evaluate the labor-market relevance of training during the educational process itself.

The study also advances service quality theory by showing that feedback timeliness functions as a pedagogical infrastructure mechanism rather than merely an administrative support process.

Furthermore, the research operationalizes vocational education theory by identifying employer-integrated assessment as a practical mechanism for improving employability alignment within short-cycle training contexts.

5.3 Practical Conclusions

The study leads to several important operational conclusions:

1. Educational quality is organizationally produced rather than individually delivered.
2. Retention challenges are concentrated in the first month of enrollment.
3. Employability depends primarily on program architecture and portfolio coherence.
4. Instructor inconsistency should be addressed through governance and standardization.
5. Employer partnerships generate educational value only when operationally embedded.

5.4 Recommendations

Based on the findings, the following recommendations are proposed:

1. Implement structured curriculum review cycles informed by labor-market intelligence.
2. Develop formal onboarding programs focused on early-stage learner adaptation.
3. Establish binding feedback timeliness standards across instructional tracks.
4. Redesign projects as milestone-based portfolio sequences.
5. Integrate employer representatives into assessment and curriculum review processes.
6. Develop structured instructor professional development programs.
7. Establish formal employer advisory panels.
8. Develop national quality standards for private IT study centers.

5.5 Directions for Future Research

Future research should include:

- multi-center comparative analysis,
- longitudinal graduate tracking,
- experimental governance interventions,
- regional comparative studies across Central Asia.

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