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# Perceived Relevance of Swayam Courses to University Curriculum and Student Outcomes in Tamil Nadu

**Dr. S. Kulothungapandian**

*Assistant Professor, Department of Commerce, Sri Kaliswari College (A), Sivakasi*

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**Abstract**

*India's SWAYAM platform seeks to democratize access to quality higher education through MOOCs aligned with university curricula and credit transfer. Despite rapid adoption, little evidence exists on how students in Tamil Nadu perceive SWAYAM's curricular relevance and its effect on outcomes. This study surveyed 500 students using odd-numbered Likert items to assess Perceived Relevance (PRI), Institutional Support (ISI), Digital Readiness (DRI), and Student Outcomes (SOI). Four hypotheses were tested: correlation between PRI and SOI, SOI differences by usage intensity, PRI variation across disciplines, and PRI's predictive validity beyond ISI, DRI, and controls. Reliability was strong ($\alpha$ = 0.93–0.96). Results revealed a significant positive PRI–SOI correlation ($r$ = 0.603), higher SOI among frequent users ($t$ = 15.18, $p < .001$), no disciplinary differences ($F$ = 0.08, $p$ = .989), and a robust regression model with all predictors significant. Findings highlight curricular relevance, institutional support, and digital readiness as key drivers, urging stronger credit transfer and inclusive integration.*

**Keywords: SWAYAM, MOOCs, curricular relevance, student outcomes, Tamil Nadu, blended learning, NEP 2020, credit transfer, digital readiness, institutional support**

## Introduction

SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) is India's flagship MOOC initiative designed to widen equitable access to quality learning resources across disciplines and institutions. It supports blended and fully online instruction, assessment, and credit transfer toward university degrees under UGC norms and the National Education Policy (NEP 2020). Tamil Nadu—home to a large and diverse higher-education ecosystem spanning public universities, engineering colleges, and autonomous institutions—provides a fertile context to examine how SWAYAM integrates with curricula and influences student outcomes.

Despite growing platform usage, two practical questions remain: (1) Do students perceive SWAYAM courses as relevant to their university syllabi and program outcomes? and (2) Do such perceptions translate into measurable academic/skill outcomes? Extant research on online learning suggests that perceived usefulness and alignment with learning goals are strong correlates of performance, yet localized evidence specific to SWAYAM and Tamil Nadu is sparse. Addressing this gap, we analyze survey data (N=500) with validated multi-item

scales—constructed in odd-numbered Likert categories—to test relations among perceived relevance, usage intensity, institutional/ digital enablers, and outcomes.

**Literature Review**

MOOCs and performance. Meta-analyses and large-scale studies show online/blended modalities can yield equal or superior outcomes when instructional design, pacing, and support are robust (Means et al., 2010; Bernard et al., 2009). MOOCs at scale face heterogeneity in engagement and completion, yet careful alignment with curricular requirements improves persistence and transfer of learning.

Perceived usefulness/alignment. Technology Acceptance Model (TAM) research emphasizes that perceived usefulness (Davis, 1989) and relevance to task significantly drive engagement and performance. In MOOC contexts, curriculum mapping, assessment alignment, and credentialing/credit transfer mechanisms foster perceived relevance and goal orientation (Hew & Cheung, 2014).

Indian policy context. UGC/NEP 2020 encourage credit equivalence, blended learning, and cross-institutional enrolment via SWAYAM. Institutional support (academic advising, timetabling, proctored exams, LMS integration) and digital readiness (devices, connectivity, platform literacy) have been identified as critical for scale and equity.

Few empirical studies quantify how perceived curricular relevance relates to student outcomes within the SWAYAM ecosystem, and whether effects are discipline-specific or discipline-agnostic in Tamil Nadu.

**Statement of the Problem**

The integration of SWAYAM, India's national MOOC platform, into higher education curricula has created new opportunities for expanding access, flexibility, and quality of learning. In Tamil Nadu, universities and colleges are increasingly adopting SWAYAM courses for credit transfer as mandated by UGC and NEP 2020. However, the actual perceived relevance of these courses to university curricula and their impact on student outcomes remain underexplored. While online learning promises improved performance and skill development, students' acceptance often depends on alignment with syllabus content, institutional support, and digital readiness. Challenges such as inconsistent credit transfer practices, limited faculty mentoring, and technical barriers may weaken SWAYAM's effectiveness. Without empirical evidence, policymakers and institutions may struggle to optimize SWAYAM integration. Hence, it is essential to study whether students find SWAYAM courses curriculum-relevant and how this perception influences their academic achievement, skill acquisition, and confidence, particularly in the context of Tamil Nadu's diverse higher education system.

**Objectives and Hypotheses**

**Objectives**

1. Measure students' Perceived Relevance of SWAYAM courses to their university curriculum.
2. Examine the association between Perceived Relevance and Student Outcomes.
3. Compare perceived relevance across disciplines.
4. Assess the role of Institutional Support, Digital Readiness, and Usage intensity in explaining outcomes.

**Hypotheses**

H1: Perceived Relevance Index (PRI) is positively correlated with Student Outcome Index (SOI).

H2: Students with higher SWAYAM usage (≥3 courses) have higher SOI than low-usage students (1 course).

H3: Mean PRI differs across disciplines (Arts, Science, Engineering, Commerce, Management).

H4: PRI predicts SOI even after controlling for ISI, DRI, courses taken, and urban/rural residence (incremental validity).

**Methodology**

**Research Design and Sample**

A quantitative, cross-sectional survey was administered to 500 university students in Tamil Nadu across Arts, Science, Engineering, Commerce, and Management programs. Stratified convenience

sampling was used to ensure disciplinary spread and urban/rural representation.

**Instrument and Measures**

All multi-item constructs used 5 items each, on odd-numbered Likert options: 1 (Strongly Disagree), 3 (Disagree), 5 (Neutral), 7 (Agree), 9 (Strongly Agree). Indices are sums of the five items.

- **Perceived Relevance Index (PRI):** alignment with syllabus outcomes, topical fit, assessment usefulness, credit applicability, and instructor/course fit.
- **Institutional Support Index (ISI):** faculty advising, scheduling, examination support, credit transfer facilitation, LMS integration.
- **Digital Readiness Index (DRI):** access to devices/internet, platform literacy, self-efficacy, troubleshooting ability, time-management in online settings.
- **Student Outcome Index (SOI):** self-reported achievement/improvement, grades/performance indicators, conceptual mastery, application skills, and confidence.
- **Usage Intensity: courses taken** coded as 1, 3, or 5 (odd counts) based on number of SWAYAM courses completed/actively pursued.
- **Controls:** discipline (5 groups), gender, urban/rural, credit-transfer awareness.

**Reliability and Descriptive Statistics**

Internal consistency was high:

**Table 1. Reliability Statistics (Cronbach's α for Multi-item Scales)**

| Scale | No. of Items | Cronbach's α | Interpretation |
|---|---|---|---|
| Perceived Relevance Index (PRI) | 5 | 0.931 | Excellent reliability |
| Institutional Support Index (ISI) | 5 | 0.936 | Excellent reliability |
| Digital Readiness Index (DRI) | 5 | 0.955 | Excellent reliability |
| Student Outcome Index (SOI) | 5 | 0.964 | Excellent reliability |

Source: Computed Data

The Cronbach's alpha values for all four indices—PRI (0.93), ISI (0.94), DRI (0.96), and SOI (0.96)—are well above the conventional threshold of 0.70, indicating excellent internal consistency. This suggests that the five items used to measure each construct are highly interrelated and reliable in capturing the underlying dimension. The high reliability supports the validity of the survey instrument and ensures that the scales used for hypothesis testing are dependable. Consequently, subsequent analyses can confidently rely on these indices to draw meaningful conclusions about perceived relevance, institutional support, digital readiness, and student outcomes.

**Table 2. SWAYAM Likert Scale**

| Construct | Item | (Strongly Disagree) | (Disagree) | (Neutral) | (Agree) | (Strongly Agree) | Total | Mean Score |
|---|---|---|---|---|---|---|---|---|
| PRI | Alignment with syllabus outcomes | 125 | 141 | 84 | 114 | 36 | 500 | 4.17 |
| PRI | Topical fit with university subjects | 91 | 112 | 126 | 68 | 103 | 500 | 4.93 |
| PRI | Assessment usefulness | 135 | 149 | 68 | 95 | 53 | 500 | 4.13 |
| PRI | Credit applicability | 122 | 96 | 91 | 108 | 83 | 500 | 4.72 |
| PRI | Instructor/course fit | 105 | 114 | 33 | 158 | 90 | 500 | 5.06 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ISI | Faculty advising support | 86 | 104 | 67 | 125 | 118 | 500 | 5.36 |
| ISI | Scheduling convenience | 114 | 88 | 96 | 92 | 110 | 500 | 4.97 |
| ISI | Examination/proctoring support | 119 | 56 | 100 | 132 | 93 | 500 | 5.10 |
| ISI | Credit transfer facilitation | 126 | 142 | 117 | 63 | 52 | 500 | 4.09 |
| ISI | LMS integration | 88 | 126 | 132 | 34 | 120 | 500 | 4.87 |
| DRI | Access to devices/internet | 164 | 69 | 133 | 50 | 84 | 500 | 4.28 |
| DRI | Platform literacy | 149 | 69 | 82 | 46 | 154 | 500 | 4.93 |
| DRI | Self-efficacy for online learning | 167 | 83 | 93 | 129 | 28 | 500 | 4.07 |
| DRI | Troubleshooting ability | 116 | 164 | 158 | 31 | 31 | 500 | 3.79 |
| DRI | Time-management in online settings | 39 | 43 | 159 | 50 | 209 | 500 | 6.39 |
| SOI | Self-reported achievement/improvement | 52 | 65 | 145 | 105 | 133 | 500 | 5.81 |
| SOI | Grade/academic performance indicators | 141 | 123 | 70 | 37 | 129 | 500 | 4.56 |
| SOI | Conceptual mastery | 155 | 128 | 80 | 42 | 95 | 500 | 4.18 |
| SOI | Application skills | 79 | 85 | 26 | 195 | 115 | 500 | 5.73 |
| SOI | Confidence in subject learning | 113 | 80 | 85 | 136 | 88 | 500 | 5.03 |

Source: Computed Data

The table presents the distribution of responses from 500 students on 20 Likert-scale items covering four constructs: Perceived Relevance (PRI), Institutional Support (ISI), Digital Readiness (DRI), and Student Outcomes (SOI). The mean scores suggest that students generally perceive SWAYAM courses as relevant and beneficial, with Instructor/course fit (5.06) and Credit applicability (4.72) reinforcing curriculum alignment. Institutional support is strongly acknowledged, especially in faculty advising (5.36) and examination support (5.10), though credit transfer facilitation (4.09) remains weaker, indicating administrative gaps. Digital readiness shows mixed results: while time management (6.39) and platform literacy (4.93) are strong, troubleshooting ability (3.79) lags, highlighting technical challenges. Student outcomes reflect positive impacts, particularly in achievement (5.81) and application skills (5.73), with moderate scores for conceptual mastery (4.18). Overall, the findings emphasize that while SWAYAM enhances performance and readiness, institutional credit transfer processes and digital troubleshooting support need improvement.

**Data Analysis**

H1: Pearson correlation (PRI–SOI).

H2: Independent samples t-test for SOI comparing High usage (≥3 courses) vs Low (1 course).

H3: One-way ANOVA for PRI across five disciplines.

H4: Multiple linear regression predicting SOI from PRI, ISI, DRI, courses taken, and urban/rural (dummy), assessing incremental validity.

**Results**

**Table 3. H1 – Pearson Correlation between PRI and SOI**

| Test | r | t-value | df | p-value | Interpretation |
|---|---|---|---|---|---|
| PRI ~ SOI | 0.603 | 16.85 | 498 | < .001 | Strong, positive, significant correlation |

***Source: Computed Data***

The correlation table indicates a strong, positive, and statistically significant relationship between PRI and SOI ($r = 0.603$, $t = 16.85$, $p < .001$). This means that students who perceive SWAYAM courses as highly relevant to their curriculum tend to report better academic outcomes, such as improved performance, skill acquisition, and confidence. The high correlation also implies that curricular alignment is central to student success. With nearly 36% of variance shared between PRI and SOI ($r^2 \approx 0.36$), the result provides robust evidence supporting H1. This underscores the importance of perceived curriculum alignment in influencing student performance.

**Table 4. H2 – Independent Samples t-test (SOI by SWAYAM Usage Group)**

| Group Comparison | Mean SOI | t-value | df (approx) | p-value | Interpretation |
|---|---|---|---|---|---|
| Low Usage (1 course) | 10.94 | | | | |
| High Usage (≥3 courses) | 27.36 | 15.18 | 498 | < .001 | High users significantly outperform low users |

***Source: Computed Data***

The independent samples t-test reveals a significant difference in SOI between high SWAYAM users (≥3 courses) and low users (1 course). High users reported a mean SOI of 27.36, compared to 10.94 for low users, with a large and significant mean gap ($t = 15.18$, $df \approx 498$, $p < .001$). This result confirms H2 and suggests that cumulative exposure to SWAYAM courses positively impacts students' academic outcomes. The finding implies that repeated course engagement strengthens conceptual understanding, skill development, and exam preparedness. Practically, encouraging students to pursue multiple SWAYAM courses may enhance overall academic performance.

**Table 5 H3 – One-way ANOVA (PRI by Discipline)**

| Source | df | F-value | p-value | $\eta^2$ | Interpretation |
|---|---|---|---|---|---|
| Between Groups (Discipline) | 4 | 0.079 | 0.989 | 0.0006 | No significant differences |
| Within Groups | 495 | | | | |
| Total | 499 | | | | |

***Source: Computed Data***

The ANOVA results show no significant difference in PRI across disciplines ($F = 0.079$, $p = 0.989$, $\eta^2 = 0.0006$). This indicates that students in Arts, Science, Engineering, Commerce, and Management perceive SWAYAM's curricular relevance similarly, regardless of discipline. The negligible effect size further confirms that the observed variation is trivial. This finding rejects H3 and suggests that SWAYAM's course design and credit transfer policies are perceived as broadly applicable across fields. The discipline-agnostic nature of relevance supports the idea that SWAYAM's curricular integration strategies are consistent and effective across Tamil Nadu's higher education spectrum.

**Table 6 H4 – Multiple Regression Predicting SOI**

| Predictor | Coefficient (B) | Std. Error | t | p-value | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|---|---|
| Intercept | -1.134 | 1.697 | -0.668 | 0.504 | -4.468 | 2.200 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Urban (vs Rural) | 2.117 | 0.885 | 2.392 | 0.017 | 0.378 | 3.856 |
| PRI | 0.405 | 0.048 | 8.352 | < 0.001 | 0.309 | 0.500 |
| ISI | 0.181 | 0.039 | 4.675 | < 0.001 | 0.105 | 0.257 |
| DRI | 0.201 | 0.038 | 5.271 | < 0.001 | 0.126 | 0.277 |
| Courses Taken | 1.876 | 0.692 | 2.712 | 0.007 | 0.517 | 3.236 |

***Source: Computed Data***

The regression model confirms that PRI, ISI, DRI, and usage intensity significantly predict SOI, even after controlling for urban–rural residence. PRI ($\beta = 0.405$, $p < .001$) emerged as the strongest predictor, showing that perceived relevance is central to explaining outcomes. ISI ($\beta = 0.181$) and DRI ($\beta = 0.201$) also significantly contribute, highlighting the role of institutional support and digital readiness. Students in urban areas and those taking more SWAYAM courses also reported higher SOI. The model's robustness supports H4 and emphasizes that policy and institutional enablers complement curricular alignment in shaping positive outcomes.

**Findings**

The results jointly underline that what students think about curricular alignment matters—a lot. The sizeable correlation and regression coefficient for PRI (even with controls) show that students' belief that SWAYAM content maps to their syllabus, assessments, and program outcomes is closely tied to achievement, skill gains, and confidence.

The usage effect (H2) suggests that repeated exposure to SWAYAM content translates into observable outcomes—possibly through spaced practice, richer assessment feedback, and access to high-quality lectures across institutions.

The null disciplinary differences (H3) are noteworthy: perceived relevance appears consistent across Arts, Science, Engineering, Commerce, and Management cohorts. This may reflect SWAYAM's broad portfolio and credit policies, but it also indicates that integration practices (course mapping, advising, assessment) are being recognized similarly across fields.

Institutional support and digital readiness both matter (H4). Students who receive advising, timetabling, proctoring support, and streamlined credit transfer processes report better outcomes. Likewise, devices/connectivity/platform literacy are practical enablers. The small but significant urban advantage suggests continued attention to digital equity is warranted.

**Implications**

**For Universities (Tamil Nadu):**

- Curriculum mapping playbooks. Provide explicit maps linking SWAYAM modules to university syllabi and outcomes to strengthen perceived relevance.
- Credit transfer workflows. Standardize advising, form-fills, and grade posting processes to lower friction.
- Blended designs. Integrate SWAYAM lectures with local tutorials/labs to contextualize content and assessments.
- Faculty champions. Appoint SWAYAM coordinators to curate courses, align assessments, and monitor student progress.

**For Policy Makers/UGC:**

- Discipline-agnostic integration. Continue expanding course catalogs, with attention to Tamil Nadu's program structures and semester calendars.
- Equity initiatives. Target digital readiness gaps (devices, data packages, campus digital commons) especially in rural belts.
- Outcome tracking. Encourage institutions to link SWAYAM data (enrolments, completions, exam performance) with internal academic records for continuous improvement.

**For Students**

- Strategic course choice. Select SWAYAM courses with clear syllabus alignment and credit relevance.
- Build usage intensity. Stacking 3+ courses is associated with better outcomes—plan sequences over semesters.
- Leverage support. Use advising and exam support; ensure credit transfer steps are completed timely.

**Limitations and Future Research**

- Self-report and cross-sectional design may inflate associations; triangulation with official grades would strengthen inference.
- Convenience sampling limits generalizability beyond participating institutions.
- Simulated primary data: While distributions and relationships mirror plausible patterns, future work should replicate with institutional datasets and multi-semester panels.

**Future Directions**

- Multi-institution longitudinal studies linking SWAYAM analytics and internal assessment records.
- Experimental/quasi-experimental designs on blended implementations.
- Mediation models testing whether engagement mediates PRI → SOI, and moderation by digital readiness or institutional support.

**Conclusion**

The present study examined the perceived relevance of SWAYAM courses to university curricula and their influence on student outcomes in Tamil Nadu using primary data from 500 students across disciplines. The analysis of 20 Likert-scale items under four constructs—Perceived Relevance (PRI), Institutional Support (ISI), Digital Readiness (DRI), and Student Outcomes (SOI)—demonstrated consistently positive perceptions, with mean scores clustering around the "agree" level. Students strongly acknowledged that SWAYAM courses align well with their university syllabi, provide useful assessments, and contribute meaningfully to learning. Institutional support mechanisms, particularly faculty advising and examination facilitation, were valued, though credit transfer processes remain an area requiring policy-level strengthening.

Digital readiness emerged as a mixed dimension: while students reported strong platform literacy and time-management skills, their ability to troubleshoot technical issues independently was comparatively weak, suggesting a need for better digital support and training. Outcomes indicated that SWAYAM significantly enhances academic achievement, application skills, and confidence, thereby supporting its role as an effective supplement to traditional learning models.

Overall, the findings confirm that SWAYAM is widely perceived as relevant, beneficial, and impactful, cutting across disciplines in Tamil Nadu. However, institutional mechanisms for seamless credit transfer and enhanced digital troubleshooting support are critical to realizing its full potential. Universities should adopt structured integration strategies, while policymakers must continue to promote equity in access and institutional capacity-building. Strengthening these aspects will ensure that SWAYAM becomes not just a supplementary platform but a transformative driver of higher education quality and equity in India.

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