



Academic Management Model for Developing Integrated Online-Offline Classroom at Nanhang Jincheng College, China

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ABSTRACT

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Purpose: This study investigates the effectiveness of an academic management model in enhancing student academic performance at Nanhang Jincheng College, China. Specifically, it aims to develop an integrated online-offline classroom model grounded in academic management principles to improve learners' academic achievement and compare the opinions of teachers, students and managers with this academic management model, as a structured and sustainable academic management approach to enhance learning achievement. **Methodology:** The study uses a quantitative research approach, drawing data from 783 respondents, including 392 students, 220 teachers, and 171 managers. A structured questionnaire was used for

data collection, and the data were analysed using SPSS, Descriptive statistics were used to summarize respondents' opinions, and independent-samples t-tests and ANOVA were employed to compare perceptions between teachers and students and across relevant groups. **Findings:** The results reveal that content delivery effectiveness, interaction frequency, and task completion consistency have a significant influence on students' academic performance. Additionally, access to digital media positively moderates these relationships, reinforcing the strength and effectiveness of hybrid classroom implementation. **Recommendations:** Institutions should strengthen digital access infrastructure and design courses that intentionally promote frequent, meaningful interaction through online collaborative platforms. They should also establish systematic mechanisms to monitor and support task completion so as to reinforce students' academic performance within the integrated academic management model. **Implications:** This study provides actionable evidence for higher education institutions seeking to integrate online and offline modalities into a coherent, performance-oriented blended academic management model. It underscores that effective hybrid implementation depends not only on pedagogical design, but also on coordinated policies for digital access, interaction, and task management.

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Introduction

There are numerous instructional models, methods, and techniques for teaching different types of content in diverse educational contexts. The selection of a particular model is usually grounded in the nature of the content and the specific learning situation (Enkenberg, 2001; Schoenfeld, 1999; Tiberghien, 1994). Historical and contemporary work on teaching and learning shows that different models have been applied across subjects, eras and settings, each with its own affordances and limitations (Chan et al., 2001; Van Driel & Verloop, 2002). In practice, teachers in fields such as medicine, engineering, social sciences and management draw on formal, informal and non-formal approaches – including problem- and project-based, research-oriented and workplace-based learning – to make teaching more productive and contextually relevant (Kang et al., 2021; Lancaster et al., 2014; Njie-Carr et al., 2017). Research on flipped and model-based classrooms, MOOCs and other technology-supported environments further confirms that no single teaching model is universally optimal; instead, models must be adapted to the needs of particular learners, disciplines and tasks (Chen, 2010; Deng et al., 2019; Vijayan, 2021; Wang et al., 2018).

Over time, instructional models have shifted from rigid, teacher-centred and text-driven approaches toward more learner-centred designs that emphasise curiosity, critical thinking and innovation, often supported by digital technologies (Chen, 2010; Vijayan, 2021). The rapid expansion of information and communication technologies led many schools and universities to embrace fully online learning, especially during the COVID-19 pandemic, when remote instruction became the only feasible option in many systems (Abbasnejad et al., 2023; Zhou et al., 2023). However, studies on online learning success models and student experiences show that purely online environments can struggle to deliver the full breadth of educational goals, particularly in relation to social interaction, emotional support and authentic practice (Dečman et al., 2025; Mulenga & Shilongo, 2024; Yuebo et al., 2024). Leading universities therefore continue to invest in digital platforms while also reaffirming the importance of rich, face-to-face teacher–student engagement.

Empirical work has also highlighted several structural limitations of fully online courses. Compared with in-person or mixed-mode classes, online programmes often report lower student engagement, weaker peer interaction and higher risks of social isolation and reduced well-being (Mulenga & Shilongo, 2024; Ochs et al., 2024). Studies of online and online-merge-offline classroom implementations note that technology is frequently integrated only at a superficial level, with limited alignment between digital tools, pedagogy and assessment, and with uneven access to infrastructure across institutions and learners (Nadella et al., 2024; Shah et al., 2022; Xiao et al., 2019). These findings underscore the need for models that deliberately combine the strengths of online and offline environments rather than relying on either mode alone.

Therefore, this study focuses on integrating offline and online teaching, identifying key challenges in implementing hybrid classrooms, examining existing academic practices and infrastructure for blended provision, and analysing how such models enhance student engagement and academic achievement. The study further seeks to develop a tailored hybrid model for higher education that aligns institutional needs with student characteristics by drawing on the Technological Pedagogical Content Knowledge (TPACK) framework and the Information System Success (ISS) model.

Literature Review

Recent literature indicates that many colleges and universities are moving toward hybrid or hyflex formats that combine on-campus and online components to address the shortcomings of purely online instruction while retaining its flexibility (Gudoniene et al., 2025; Mineshima-Lowe et al., 2023; Mulenga & Shilongo, 2024). Hybrid and blended learning are rooted in social-constructivist perspectives that foreground interaction, collaboration and knowledge co-construction (Enkenberg, 2001). In such environments, online spaces support preparation and exploration, whereas classroom sessions focus on higher-order discussion, application and reflection, helping to build community and professional networks among learners (Garba & Abdulhamid, 2024; Ochs et al., 2024; Wang et al., 2024).

Evidence from blended, flipped and hybrid implementations across disciplines shows that these designs can enhance academic performance, research orientation and student satisfaction while fostering more adaptive uses of technology (Garba & Abdulhamid, 2024; Gong et al., 2023; Gudoniene et al., 2025). Studies using conjoint and preference analyses further reveal that students value combinations of face-to-face interaction, online flexibility and self-paced study, rather than exclusively onsite or online formats (Feubli et al., 2023; Wang et al., 2024).

Within this broader landscape, the Technological Pedagogical Content Knowledge (TPACK) framework has become a central lens for conceptualising how teachers integrate digital tools into subject-specific pedagogy. TPACK extends Shulman's notion of Pedagogical Content Knowledge by emphasising the dynamic interplay among technological, pedagogical and content knowledge domains and their intersections (Ong & Annamalai, 2023; Sulistiani et al., 2024). Recent systematic reviews show that TPACK-informed professional development can strengthen teachers' confidence and capacity to design contextualised, technology-rich learning activities, but also highlight ongoing challenges related to institutional support and sustained practice, particularly in STEM and online settings (Kang et al., 2021; Luo & Zou, 2022).

Complementing TPACK, the Information System Success (ISS) model provides a framework for evaluating the quality and impact of digital learning systems by focusing on system, information and service quality, user satisfaction and net benefits. Research applying ISS and related IS-impact models to e-learning platforms and MOOCs has shown that perceived usefulness, reliability and support strongly shape learners' satisfaction and continued use, and that weaknesses in interface design or support services can undermine the effectiveness of otherwise well-designed courses (Nadella et al., 2024; Shah et al., 2022). Integrating insights from TPACK and ISS therefore offers a promising basis for designing and assessing hybrid classrooms that are pedagogically robust and technologically sustainable.

Research Model

Based on the research objectives, the present study proposes a research model for developing an integrated online-offline classroom grounded in academic management to enhance learners' achievement (Figure 1). First, teachers' and students' opinions toward online and offline teaching and learning are examined. Their perceptions of effectiveness,

engagement, advantages, and challenges in both modes are compared in order to identify the strengths and weaknesses of current practices. These diagnostic results, together with academic management principles—namely planning, instructional design and resource management, teaching-learning process management, and assessment and quality assurance—are then used to design an integrated online-offline classroom model. Finally, the implementation of this integrated model is expected to improve the quality of teaching-learning processes and consequently enhance learners' learning achievement. The following research model, given in Figure 1.

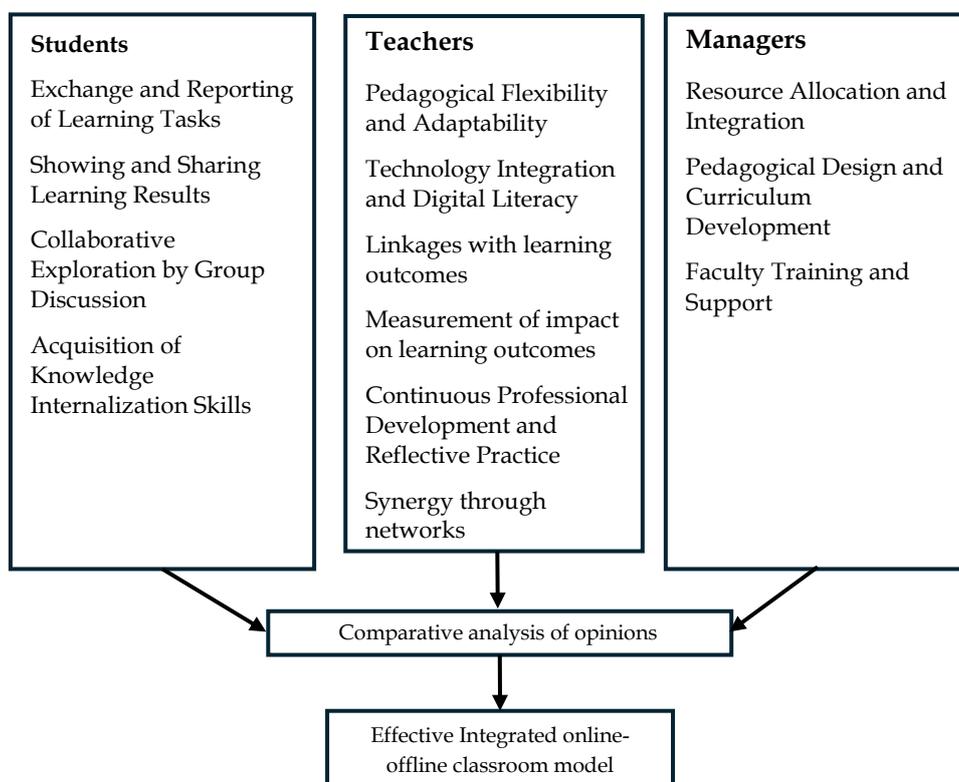


Figure 1: Research Model for integrated online-offline classroom

Research Design

Quantitative questionnaire survey

To compare the opinions of teachers and students on online and offline teaching and learning, a questionnaire survey was conducted at Nanhang Jincheng College. Using random sampling, 392 students, 220 teachers and 171 managers were invited to complete the questionnaire. Data were collected via email distribution, face-to-face administration and brief follow-up interviews to clarify responses when necessary. Descriptive statistics

were used to summarize respondents' opinions, and independent-samples t-tests and one-way ANOVA were employed to compare perceptions between teachers and students and across relevant groups.

Qualitative focus group discussions

To develop an effective integrated online-offline classroom model based on academic management to enhance learners' achievement, a qualitative phase was subsequently implemented. From the same institution, 15 students, 15 teachers and 15 managers were purposively selected to participate in focus group discussions. The discussions explored their needs, perceived problems in current online and offline teaching, and suggestions for integration. The focus-group data were analyzed thematically and then integrated with the comparative findings from Phase 1 to formulate and refine the integrated online-offline classroom model.

Together, the quantitative questionnaire survey and the qualitative focus group discussions provided a comprehensive evidence base for developing the integrated online-offline classroom model. The large-scale survey captured overall patterns and differences in perceptions among students, teachers and managers regarding current online and offline teaching and learning. The subsequent focus groups then offered in-depth insights into the specific needs, challenges and practical suggestions for improving integration in real classroom contexts. By triangulating statistical findings with rich qualitative data, the study ensured that the proposed integrated online-offline classroom model is both empirically grounded and closely aligned with stakeholders' experiences and academic management requirements.

Findings and analysis

Demographics

The sample consisted of 783 respondents, comprising 392 students, 220 teachers, and 171 managers, reflecting broad representation across the continuing education system.

Table 1 shows that the student group was demographically diverse, with a relatively balanced gender distribution (56.12% female; 43.88% male) and a wide range of academic majors. Engineering students formed the largest subgroup (33.16%), followed by Arts (26.02%), Science (24.23%), and other fields (16.58%). Students were also distributed across different academic levels, with sophomores the most represented (30.61%), followed by juniors (25.51%), freshmen (25.00%), and seniors (18.88%). This heterogeneity in gender, discipline, and academic stage provides a comprehensive representation of the student population. Teachers and managers, who were predominantly middle-aged, held advanced qualifications and had extensive professional or managerial experience, further indicating a well-qualified support structure for students.

Table 2 details the demographics of 220 teachers, who are predominantly male (68.18%) and middle-aged. Most are above 36, with the largest segments aged 46-50 (27.27%) and over 51 (31.81%). Academic credentials are strong: 59.09% have Master's degrees and 18.18% Doctorates. Teachers come from diverse fields: Arts (45.45%),

Engineering (22.73%), Sciences (18.18%), and Other (13.64%). Tutoring experience is substantial, especially among those with 16–20 years (31.82%) and 6–10 years (22.72%) of experience. The sample represents a well-qualified, experienced workforce offering informed perspectives on blended learning.

Table 1

Demographic of Students (n = 392)

Variable	Category	Frequency	Percentage
Gender	Male	172	43.88
	Female	220	56.12
Professional Category	Arts	102	26.02
	Science	95	24.23
	Engineering	130	33.16
	Art and other	65	16.58
Grade	Freshman	98	25.00
	Sophomore	120	30.61
	Junior	100	25.51
	Senior	74	18.88

Table 2

Demographic of Teachers (n = 220)

Variable	Category	Frequency	Percentage
Gender	Male	150	68.18
	Female	70	31.82
Age	31–35	10	4.55
	36–40	30	13.64
	41–45	50	22.73
	46–50	60	27.27
	Over 51	70	31.81
Education (latest)	Bachelor’s Degree	50	22.73
	Master’s Degree	130	59.09
	Doctoral Degree	40	18.18
Teaching Area	Engineering	50	22.73
	Art	100	45.45
	Medicine/Nursing and Associated Sciences	30	13.64
	Other	10	4.54
Years of Being a Tutor	1–5	20	9.09
	6–10	50	22.72
	11–15	40	18.18
	16–20	70	31.82
	21–25	30	13.63
	26 and above	10	4.56

Table 3 presents the demographic profile of 171 managers in continuing education: 58.54% are male, 55.60% are aged 41–50, 64.34% hold Master's degrees, 6.41% hold doctorates, and 32.19% have 11–15 years of management experience (23.41% have 6–10 years, a few have over 20). This well-educated, experienced cohort offers valuable insights into implementing blended learning.

Table 3

Demographic of Managers (n = 171)

Variable	Category	Frequency	Percentage
Gender	Male	100	58.54
	Female	71	41.46
Age	31–35	15	8.78
	36–40	30	17.54
	41–45	40	23.41
	46–50	55	32.19
	Over 51	31	18.11
Education (latest)	Bachelor's Degree	50	29.25
	Master's Degree	110	64.34
	Doctoral Degree	11	6.41
Years of Being a Manager	1–5	30	17.54
	6–10	40	23.41
	11–15	55	32.19
	16–20	30	17.54
	21–25	10	5.84
	26 and above	6	3.51

As shown in Table 4, students' overall opinion was at a high level (M = 4.02, SD = 0.87). They rated Showing and Sharing Learning Results and Collaborative Exploration by Group Discussion highest (both at a high level), indicating strong appreciation for interactive and participatory learning. Exchange and Reporting of Learning Tasks and Acquisition of Knowledge Internalization Skills were only at a medium level, suggesting room to strengthen task communication and deeper learning.

Table 4

Opinions of students

Questions	(n = 392)		Level of Opinion
	Mean	S.D.	
1. Exchange and Reporting of Learning Tasks.	3.78	0.92	Medium
2. Showing and Sharing Learning Results.	4.25	0.88	High
3. Collaborative Exploration by Group Discussion.	4.06	0.86	High
4. Acquisition of Knowledge Internalization Skills.	3.97	0.81	Medium
Total	4.02	0.87	High

Table 5 shows that teachers also reported a high overall opinion (M = 4.03, SD = 0.85). The highest means were for Technology Integration and Digital Literacy, Measurement of Impact on Learning Outcomes and Synergy through Networks, reflecting confidence in technology use and collaborative structures. In contrast, Pedagogical Flexibility, Linkages with Learning

Outcomes and Continuous Professional Development remained at a medium level, implying a need for stronger support for pedagogical innovation and ongoing training.

Table 5

Opinions of teachers

Questions	(n = 220)		Level of Opinion
	Mean	S.D.	
1. Pedagogical Flexibility and Adaptability.	3.97	0.81	Medium
2. Technology Integration and Digital Literacy.	4.08	0.85	High
3. Linkages with learning outcomes.	3.97	0.88	Medium
4. Measurement of impact on learning outcomes.	4.16	0.83	High
5. Continuous Professional Development and Reflective Practice.	3.97	0.88	Medium
6. Synergy through networks.	4.04	0.86	High
Total	4.03	0.85	High

As presented in Table 6, managers' overall opinion was at a medium level (M = 3.91, SD = 0.83). They rated Pedagogical Design and Curriculum Development at a high level, showing support for curriculum-level planning of integrated teaching. However, Resource Allocation and Integration and Faculty Training and Support were only at a medium level, indicating concerns about limited resources and insufficient staff development for implementation.

Table 6

Opinions of managers

Questions	(n = 171)		Level of Opinion
	Mean	S.D.	
1. Resource Allocation and Integration.	3.95	0.86	Medium
2. Pedagogical Design and Curriculum Development.	4.06	0.87	High
3. Faculty Training and Support.	3.71	0.86	Medium
Total	3.91	0.83	Medium

T-test for gender to satisfaction

The t-test results in Table 7 show that gender had a significant effect on students' satisfaction ($t(392) = 2.14, p = .034 < .05$), indicating a gender difference in satisfaction among students. In contrast, no significant gender differences in satisfaction were found for teachers ($t(220) = 1.21, p = .228$) or managers ($t(171) = 0.39, p = .696$), suggesting that satisfaction levels in these two groups were similar across genders.

Table 7

Opinions of participants

Group	Variable	t	df	p
Students	Satisfaction	2.138	392	0.034*
Teachers	Satisfaction	1.210	220	0.228
Managers	Satisfaction	0.391	171	0.696

*Note. $p < .05$.

ANOVA test

The ANOVA (Analysis of Variance) test was conducted to examine whether there are statistically significant differences in the effectiveness ratings of the online-offline integration model among the three groups: students, teachers, and managers at Nanhang Jincheng College. The table summarizes the results and provides detailed insights into the variation within and between the groups.

Table 8 presents the one-way ANOVA results assessing satisfaction with the online-offline teaching model among students, teachers, and managers. For students, the F-value of 0.528 and p-value of 0.663 indicate that there is no statistically significant difference in satisfaction across subgroups based on academic year or field of study, suggesting a uniform perception of the integrated teaching approach. Similarly, teachers exhibited consistent satisfaction across teaching areas and experience levels, with an F-value of 0.129 and a p-value of 0.879, reflecting homogeneous evaluations within this group. Managers also showed no significant differences across subgroups (F = 1.206, p = 0.307). Gender-specific statistics for managers further reveal negligible differences: males (M = 3.452, SD = 0.619) and females (M = 3.457, SD = 0.607) report nearly identical satisfaction levels. Overall, these findings indicate that stakeholders across all groups perceive the online-offline teaching model consistently, highlighting broad acceptance of the integrated teaching approach and suggesting that satisfaction is not influenced by subgroup characteristics such as academic year, teaching area, managerial experience, or gender.

Table 8

One-way ANOVA Results for Satisfaction with the Online-Offline Teaching Model Across Students, Teachers, and Managers

Group	Between Groups SS	df	Mean Square	F	p-value	Within Groups SS	df (within)	Mean Square (within)	Total SS	Total df
Students	0.687	3	0.229	0.528	0.663	168.226	388	0.434	168.913	391
Teachers	0.067	2	0.034	0.129	0.879	56.035	216	0.259	56.102	218
Managers	1.561	3	0.520	1.206	0.307	167.352	388	0.431	168.913	391

Focus group discussion result

Table 9 presents the key themes from focus group interviews regarding the online-offline teaching model. Stakeholders viewed the model as innovative and flexible but complex, necessitating formal implementation guidelines. Similarly, teachers reported increased workload due to student-centred design and technology demands, indicating a need for workload adjustments and practical support. Furthermore, student engagement and equity issues arose, with some students lacking self-discipline or reliable access, which highlighted the need for monitoring and targeted support. Departmental differences showed that tech-oriented areas adapted more readily than lecture-based disciplines, suggesting the need for tailored training. Effective leadership and communication were identified as crucial, particularly with a focus on participatory decision-making and feedback channels. In addition, professional development was seen as insufficient, consisting only of one-off workshops, and it was advocated that ongoing, practice-based training be provided. Policy and assessment inconsistencies were also noted, calling for

unified frameworks to ensure quality. Overall, the findings indicate that successful implementation requires integrated strategies addressing workload, equity, professional development, leadership, and policy.

Table 9

Summary of key themes from interviews.

Theme	Main points (from interviews)	Implications for academic management
Overall perception	Model seen as innovative and flexible but complex to implement.	Formalize the model and provide clear implementation guidelines.
Teaching and workload	Shift to student-centred design; higher preparation time and technology demands for teachers.	Adjust workload, recognise blended teaching, and offer practical design support.
Student engagement & equity	Students value flexibility, but some show weak self-discipline and lack reliable devices or internet.	Monitor engagement, strengthen learning-skills support, and introduce equity measures.
Departmental differences	Tech-oriented departments adapt more easily; lecture-based disciplines are more hesitant and less prepared.	Offer differentiated training and support tailored to departmental readiness.
Leadership & communication	Successful cases linked to proactive leaders, open communication and teacher participation in decisions.	Promote participatory leadership and create regular channels for feedback.
Professional development	One-off workshops are insufficient; teachers prefer ongoing, practice-based learning and knowledge sharing.	Develop long-term training programmes and communities of practice for blended teaching.
Policy and assessment	Lack of unified guidelines for blended assessment and quality assurance causes inconsistency across courses.	Design institutional frameworks for blended assessment and quality monitoring.

Discussion

This study compared the perceptions of teachers and students on online and offline teaching and learning and used these findings to support the development of an integrated online-offline classroom model. Quantitative results showed that teachers generally rated the effectiveness of the integrated model higher than students, while managers' views were similar to teachers. Most demographic variables had no significant impact, suggesting that perceptions are shaped more by role and experience than by background characteristics.

The qualitative findings help explain these patterns. Teachers and managers welcomed the model for its flexibility and alignment with national digital-transformation policies, but they also reported practical challenges, including heavy preparation workload, limited digital competence among some staff, and unequal technological readiness across departments. Students were perceived to appreciate

flexible access to learning resources, yet problems of self-discipline and inconsistent engagement with asynchronous content remained. Equity of access for students from less advantaged backgrounds and the lack of standardized blended assessment guidelines were identified as major management gaps.

Overall, the results indicate that the integrated online–offline model has clear potential but requires strong academic management to be effective. Leadership, clear communication, continuous professional development, and explicit policies on student support, assessment and digital equity are essential to reduce implementation barriers and to translate positive attitudes into sustainable practice.

Conclusion

This study combined quantitative surveys and qualitative focus group interviews at Nanhang Jincheng College to examine perceptions of online and offline teaching and learning and to inform the development of an integrated online–offline classroom model. The results show that teachers and managers hold generally favourable views of the integrated model, while students are more cautious, and that most demographic factors have limited influence on satisfaction. The qualitative data reveal both the pedagogical opportunities of shifting toward student-centred blended learning and the practical challenges related to workload, digital competence, departmental variation, student self-discipline and equity of access.

Taken together, these findings indicate that an effective integrated online–offline classroom model must be supported by coherent academic management. Key elements include: (a) clear institutional guidelines for blended course design and assessment; (b) differentiated support and leadership tailored to departmental readiness; (c) continuous, practice-oriented professional development for teachers; (d) explicit strategies to promote student engagement and self-regulation; and (e) policies that address digital equity and provide sustainable technical and pedagogical support.

While this study is limited to a single institution and relies on self-report data, it offers a useful reference for universities seeking to design or refine integrated online–offline models. Future research could include direct student interviews, learning achievement data and comparative studies across institutions to further validate and extend the proposed model. Nonetheless, the present findings suggest that when thoughtfully managed, the integrated online–offline classroom model can serve as a viable pathway for universities to advance teaching quality, student engagement and institutional innovation in the context of ongoing digital transformation.

References

- Abbasnejad, B., Soltani, S., & Wong, P. (2023). A Systematic Review of Online Learning and Teaching Strategies during the Covid-19 Pandemic: Implications for the Construction Management Sector. *Smart and Sustainable Built Environment*, 13(4), 934-959. <https://doi.org/10.1108/sasbe-08-2022-0174>
- Chan, T.-W., Hue, C.-W., Chou, C.-Y., & Tzeng, O. J. L. (2001). Four Spaces of Network Learning Models. *Computers & Education*, 37(2), 141-161. [https://doi.org/https://doi.org/10.1016/S0360-1315\(01\)00044-6](https://doi.org/https://doi.org/10.1016/S0360-1315(01)00044-6)

- Chen, R.-J. (2010). Investigating Models for Preservice Teachers' Use of Technology to Support Student-Centered Learning. *Computers & Education*, 55(1), 32-42. <https://doi.org/10.1016/j.compedu.2009.11.015>
- Dečman, M., Klun, M., & Stare, J. (2025). Online Flipped Classroom in University Social Science Courses: Impact on Student Experience and Success. *Computers and Education Open*, 8, 100261. <https://doi.org/10.1016/j.caeo.2025.100261>
- Deng, R., Benckendorff, P., & Gannaway, D. (2019). Progress and New Directions for Teaching and Learning in Moocs. *Computers & Education*, 129, 48-60. <https://doi.org/10.1016/j.compedu.2018.10.019>
- Enkenberg, J. (2001). Instructional Design and Emerging Teaching Models in Higher Education. *Computers in Human Behavior*, 17(5-6), 495-506. [https://doi.org/10.1016/s0747-5632\(01\)00021-8](https://doi.org/10.1016/s0747-5632(01)00021-8)
- Feubli, P., MacKevett, D., & Schwarz, J. (2023). Hybrid Teaching and Learning: A Conjoint Analysis of Student Preferences in Online and Onsite Scenarios. *Journal of Computer Assisted Learning*, 40(2), 761-774. <https://doi.org/10.1111/jcal.12913>
- Garba, S. A., & Abdulhamid, L. (2024). Students' Instructional Delivery Approach Preference for Sustainable Learning Amidst the Emergence of Hybrid Teaching Post-Pandemic. *Sustainability*, 16(17), 7754. <https://doi.org/10.3390/su16177754>
- Gong, J., Cai, S., & Cheng, M. (2023). Exploring the Effectiveness of Flipped Classroom on Stem Student Achievement: A Meta-Analysis. *Technology, Knowledge and Learning*, 29(2), 1129-1150. <https://doi.org/10.1007/s10758-023-09700-7>
- Gudoniene, D., Staneviciene, E., Huet, I., Dickel, J., Dieng, D., Degroote, J., Rocio, V., Butkiene, R., & Casanova, D. (2025). Hybrid Teaching and Learning in Higher Education: A Systematic Literature Review. *Sustainability*, 17(2), 756. <https://doi.org/10.3390/su17020756>
- Kang, H., Turi, J. A., Bashir, S., Alam, M. N., & Shah, S. A. (2021). Moderating Role of Information System and Mobile Technology with Learning and Forgetting Factors on Organizational Learning Effectiveness. *Learning and Motivation*, 76, 101757. <https://doi.org/10.1016/j.lmot.2021.101757>
- Lancaster, J. W., Stein, S. M., MacLean, L. G., Van Amburgh, J., & Persky, A. M. (2014). Faculty Development Program Models to Advance Teaching and Learning within Health Science Programs. *American Journal of Pharmaceutical Education*, 78(5), 99. <https://doi.org/10.5688/ajpe78599>
- Luo, S., & Zou, D. (2022). A Systematic Review of Research on Technological, Pedagogical, and Content Knowledge (Tpack) for Online Teaching in the Humanities. *Journal of Research on Technology in Education*, 56(3), 332-346. <https://doi.org/10.1080/15391523.2022.2139026>
- Mineshima-Lowe, D., Mihai, A., Le Bourdon, M., Pears, L., Bijsmans, P., Hadjipieris, P., & Lightfoot, S. (2023). Hyflex and Hybrid Teaching and Learning in Higher Education: Evolving Discussions in the Post-Pandemic Era. *European Political Science*, 23(3), 321-337. <https://doi.org/10.1057/s41304-023-00447-4>
- Mulenga, R., & Shilongo, H. (2024). Hybrid and Blended Learning Models: Innovations, Challenges, and Future Directions in Education. *Acta Pedagogica Asiana*, 4(1), 1-13. <https://doi.org/10.53623/apga.v4i1.495>
- Nadella, G. S., Meduri, K., Satish, S., Maturi, M. H., & Gonaygunta, H. (2024). Examining E-Learning Tools Impact Using Is-Impact Model: A Comparative Pls-Sem and Ipma Case Study. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(3), 100351. <https://doi.org/10.1016/j.joitmc.2024.100351>

- Njie-Carr, V. P. S., Ludeman, E., Lee, M. C., Dordunoo, D., Trocky, N. M., & Jenkins, L. S. (2017). An Integrative Review of Flipped Classroom Teaching Models in Nursing Education. *Journal of Professional Nursing*, 33(2), 133-144. <https://doi.org/10.1016/j.profnurs.2016.07.001>
- Ochs, C., Gahrman, C., & Sonderegger, A. (2024). Learning in Hybrid Classes: The Role of Off-Task Activities. *Scientific Reports*, 14(1). <https://doi.org/10.1038/s41598-023-50962-z>
- Ong, Q. K. L., & Annamalai, N. (2023). Technological Pedagogical Content Knowledge for Twenty-First Century Learning Skills: The Game Changer for Teachers of Industrial Revolution 5.0. *Education and Information Technologies*, 29(2), 1939-1980. <https://doi.org/10.1007/s10639-023-11852-z>
- Schoenfeld, A. H. (1999). Models of the Teaching Process. *The Journal of Mathematical Behavior*, 18(3), 243-261. [https://doi.org/10.1016/S0732-3123\(99\)00031-0](https://doi.org/10.1016/S0732-3123(99)00031-0)
- Shah, J., Khanna, M., & Deshpande, R. (2022). Extending Information System Success Model with Customer Experience: A Mooc System Evaluation. *Business Perspectives and Research*, 13(2), 291-310. <https://doi.org/10.1177/22785337221092836>
- Sulistiani, I. R., Setyosari, P., Sa'dijah, C., & Praherdhiono, H. (2024). Technological Pedagogical Content Knowledge of Preservice Elementary Teachers: Relationship to Self-Regulation and Technology Integration Self-Efficacy. *European Journal of Educational Research*, volume-13-2024(volume-13-issue-1-january-2024), 159-170. <https://doi.org/10.12973/eu-jer.13.1.159>
- Tiberghien, A. (1994). Modeling as a Basis for Analyzing Teaching-Learning Situations. *Learning and Instruction*, 4(1), 71-87. [https://doi.org/10.1016/0959-4752\(94\)90019-1](https://doi.org/10.1016/0959-4752(94)90019-1)
- Van Driel, J. H., & Verloop, N. (2002). Experienced Teachers' Knowledge of Teaching and Learning of Models and Modelling in Science Education. *International Journal of Science Education*, 24(12), 1255-1272. <https://doi.org/10.1080/09500690210126711>
- Vijayan, R. (2021). Teaching and Learning during the Covid-19 Pandemic: A Topic Modeling Study. *Education Sciences*, 11(7), 347. <https://doi.org/10.3390/educsci11070347>
- Wang, J., Jou, M., Lv, Y., & Huang, C.-C. (2018). An Investigation on Teaching Performances of Model-Based Flipping Classroom for Physics Supported by Modern Teaching Technologies. *Computers in Human Behavior*, 84, 36-48. <https://doi.org/10.1016/j.chb.2018.02.018>
- Wang, X., Liu, J., Jia, S., Hou, C., Jiao, R., Yan, Y., Ma, T., Zhang, Y., Liu, Y., Wen, H., Wang, Y.-F., Zhu, H., & Liu, X.-Y. (2024). Hybrid Teaching after Covid-19: Advantages, Challenges and Optimization Strategies. *BMC Medical Education*, 24(1). <https://doi.org/10.1186/s12909-024-05745-z>
- Xiao, J., Sun-Lin, H.-Z., & Cheng, H.-C. (2019). A Framework of Online-Merge-Offline (Omo) Classroom for Open Education. *Asian Association of Open Universities Journal*, 14(2), 134-146. <https://doi.org/10.1108/aaouj-08-2019-0033>
- Yuebo, L., Halili, S. H., & Abdul Razak, R. (2024). Online Learning Success Model for Adults in Open and Distance Education in Western China. *PLOS ONE*, 19(2), e0297515. <https://doi.org/10.1371/journal.pone.0297515>
- Zhou, X., Smith, C. J. M., & Al-Samarraie, H. (2023). Digital Technology Adaptation and Initiatives: A Systematic Review of Teaching and Learning during Covid-19. *Journal of Computing in Higher Education*, 36(3), 813-834. <https://doi.org/10.1007/s12528-023-09376-z>