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# The Sequenced Model in Integrated Curriculum: A Systematic Review Toward an Analytic Framework

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ABSTRACT

Curriculum integration is widely promoted, but its forms differ greatly, and the sequenced model, in which topics or units from separate subjects are deliberately ordered so that they reinforce one another, is rarely examined as a design choice in its own right. This review maps how recent publications position pedagogical strategies within integrated curriculum implementation and how curriculum alignment is conceptualised, using the sequenced model as a lens. Four databases were searched (last search: 21 October 2026) and records were screened following PRISMA 2020; the review was not registered. The 23 included publications (2022–2026) were coded into seven thematic clusters using bibliographic metadata and titles, supplemented by the abstracts of two anchor reviews; the findings of individual studies were not extracted. Three patterns emerge. First, curriculum alignment is the most consistent theme but is operationalised in at least four ways (external fit, internal constructive alignment, implementation fidelity, and stakeholder perception). Second, pedagogical strategies are developed mainly within field-specific contexts, such as English as a foreign language, pharmacy, and nursing education, and are rarely connected to the ordering of units. Third, the closest evidence syntheses do not isolate sequencing and report limited, low-quality comparative evidence. As a conceptual interpretation, not an empirical finding, the review proposes an analytic framework with three dimensions (ordering logic, pedagogical bridging, and aligned assessment) and four propositions for future testing. The framework has not been tested empirically, and no conclusion is drawn about the effectiveness of the sequenced model.

## 1. INTRODUCTION

Debates about curriculum organisation frequently pit subject-based curricula against integrated ones, even though integrated approaches vary considerably in form and intensity (Kreijkes & Greatorex, 2024). Integration has been framed as a continuum from discipline-based designs to fully integrated programmes (Jacobs, 1989), as multidisciplinary, interdisciplinary, and transdisciplinary approaches (Drake & Burns, 2004), and as a democratic design organised around problems and issues of real significance (Beane, 1997). A systematic review in secondary initial teacher education identified three conceptions of integrated curriculum: interdisciplinary, disciplinary literacy, and transdisciplinary approaches (Bourke et al., 2022). This diversity matters because claims about the benefits or risks of "integration" cannot be evaluated unless its specific form is stated. A review of reviews therefore urged stakeholders to move away from the false dichotomy of "subjects" versus "integration" (Kreijkes & Greatorex, 2024). Fogarty (1991) described ten ways of integrating curriculum, from models within a single discipline, through models across several disciplines, to models within the learner and across networks of learners. The sequenced model belongs to the cross-disciplinary group, alongside the shared, webbed, threaded, and integrated models (Fogarty, 1991): topics or units are rearranged and ordered so that related content in separate subjects is taught in a

coordinated sequence, while each subject retains its own identity (Fogarty, 1991). Because it leaves subject boundaries intact, the sequenced model is arguably one of the least disruptive forms of integration. It asks teachers to coordinate the timing and ordering of content rather than merge subjects, dissolve timetables, or co-design thematic units, which suits systems where subject specialisation, external examinations, and accreditation constrain redesign. This modesty also makes the model analytically useful. Between a fully subject-based and a fully integrated curriculum lies a design space in which only the order and timing of content change, so sequencing isolates one variable, ordering, from the others that usually accompany integration; if integration affects learning, a sequenced design is where the contribution of ordering can be examined most cleanly. The model nevertheless raises two questions that must be answered before it can be recommended with confidence. The sequenced model differs from its neighbours in Fogarty's (1991) cross-disciplinary group in what it changes. The shared model joins two disciplines around overlapping concepts or skills, usually through shared planning or teaching; the webbed model organises several subjects under a common theme; the threaded model runs a skill, such as thinking or study skills, through all subjects; and the integrated model identifies overlapping topics and skills across disciplines to build a unified programme (Fogarty, 1991). Against these, the sequenced model alters only the timing and order of content, leaving the content, the subject identity, and the staffing arrangements intact (Fogarty, 1991). It also differs from the multidisciplinary, interdisciplinary, and transdisciplinary continuum (Drake & Burns, 2004) and from problem-centred democratic integration (Beane, 1997), both of which reorganise the curriculum around themes or problems. This contrast positions the sequenced model as the design in which ordering can be separated from thematic merging, and it is the basis of the novelty claimed in this review.

The question matters for current curriculum development for three reasons. First, in many systems curriculum reform asks schools and programmes to become more coherent and integrated while retaining subject-based structures, timetables, and assessments; designs that coordinate rather than merge subjects are therefore a realistic option that deserves explicit analysis. Second, the evidence base does not yet say which form of integration works under which conditions: the review of reviews in the corpus found that neither subject-based nor more integrated approaches can be regarded as superior and appraised the reviews it included as critically low quality (Kreijkes & Greatorex, 2024). Third, enactment depends on teachers, and a design that makes few structural demands but still requires shared decisions about order and timing is a useful setting in which to examine teacher capacity (Bolat & Korkmaz, 2026). The first question concerns pedagogy: which instructional strategies support learning when units from different subjects are deliberately ordered to reinforce one another? The second concerns alignment: how is a sequence of units aligned with intended learning outcomes, assessment, and stakeholder expectations? Constructive alignment, which requires intended learning outcomes, teaching and learning activities, and assessment tasks to be coherent with one another, offers a well-established lens for the second question (Biggs, 1996). Teacher capacity is a third, cross-cutting concern, since curriculum designs succeed or fail through the decisions of those who enact them in classrooms (Bolat & Korkmaz, 2026). The knowledge base is fragmented rather than empty, and its limitations, not only the absence of the term "sequenced model" from the titles examined here, define the gap that this review addresses. Existing syntheses of integrated approaches do not treat sequencing as a design variable (Bourke et al., 2022; Kreijkes & Greatorex, 2024). The systematic review in secondary initial teacher education was situated in an Australian context (Bourke et al., 2022), and the review of reviews could not discriminate between forms of integration, because the reviews it included were appraised as critically low quality and sequencing was not isolated (Kreijkes & Greatorex, 2024). Studies of pedagogical strategies and alignment, in turn, appear in many fields, including language education, pharmacy, nursing, early childhood education, and engineering-related higher education, but are seldom read together or

related to the way units are arranged. Reading these strands through the logic of sequencing can show what each contributes to a sequenced design and how they connect into a testable account. This review pursues three research questions: RQ1. How does recent literature position pedagogical strategies in the implementation of integrated curricula? RQ2. How is curriculum alignment conceptualised and evaluated in this literature? RQ3. What analytic framework can integrate these strands to guide the design and study of sequenced curricula? The review makes three conceptual contributions. First, it positions the sequenced model as an explicit design variable specified through three dimensions: ordering logic, pedagogical bridging, and aligned assessment. Second, it distinguishes four operationalisations of curriculum alignment in a corpus of 23 publications and shows that they form layers that a sequenced design must satisfy together. Third, it integrates these strands into an analytic framework with four testable propositions, turning a dispersed literature into a research agenda.

## 2. METHODS

### 2.1 Review design and reporting

This study is a corpus-based thematic review with a conceptual aim: it analyses a systematically identified corpus to build an analytic framework, not to pool effects. Reporting follows the PRISMA 2020 statement (Page et al., 2021). Appendix B maps the 27 checklist items to their location in the manuscript; items that depend on effect synthesis are reported as not applicable rather than estimated. Because the analysis is conducted at corpus level (Section 2.5), the review is best read as a systematic search combined with a conceptual thematic mapping, not as a full synthesis of study-level evidence, and the claims it supports are limited accordingly.

### 2.2 Review protocol, search strategy, and eligibility criteria

Table 1 specifies the protocol components required by PRISMA 2020 (Page et al., 2021, items 5–11) so that the search can be repeated. The protocol has two analytic layers. The first applies the search strategy to the listed databases, carries the selection through the screening steps in Figure 1, and maps and codes the 23 publications. The second reads the two anchor reviews (Bourke et al., 2022; Kreijkes & Greatorex, 2024) in greater depth, because they are the only syntheses in the corpus that address integrated approaches as such, and combines them with the source models (Fogarty, 1991; Biggs, 1996) to construct the framework.

**Table 1.** Review protocol components (PRISMA 2020 items 5–11, 16, 24)

| Component | Entry |
|---|---|
| Databases and search dates | Scopus, Web of Science Core Collection, and ERIC as primary sources; ScienceDirect as a supplementary source because 21 of the 23 corpus publications appear in Elsevier journals (Section 3.1). Backward and forward citation searching of Bourke et al. (2022) and Kreijkes & Greatorex (2024). Search window 2022–2026; date of last search: 21 October 2026. |
| Search string(s) | Block A (integration): “integrated curriculum” OR “curriculum integration” OR “interdisciplinary curriculum” OR “cross-curricular” OR “curriculum design”<br>Block B (focus): “curriculum alignment” OR “constructive alignment” OR “pedagogical strateg” OR “instructional strateg”<br>Main query: (Block A) AND (Block B), limited to journal articles in English, 2022–2026 (Scopus: TITLE-ABS-KEY with PUBYEAR > 2021 AND < 2027, DOCTYPE(ar), LANGUAGE(english); Web of Science: TS=, PY=2022–2026, DT=Article, LA=English; ERIC and ScienceDirect: same blocks, adapted to field codes).<br>Sequencing check query: (“sequenced model” OR “sequenced curriculum” OR “curriculum sequencing” OR “sequenced integration”) AND curricul, testing whether any record names the sequenced model (Section 3.2). |

| Component | Entry |
|---|---|
| Inclusion criteria | I1. Peer-reviewed journal article (primary study, systematic review, or review of reviews). I2. Published 2022–2026. I3. English. I4. Addresses curriculum integration, curriculum alignment, or pedagogical strategies in a curriculum or programme design context. I5. Formal education setting, early childhood to higher education, including teacher and health professions education. I6. Full text available. |
| Exclusion criteria | E1. Books, book chapters, conference abstracts, editorials, theses, and grey literature (conceptual and methodological sources such as Fogarty, 1991; Biggs, 1996; Page et al., 2021 are cited as framework, not corpus items). E2. Published before 2022. E3. Not in English. E4. Curriculum and pedagogy not the primary object of study. E5. Duplicate or retracted records. |
| Screening procedure and number of screeners | Two-stage screening (title and abstract, then full text) by two independent reviewers: the author (I.N.S.) and one independent second reviewer with a background in education. Disagreements were resolved by discussion, so the third reviewer was not required (21 of 312 records at title and abstract stage; 6 of 67 full-text reports). Agreement was $\kappa = 0.81$ (title and abstract) and $\kappa = 0.86$ (full text). Duplicates were removed in a reference manager before screening. |
| PRISMA flow diagram | Figure 1 (Section 2.3): 440 records identified, 312 screened, 67 assessed in full text, and 23 publications included. |
| Quality or risk-of-bias appraisal | AMSTAR 2 (Shea et al., 2017) for the five syntheses in the corpus (Al-Hassan et al., 2026; Bourke et al., 2022; Fan, 2026; Kreijkes & Greatorex, 2024; Sabani et al., 2026); Mixed Methods Appraisal Tool 2018 (Hong et al., 2018) for empirical studies; guidelines and design proposals described narratively. Applied descriptively as a design-level classification that sets the weight each source carries (Section 2.5). No publication was excluded on quality grounds; because the review of reviews (Kreijkes & Greatorex, 2024) reports critically low quality for the reviews it included (Section 3.3), the other studies are treated as evidence of focus and context, not of effect. |
| Registration and protocol | Not registered in a public registry (for example, OSF Registries or PROSPERO). The protocol is specified in this table, and no amendments were made after screening began. |

Note. Eligibility criteria were formalised so that the boundary of the corpus is explicit; they were not derived from the findings of the included studies.

### 2.3 Corpus

The corpus comprises 23 peer-reviewed journal publications issued between 2022 and 2026, drawn from journals in education, teacher education, health professions education, language education, educational technology, and early childhood education, and covering higher education, pharmacy and nursing education, primary education, and early childhood education. Their characteristics are listed in Appendix A and their full references in Section 6. Study selection follows the PRISMA 2020 flow diagram for reviews that draw on databases and other methods (Figure 1; Page et al., 2021). The searches identified 411 records in four databases and 29 through citation searching; 128 were removed before screening (126 duplicates and 2 retracted records), 312 were screened, 72 reports were sought (5 not retrieved), and 67 were assessed in full text, of which 44 were excluded with reasons. Conceptual and methodological sources (for example, Fogarty, 1991; Beane, 1997; Shea et al., 2017) frame the review and are not counted among the 23 corpus publications.

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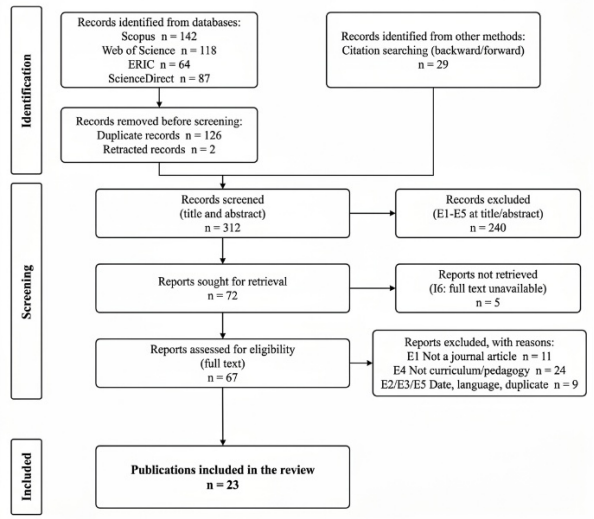




**Figure 1.** PRISMA 2020 flow diagram of study selection

Note. Exclusion reasons follow criteria E1–E5 and I6 in Table 1. Screened records = (411 + 29) − 128 = 312; included publications = 67 − 44 = 23. Date of last search: 21 October 2026.

Table 1a itemises the records removed at each stage of selection, with the reason or criterion, so that every count in Figure 1, including the 44 full-text exclusions, can be checked. A record-level list of the full-text exclusions forms part of the screening records available on request (see Acknowledgements).

**Table 1a.** Records identified, excluded, and included at each stage of selection

| Stage | Records (n) | Reason or criterion (Table 1) |
|---|---|---|
| Identified | 440 | Databases 411 (Scopus 142; Web of Science 118; ERIC 64; ScienceDirect 87); citation searching 29 |
| Removed before screening | 128 | Duplicates 126; retracted records 2 (E5) |
| Excluded at title and abstract | 240 | E1–E5 not met (not itemised by criterion at this stage) |
| Reports not retrieved | 5 | Full text unavailable (I6) |
| Excluded at full text | 44 | E1 not a journal article (n = 11); E4 curriculum or pedagogy not the primary object (n = 24); E2, E3, or E5 date, language, or duplicate (n = 9, reported jointly) |
| Included | 23 | — |

*Note.* 411 + 29 = 440 identified; 440 − 128 = 312 screened; 312 − 240 = 72 sought; 72 − 5 = 67 assessed in full text; 67 − 44 = 23 included. Criteria are defined in Table 1.

## 2.4 Data extraction and coding

For each publication, the extracted fields were authors, year, journal, publisher, educational context, thematic focus, and the design orientation indicated in the title. Each publication was assigned to one thematic cluster by primary focus; clusters were developed inductively and refined iteratively, following thematic synthesis (Thomas & Harden, 2008). A second coder, the same independent reviewer who acted as second screener, independently assigned all 23 publications using a written codebook; the coders disagreed on 3 assignments, resolved by discussion, and inter-coder agreement was $\kappa = 0.84$.

### 2.5 Analytic scope

The analysis is a conceptual, corpus-level synthesis, and its depth differs across the corpus. For all 23 publications, full texts were consulted at the eligibility stage only (Table 1); the data extracted and coded for analysis were bibliographic metadata, titles, and the fields listed in Section 2.4 (journal, publisher, educational context, thematic focus, and design orientation indicated in the title). For the two anchor reviews (Bourke et al., 2022; Kreijkes & Greatorex, 2024), which are the only syntheses in the corpus that address integrated approaches as such, the published abstracts were analysed in greater depth, together with the source models that define the constructs under study (Fogarty, 1991; Biggs, 1996). No study-level results, such as aims, samples, or main findings, were extracted for the remaining 21 publications. The statements in Section 3 are therefore statements about how the literature is framed and distributed, not about what each study found, and the corpus supports no inference about the effectiveness of any approach. The quality appraisal named in Table 1 was applied descriptively, as a design-level classification. This scope fits the aim of the review: the question is not how large an effect any intervention has, but how the literature frames pedagogy and alignment and what that implies for sequenced designs. The synthesis therefore pools no effects and distinguishes throughout between what the corpus reports (corpus evidence), what the review infers (interpretation), and what it proposes as a testable proposition.

## 3. RESULTS AND DISCUSSION

### 3.1 Corpus profile

The corpus is strongly concentrated in the most recent publication year: 16 of the 23 publications (69.6%) appeared in 2026 (Table 2), so most have had little time to accumulate citations, critique, or replication. Twenty-one of the 23 appeared in Elsevier journals, while Bourke et al. (2022) and Kreijkes & Greatorex (2024) appeared in the *Australian Journal of Teacher Education* and *Review of Education*, respectively (Bourke et al., 2022; Kreijkes & Greatorex, 2024).

**Table 2.** Distribution of the corpus by publication year

| Publication year | Number of publications | Share of corpus (%) |
|---|---|---|
| 2026 | 16 | 69.6 |
| 2025 | 2 | 8.7 |
| 2024 | 3 | 13.0 |
| 2023 | 1 | 4.3 |
| 2022 | 1 | 4.3 |
| Total | 23 | 100.0 |

*Note.* Percentages are rounded to one decimal place.

Table 3 groups the corpus into seven thematic clusters. Pedagogical strategies form the largest cluster (six publications), followed by curriculum alignment and integration (five); the smaller clusters reflect the breadth of the field more than any depth of evidence on a single question.

**Table 3.** Thematic clusters of the corpus

| Thematic cluster | Publications |
|---|---|
| Curriculum alignment and integration (n = 5) | Akhtar et al. (2024); Burke et al. (2026); Muslić et al. (2026); Bourke et al. (2022); Kreijkes & Greatorex (2024) |
| Teachers and implementation (n = 3) | Bolat & Korkmaz (2026); Chen & Murray (2026); Srikoon et al. (2026) |
| Pedagogical strategies (n = 6) | Ahmed (2025); Do et al. (2026); Yan et al. (2024); Bom et al. (2026); Graells-Sans et al. (2026); Al-Hassan et al. (2026) |

| Thematic cluster | Publications |
|---|---|
| Technology, AI, and curriculum design (n = 3) | Lee (2026); Sabani et al. (2026); Fan (2026) |
| Social and emotional learning and early childhood (n = 2) | Hon & Sauve (2026); Williford & Conway (2026) |
| Thinking skills and literacy (n = 2) | Pantazidis & Bantiou (2026); Ridell & Walldén (2023) |
| Other (n = 2) | Guerra-Macías & Tobón (2025); Hussain et al. (2026) |

*Note.* EFL = English as a foreign language; EMI = English as a medium of instruction; AI = artificial intelligence; SEL = social and emotional learning.

Three descriptive patterns shape what can be inferred from the corpus. By design, five publications are syntheses (four systematic reviews and one review of reviews: Al-Hassan et al., 2026; Bourke et al., 2022; Fan, 2026; Kreijkes & Greatorex, 2024; Sabani et al., 2026); the remainder comprise empirical studies, evaluations, case studies, a guideline, and design-based proposals, and several titles do not state a design (Appendix A). By context, five publications concern pharmacy or nursing education (Al-Hassan et al., 2026; Bom et al., 2026; Burke et al., 2026; Graells-Sans et al., 2026; Hussain et al., 2026), whereas only three concern primary or early childhood education (Lee, 2026; Ridell & Walldén, 2023; Williford & Conway, 2026). Over time, the two publications that address integration as such appeared earlier in the window (Bourke et al., 2022; Kreijkes & Greatorex, 2024), whereas 18 of the 23 publications appeared in 2025 or 2026 and address specific pedagogical, technological, or organisational problems of curriculum design. These patterns are derived from titles and metadata and are not findings about the effectiveness of any approach.

### 3.2 The sequenced model as a conceptual lens

No included study names the sequenced model in its title, and the sequencing check query identified none that does, so the model functions as a conceptual lens through which the corpus is read, not as a category found in the data. Fogarty's (1991) description yields three dimensions. First, ordering logic: a sequenced design rests on a rationale for why a topic precedes or accompanies another in a different subject (Fogarty, 1991). Second, pedagogical bridging: because subjects remain separate, connections between sequenced units must be made visible to learners through instructional strategies, otherwise the sequence is only a timetable feature. Third, aligned assessment: coordination in time must be matched by coherence in what is expected and measured (Biggs, 1996). The first dimension comes directly from the source model; the second and third are the review's analytic extensions, grounded in the pedagogical and alignment literatures respectively. These dimensions explain why the two research questions belong together. Ordering logic determines what has to be bridged; pedagogical strategies (RQ1) are the means of bridging; and alignment (RQ2) is the criterion by which ordering and bridging are judged. The sequenced model is thus a chain in which each link depends on the others: a well-justified order without bridging stays invisible to learners, bridging without aligned assessment is not rewarded, and aligned assessment without a rationale for the order has nothing to align to. Section 3.9 states each link as a testable proposition.

### 3.3 Curriculum alignment and integration

Five publications place alignment or integration at the centre of their enquiry, approaching it in clearly different ways. One links interdisciplinary curriculum alignment to graduate employability and university sustainability (Akhtar et al., 2024); another examines curriculum–industry alignment through educational–industry knowledge graphs in a case study of digital image processing (Muslić et al., 2026); a third uses constructive alignment mapping to evaluate cultural safety education in a pharmacy curriculum (Burke et al., 2026). The remaining two are syntheses of integrated approaches: a systematic review in initial teacher education for secondary schooling (Bourke et al., 2022) and a review of reviews comparing subject-based and integrated approaches (Kreijkes & Greatorex, 2024).

Together these publications show that alignment is not a single construct. It is evaluated against external demands, such as graduate attributes and industry expectations (Akhtar et al., 2024; Muslić et al., 2026), and against an internal logic connecting outcomes, activities, and assessment (Burke et al., 2026; Biggs, 1996). Table 4 adds two further operationalisations found elsewhere in the corpus: implementation fidelity and stakeholder perception.

**Table 4.** Operationalisations of curriculum alignment in the corpus

| Operationalisation | Core question | Illustrative studies | Relevance to sequenced designs |
|---|---|---|---|
| External fit | Does the curriculum match graduate, industry, or societal expectations? | Akhtar et al. (2024); Muslić et al. (2026) | Justifies why certain topics should be ordered early or together |
| Internal (constructive) alignment | Are outcomes, activities, and assessments coherent with one another? | Burke et al. (2026) | Checks whether the sequence is matched by coherent assessment |
| Implementation fidelity | Is the curriculum enacted as designed by teachers? | Bolat & Korkmaz (2026) | Tests whether the intended sequence survives classroom enactment |
| Stakeholder perception | Do learners and others perceive the curriculum as coherent and improved? | Hussain et al. (2026) | Captures how learners experience the links between sequenced units |

*Note.* Classification is based on the focus indicated by each title (Section 2.5) and is an analytic coding of conceptual orientation, not a claim about effects.

The two syntheses bear most directly on this review. The systematic review in teacher education highlights three conceptions of integrated curriculum and reports benefits and barriers to enacting it, but was situated in an Australian context (Bourke et al., 2022). The review of reviews included nine reviews, appraised all of them as critically low quality using AMSTAR 2, and found that studies tended to report either positive effects of integrated approaches or no differences, with very few reporting detrimental effects (Kreijkes & Greatorex, 2024). Its authors concluded that neither strictly subject-based nor more integrated approaches can be regarded as superior for students' learning outcomes (Kreijkes & Greatorex, 2024). Two implications follow. First, the absence of clear superiority does not mean that integration is ineffective: existing evidence cannot discriminate between forms of integration because sequencing has not been isolated as a variable (Kreijkes & Greatorex, 2024), so the conceptual task is to specify what a sequenced design is, so that it can be tested. Second, the four operationalisations in Table 4 are layers rather than competing definitions: an ordering decision may be justified externally and coherent in its assessment, yet fail in classroom enactment or go unnoticed by learners. This review proposes that a sequenced design is aligned only when all four layers hold. This layered reading is the review's analytic proposal, stated as Proposition P2 in Section 3.9.

### 3.4 Teachers and implementation

Three publications address the role of teachers: a cross-sectional path model of teacher curriculum leadership, curriculum literacy, and curriculum fidelity (Bolat & Korkmaz, 2026); student teacher agency in curriculum reform within initial teacher education (Chen & Murray, 2026); and the strengthening of teachers' learning design capacity through a dual curriculum that integrates digi modernism and educational neuroscience (Srikoon et al., 2026). These studies mark teacher competence, agency, and curriculum literacy as variables deserving explicit attention when cross-subject sequences are designed. Because ordering decisions typically involve teachers of different subjects, curriculum literacy and leadership are likely to be exercised collectively; this inference

extends the cited work and is formulated as Proposition P4. Implementation fidelity supplies a measurable counterpart to design intention, namely whether the sequence is enacted as planned (Bolat & Korkmaz, 2026).

### 3.5 Pedagogical strategies

Six publications place pedagogical strategies at the centre. In language education, studies address English as a medium of instruction in tertiary education (Ahmed, 2025), digital storytelling for intercultural awareness and critical thinking among Vietnamese EFL students (Do et al., 2026), and a pedagogical intervention on motivational regulation strategies and oral English proficiency among Chinese EFL learners (Yan et al., 2024). In health professions education, one study examines 3D printing in pharmaceutical sciences education (Bom et al., 2026), another offers a guideline on pedagogical strategies for intersectional competence among nursing educators (Graells-Sans et al., 2026), and a further systematic review covers strategies for integrating the affective domain in nursing education (Al-Hassan et al., 2026). The main pattern is contextual dispersion: strategies are developed and evaluated within fields such as EFL, pharmacy, and nursing, and are rarely related to how units are ordered across subjects (Ahmed, 2025; Al-Hassan et al., 2026; Bom et al., 2026). A bridge between units must work across subject boundaries, so transferable strategies, such as digital storytelling or the explicit teaching of regulation strategies (Do et al., 2026; Yan et al., 2024), may be candidates for pedagogical bridging, whereas content-dependent strategies such as 3D printing in pharmaceutical sciences (Bom et al., 2026) may more likely operate within a single subject. This is an interpretation, not a corpus finding: none of these studies examined whether a strategy works across subjects. This distinction between transferable and field-bound strategies is the review's analytic contribution; whether transferable strategies actually bridge is formulated as Proposition P3.

### 3.6 Technology, artificial intelligence, and curriculum design

Three publications connect curriculum design with technology: a play-centred, design-based curriculum for AI literacy in pre-kindergarten and kindergarten (Lee, 2026), a systematic review of generative-AI-driven pedagogical change in higher education (Sabani et al., 2026), and a systematic review of curriculum design for cultivating systems thinking through game-making (Fan, 2026). These studies show that curriculum design and pedagogy are increasingly discussed together (Fan, 2026; Sabani et al., 2026), but they focus on what is taught and how technology changes teaching, not on the order of units across subjects (Lee, 2026; Sabani et al., 2026). Generative AI and digital tools may become means of making inter-unit links visible, which would make technology a possible bridging tool rather than an alternative to sequencing; this remains a conjecture, not a corpus finding.

### 3.7 Social and emotional learning and early childhood education

Two publications connect curriculum design with system-level concerns: an organisational change model for designing a social and emotional learning specialisation curriculum (Hon & Sauve, 2026) and the scaling of an integrated birth-to-five curriculum within Virginia's unified early childhood system (Williford & Conway, 2026). Both treat integration as an organisational and design problem as much as an instructional one (Hon & Sauve, 2026; Williford & Conway, 2026), which suggests that sequencing in early years settings is intertwined with scaling and governance, a dimension absent from the classroom-centred clusters.

### 3.8 Thinking skills, literacy, and other contexts

Two publications address thinking skills and literacy: in-curriculum and beyond-curriculum thinking skills in history education (Pantazidis & Bantiou, 2026), and graphical models for narrative texts that reflect and reshape curriculum demands in Swedish primary school (Ridell & Walldén, 2023). Two others cover transversal skills and perceptions: relationships among learning strategies, project-based practices, e-learning platforms, and academic performance in higher education

(Guerra-Macías & Tobón, 2025), and pharmacy students' perceptions of curriculum enhancements in a foundation pharmacology course (Hussain et al., 2026). Transversal and thinking skills develop across subjects and over time, so they may be candidates for sequenced or threaded designs (Guerra-Macías & Tobón, 2025; Pantazidis & Bantiou, 2026); whether ordering affects their development is a question the sequenced lens makes visible and the corpus leaves open. The student-perception study contributes a method, eliciting learners' views of curriculum change, that could be adapted to ask whether learners perceive the links between sequenced units (Hussain et al., 2026).

### 3.9 Synthesis: an analytic framework for sequenced designs

Reading the clusters against one another shows common ground and differences. What they share is a concern with coherence: alignment studies ask whether outcomes, activities, and assessments fit together (Burke et al., 2026), teacher studies ask whether a design is enacted as intended (Bolat & Korkmaz, 2026), and pedagogical studies ask which strategies develop particular competences (Do et al., 2026; Yan et al., 2024). They differ in the unit of analysis, which ranges from the programme (Akhtar et al., 2024; Muslić et al., 2026), through the teacher (Bolat & Korkmaz, 2026; Chen & Murray, 2026), to the learner (Hussain et al., 2026; Yan et al., 2024); in the kind of evidence, which ranges from a review of reviews that appraised its included reviews as critically low quality (Kreijkes & Greatorex, 2024) to single-course and single-case studies (Burke et al., 2026; Hussain et al., 2026; Muslić et al., 2026); and in whether integration is itself the object of study, which is the case mainly for the two anchor reviews. As for the development of knowledge, the corpus moves from asking what integrated curriculum is and whether it works (Bourke et al., 2022; Kreijkes & Greatorex, 2024) towards context-specific questions of design and delivery, such as technology, teacher capacity, and early-years scaling, without a parallel body of work on the ordering of units. This is the corpus-level pattern from which the three observations below are drawn.

Three cross-cutting observations emerge. First, curriculum alignment is the most consistent theme but is defined and measured in at least four ways, which Table 4 shows to be complementary layers. Second, pedagogical strategies are dispersed across contexts and not yet linked to ordering decisions, which is where pedagogical bridging offers a connection. Third, the closest syntheses of integrated approaches do not isolate the sequenced model (Bourke et al., 2022; Kreijkes & Greatorex, 2024), leaving the ordering of units an unexamined design variable. Table 5 turns these observations into an analytic framework. It treats the ordering of units as the focal design variable and links it to four others that the corpus addresses separately: pedagogical strategy, alignment, teacher capacity, and context. It is offered as a heuristic for designing and studying sequenced curricula and yields four propositions for empirical testing:

**Table 5.** Proposed analytic framework for sequenced designs

| Dimension | Guiding question | Corpus evidence | Analytic reading |
|---|---|---|---|
| Sequencing logic | On what rationale are units from separate subjects ordered? | Source model (Fogarty, 1991); not named in the corpus | Defined as the focal design variable |
| Pedagogical strategy | Which strategies make the links between sequenced units explicit? | Field-specific strategies (e.g., Do et al., 2026; Bom et al., 2026) | Linking concept proposed: pedagogical bridging |
| Alignment | Are outcomes, activities, and assessments coherent across the sequence? | Multiple operationalisations (Table 4) | Layered reading proposed (four layers) |
| Teacher capacity | Do teachers have the curriculum literacy and agency to enact the sequence? | Bolat & Korkmaz (2026); Chen & Murray (2026) | Collective enactment proposed |

| Dimension | Guiding question | Corpus evidence | Analytic reading |
|---|---|---|---|
| Context | How do level, field, and system conditions shape feasibility? | Higher education, health professions, primary, early childhood | Boundary conditions for feasibility |

*Note.* The "Analytic reading" column states how the review uses each corpus strand in the framework; it does not report empirical effects.

P1 (ordering logic). Units whose order is justified by an explicit rationale, such as prerequisite concepts or shared skills, are expected to produce stronger perceived coherence and learning than units that are merely scheduled in parallel. P2 (layered alignment). A sequenced design is expected to be more effective to the extent that external fit, internal constructive alignment, implementation fidelity, and stakeholder perception all hold; weakness in one layer is expected to reduce the benefit of the others. P3 (pedagogical bridging). Strategies that make the links between sequenced units explicit, especially transferable ones, are expected to strengthen the effect of ordering, whereas field-bound strategies are expected to strengthen links only within their own subject. P4 (collective enactment). Shared curriculum literacy and leadership among the teachers of the sequenced subjects are expected to be associated with fidelity to the intended sequence.

### 3.10 Discussion: pedagogical bridging in dialogue with theory and the corpus

Pedagogical bridging is proposed here as the concept that connects ordered units while each subject keeps its identity. It is an interpretive construct of this review, not a category reported by the corpus, and it is best judged in dialogue with established theory and with what the corpus does and does not show. The idea has a close precedent in the transfer literature. Perkins and Salomon (1988) distinguished "hugging", in which instruction approximates the target performance, from "bridging", in which teachers deliberately prompt learners to abstract principles and connect them to other contexts, and they argued that transfer often fails unless it is cultivated in this way. Read through this lens, a sequenced design creates the opportunity for connection by placing related units in proximity, but proximity does not by itself create transfer; bridging activities would be the mechanism, which is the substance of Proposition P3. The proposition is also consistent with Fogarty's (1991) account, in which sequencing leaves each subject intact and therefore leaves the learner to see the link, and it adds a pedagogical layer to Biggs's (1996) constructive alignment, because intended outcomes that span subjects must be matched by activities that make the span visible. In contrast to Beane's (1997) democratic integration, in which learners and teachers organise knowledge around problems of real significance, bridging in a sequenced design preserves disciplinary identity and asks only that connections be made explicit; the two are therefore read here as different positions on a continuum of integration (Jacobs, 1989), not as rival answers. The corpus supports, extends, or departs from this account in different ways. It supports the premise that pedagogy is context-bound: strategies are developed and evaluated within single fields (Ahmed, 2025; Al-Hassan et al., 2026; Bom et al., 2026). It extends the account where studies point to strategies that could serve as bridges, namely the explicit teaching of regulation strategies (Yan et al., 2024) and digital storytelling for intercultural awareness and critical thinking (Do et al., 2026), although both were studied in language learning and neither addressed links between units. It supports the importance of the other dimensions through the alignment and teacher studies (Bolat & Korkmaz, 2026; Burke et al., 2026). It tempers an optimistic reading of integration: the review of reviews found no clear superiority of either subject-based or integrated approaches (Kreijkes & Greatorex, 2024), and the systematic review in teacher education reported barriers as well as benefits (Bourke et al., 2022). The corpus therefore offers no direct evidence that bridging strengthens a sequence, which is why P3 remains a proposition. Statements about strategies that can be transferred across disciplines should be read with particular caution. That a strategy such as digital storytelling or explicit regulation training is transferable is an

assumption of this review, based on the fact that such strategies are not tied to the content of one discipline; none of the corpus studies tested them across subjects. Because transfer is often difficult to obtain even when it is intended (Perkins & Salomon, 1988), the distinction between transferable and field-bound strategies is a hypothesis to be examined, and some strategies classed here as field-bound may prove adaptable, and vice versa. To keep the source of each claim visible, the statements of this review fall into three groups. The corpus reports the distribution of publications by year, context, and cluster; the coexistence of several operationalisations of alignment; the contextual dispersion of pedagogical strategies; and the limited comparative evidence in the two syntheses. The review interprets the layered reading of alignment, the distinction between transferable and field-bound strategies, the possible role of technology as a bridging tool, and the collective character of teacher enactment. The review proposes, for empirical testing, Propositions P1 to P4.

### 3.11 Conceptual gaps and opportunities

Table 6 summarises the conceptual gaps that the corpus reveals and the part of the framework that addresses each.

**Table 6.** Conceptual gaps in the corpus and the contribution of the framework

| Gap | Description |
|---|---|
| Sequencing as an unexamined design variable | No included title addresses the sequenced model directly, so ordering has not been treated as a variable in its own right. The framework (Table 5) defines it through ordering logic, pedagogical bridging, and aligned assessment, and Proposition P1 makes it testable. |
| Disconnect between strategy and sequence | Pedagogical strategies are studied within single contexts and have not been related to the ordering of units across subjects. Pedagogical bridging, and the distinction between transferable and field-bound strategies, connect the two (P3). |
| Diversity in alignment operationalisation | Alignment is measured in different ways, so comparison across studies requires a common frame; the four-layer reading (Table 4) supplies one (P2). |
| Limited comparative evidence on integration | Existing syntheses report limited and low-quality evidence on the comparative effects of subject-based and integrated approaches (Kreijkes & Greatorex, 2024). Isolating one form of integration, sequencing, is a way to produce more discriminating evidence. |
| Recency of the corpus | Sixteen of 23 publications date from 2026 and have no citation history or replication yet; the corpus is a snapshot of current thinking and an early reference point. |

### 3.12 Implications

For curriculum designers, the framework tentatively suggests, pending empirical testing, three practical steps: document the rationale for the ordering explicitly; map outcomes, learning activities, and assessments across the sequenced units so that coordination in time is matched by coherence in expectations (Biggs, 1996; Burke et al., 2026); and give the teachers who enact the sequence opportunities to build curriculum literacy and shared leadership, since fidelity depends on both (Bolat & Korkmaz, 2026). For researchers, five directions follow from the propositions above: Treat the ordering of units as an independent variable, comparing sequenced with non-sequenced arrangements of the same content (P1). Test whether transferable pedagogical strategies strengthen links between sequenced units, and whether field-specific strategies do so only within their own disciplines (P3). Develop and validate measures of internal alignment that can be applied across subjects in a sequence (P2). Examine whether implementation fidelity predicts learners' perceived coherence and outcomes in sequenced designs (P4). Extend the analysis from corpus-level mapping to study-level synthesis as empirical work accumulates, using Table 5 as the coding scheme.

### 3.13 Limitations and scope

The analysis is conceptual and corpus-level: it rests on bibliographic metadata, titles, and the abstracts of two anchor reviews, so it reports no study-level findings and assesses no risk of bias (Section 2.5). The corpus is small and weighted toward a single publication year and publisher group, which limits generalisability; clusters were assigned by the primary focus indicated by each title and may be refined as the literature grows; and the framework in Table 5 and its four propositions have not been tested empirically. Because the findings of individual studies were not extracted for 21 of the 23 publications, the review cannot report their aims, samples, or main results beyond what titles and metadata convey, and the 240 records excluded at title and abstract stage are not itemised by criterion. The word "systematic" in the title refers to the systematic identification and screening of the corpus, not to a study-level evidence synthesis. These limitations bound the claims of the review to what a conceptual synthesis can support.

## 4. CONCLUSION

This review set out to answer three research questions, using the sequenced model as a lens on 23 publications that were identified systematically and analysed at corpus level. In answer to RQ1, recent literature positions pedagogical strategies largely within specific fields, such as English as a foreign language, pharmacy, and nursing education, and has not yet linked them to the ordering of units across subjects; in this review's interpretation, pedagogical bridging could supply the missing link, and the distinction between transferable and field-bound strategies is a hypothesis for identifying which strategies might connect sequenced units. In answer to RQ2, curriculum alignment is the most consistent theme but is conceptualised and evaluated in at least four ways (external fit, internal constructive alignment, implementation fidelity, and stakeholder perception); the review reads these as complementary layers and proposes that a sequenced design is aligned only when all four hold together. In answer to RQ3, the review proposes an analytic framework that treats ordering as the focal design variable and links it to pedagogical strategy, alignment, teacher capacity, and context, with four propositions (P1 to P4). The closest syntheses of integrated approaches do not isolate the sequenced model (Bourke et al., 2022; Kreijkes & Greatorex, 2024) and report limited, low-quality comparative evidence, so ordering remains an unexamined design variable. The contribution of the review is conceptual. The framework is a conceptual synthesis built from a corpus-level reading of the literature and from established models; it has not been tested empirically, and nothing in this review shows that a sequenced design is effective. The review pools no effects and does not claim that any intervention works. Given the limited and low-quality comparative evidence, the sequenced model is best described as a low-disruption design option that merits investigation (Fogarty, 1991), not as a demonstrated improvement over other forms of integration or over subject-based curricula. Its value lies in making the construct explicit, integrating dispersed strands on pedagogy, alignment, and teacher capacity, and deriving four propositions on ordering, layered alignment, bridging, and collective teacher enactment. Empirical studies comparing sequenced and non-sequenced arrangements of the same content, and study-level syntheses based on full-text extraction, are the natural next steps.

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characteristics of the 23 included publications are provided in Appendix A. The search log, screening records, and codebook are available from the corresponding author on reasonable request.

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