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The Future is Connection:

Collaboration, Creativity and Compassion in a Digital Society

Making learning design quality visible: Metadata for collaborative course development

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Risepoint

Designing effective online learning requires collaboration between academics and learning designers, yet indicators of pedagogical quality are not always visible. While frameworks such as Quality Matters (QM) and the Technology Enhanced Learning Accreditation Standards (TELAS) identify characteristics of effective online learning, they provide limited support for making these indicators visible during course development. This paper presents a metadata approach for making pedagogical quality visible during collaborative course development. Informed by the RISE learning framework (Relevant, Interactive, Structured, Engaging), the approach captures structured information about learning activities directly within storyboard documentation, including indicators related to alignment, interaction, feedback, assessment preparation, authenticity and industry relevance. The metadata provides a shared representation of quality that supports discussion, review and refinement during course development. To support review during development, the metadata is interpreted using a custom GPT-based tool that applies predefined checks and generates structured reports to identify any potential gaps or imbalances before production. This paper presents an example of innovative practice using metadata to support more transparent and consistent discussions about learning design quality during collaborative course development in higher education.

Keywords: learning design, learning design quality, metadata, collaborative course development, pedagogical quality, storyboard documentation, quality frameworks

Background and context

Learning designers are commonly positioned in higher education as third-space professionals who work between academic and professional domains (Whitchurch, 2008, 2012). Their work includes areas such as learning support, program design, online learning and industry partnerships (Pretero et al., 2023), requiring them to navigate pedagogical, disciplinary, technological and institutional considerations during course development. As part of this work, learning designers contribute expertise in pedagogy, learning design and educational technology while academics contribute disciplinary knowledge and curriculum leadership to support the development of effective learning experiences.

Successful collaboration between academics and learning designers depends on trust, rapport and role clarity (Richardson et al., 2019). Effective collaboration also requires a shared understanding of what constitutes quality within a learning experience. Considerations such as alignment, interaction, feedback, assessment, authenticity and learner engagement are common topics in course development discussions, yet these characteristics are not always represented in a structured way that supports collaborative review and decision-making.

Higher education already has established frameworks for evaluating online learning quality. Frameworks such as Quality Matters (QM) and the Technology Enhanced Learning Accreditation Standards (TELAS) identify standards related to alignment, interaction, learner support, feedback and engagement (ASCILITE, 2026; Quality Matters, 2026). These frameworks provide valuable criteria for reviewing and assuring quality. However, they do not necessarily provide a structured representation of where and how these indicators are embedded within a course during development. As a result, they provide less support for making pedagogical quality visible within the design process itself.

To review and discuss pedagogical quality during course development, indicators of quality need to be represented in a visible and structured way. Conole (2008) argues that representations such as models and vocabularies can help make aspects of learning design visible. This creates opportunities for those involved in course development to discuss, review and refine design decisions.

This paper argues that learning design metadata can help address this representational gap. In our context, metadata is embedded directly within storyboard documentation, the primary planning artefact used during collaborative course development. It captures indicators of pedagogical quality including alignment, interaction, feedback, assessment preparation, authenticity and industry relevance. By making these indicators visible, the metadata provides a shared basis for discussing, reviewing and refining learning design during course development.

Representing pedagogical quality through metadata

The metadata approach described in this paper is informed by the RISE learning framework (Figure 1). RISE identifies four dimensions of pedagogical quality: relevance, interaction, structure and engagement. Consistent with Conole's (2008) discussion of models and vocabularies as forms of learning design representation, RISE functions as an organising model of pedagogical quality, while the metadata provides a shared vocabulary for describing indicators of quality within a module of learning.

Relevance focuses on connecting learning to workforce and industry needs so that students develop knowledge and skills that are current, applicable and valuable in real-world contexts (Ashford-Rowe et al., 2014). Interaction emphasises teacher presence, social interaction and engagement with instructors, peers and content, drawing on the Community of Inquiry framework (Garrison et al., 2000). Structure focuses on clear and intentional course design, using constructive alignment to connect learning outcomes, activities and assessment (Biggs & Tang, 2022). Engagement emphasises active learning, where technology and media are used intentionally to support problem-solving, application of knowledge, opportunities for practice and feedback that help students refine their understanding (Chi & Wylie, 2014). Together, these dimensions informed the development of the metadata used during collaborative course design.

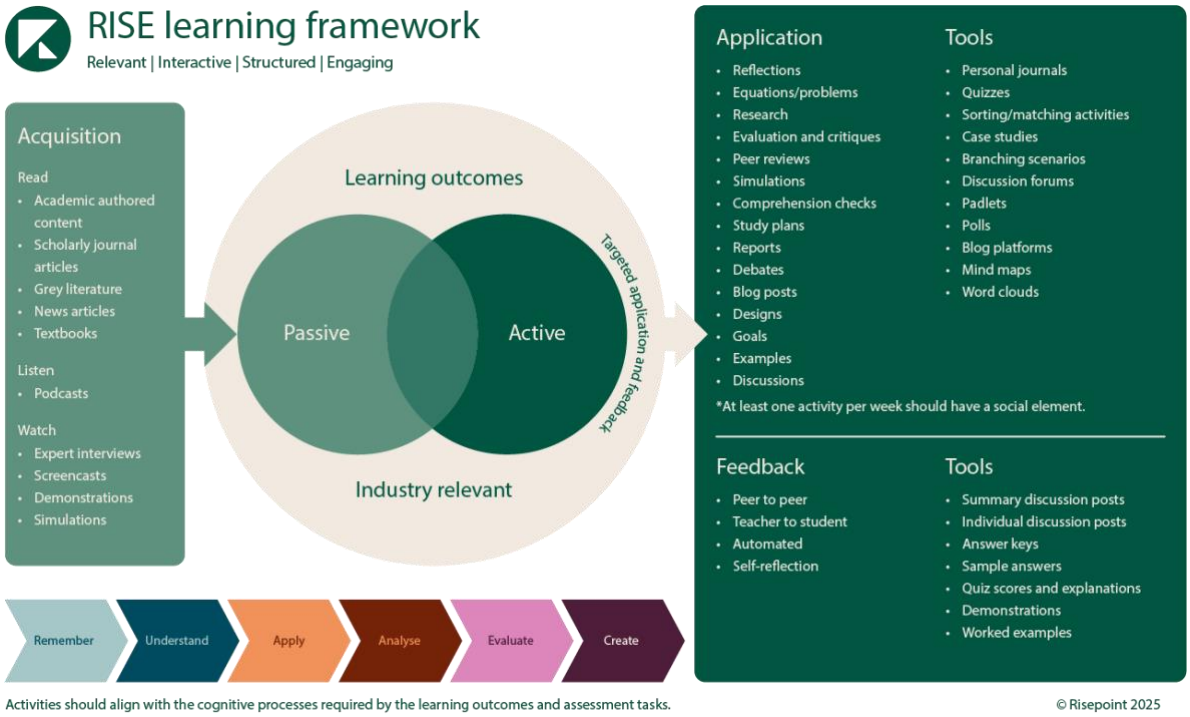


Figure 1. The RISE learning framework, an organising model that informed the development of the metadata approach described in this paper

Embedding metadata within course development

The metadata is embedded directly within storyboard documentation, the primary planning artefact used during collaborative module development, and completed by learning designers as part of routine design activity. Rather than functioning as a separate review tool or checklist, the metadata is integrated alongside descriptions of learning activities as they are designed.

Embedding metadata within the storyboard enables indicators of quality to be captured at the point where design decisions are made. This creates a structured record of alignment, interaction, feedback, assessment preparation, authenticity and industry relevance that can be reviewed and discussed during development rather than retrospectively after production.

Figures 2 and 3 illustrate examples of metadata embedded within storyboard documentation for acquisition-focused and application-focused learning activities.

Acquisition-focused activities capture information related to learning outcome alignment, duration and industry relevance. Application-focused activities capture these same elements together with additional indicators associated with peer interaction, formative feedback, assessment support, authenticity and AI integration. This distinction reflects the different roles that acquisition and application activities play within the learning experience and enables indicators of pedagogical quality to be represented consistently across modules.

{| rpmetadata-Start |}

Linked to MLO:
☒MLO 1 ☒MLO2 ☐MLO3 ☐MLO4 ☐MLO5 ☐MLO6 ☐MLO7 ☐MLO8 ☐MLO9 ☐MLO10
Activity type: Passive
Duration: 10 minutes
Industry input: N/A
{| rpmetadata-End |}

Figure 2. Acquisition (passive) metadata example

{| rpmetadata-Start |}

Linked to MLO:
☒MLO 1 ☒MLO2 ☐MLO3 ☐MLO4 ☐MLO5 ☐MLO6 ☐MLO7 ☐MLO8 ☐MLO9 ☐MLO10
Activity type: Active
Duration: 5 minutes
Social activity No
Industry input: N/A
Authenticity: No
Assessment alignment Yes - A2
Feedback type: Automated
Requires AI use: No
{| rpmetadata-End |}

Figure 3. Application (active) metadata example

GPT-supported review

The completed metadata is interpreted using a custom GPT-based tool that reviews the metadata against predefined design criteria and identifies potential gaps or imbalances within the learning experience.

The tool first provides formative feedback to the learning designer, highlighting issues such as an imbalance between acquisition-focused and application-focused activities, limited opportunities for interaction or feedback, or incomplete alignment with learning outcomes. This enables refinement before production begins. Once any revisions have been completed, the tool generates a structured report summarising the metadata and providing the review findings.

One example illustrates how the metadata and GPT-supported report have informed design decisions in practice. After completing the metadata for an entrepreneurship module, the learning designer ran the GPT-supported report, which identified that active learning accounted for only 31.25% of planned learning time and that one module learning outcome did not have both passive and active support. The learning designer then reviewed the required content, made selected readings optional and added further active learning to support the identified module learning outcome. The report was run again following these changes, showing that active learning had increased to 42.4% and that all module learning outcomes were supported by both passive and active learning.

This process does not replace the professional judgement of learning designers. Instead, it provides a consistent basis for review and supports discussions with academic staff by making indicators of pedagogical quality visible during course development. The review findings are intended to support decision-making and can be accepted, modified or disregarded by learning designers based on the broader learning context.

Discussion and implications

This paper has described a metadata-based approach for making indicators of pedagogical quality visible during collaborative course development. The approach provides a structured way to capture indicators of quality such as alignment, interaction, feedback, authenticity and industry relevance within storyboard documentation. By embedding metadata within routine design processes, indicators of quality become available for review and discussion before production begins.

The approach also supports collaboration between learning designers and academics by providing a shared representation of pedagogical quality. By making indicators of quality visible, discussions can be grounded in shared design characteristics captured through the metadata. This creates opportunities for a more transparent review of learning activities and supports shared decision-making during course development.

While the current implementation focuses on supporting design review through GPT-assisted analysis, there are opportunities to extend the approach further. Future development includes the creation of dashboards that visualise metadata at module, subject and course levels, enabling patterns in pedagogical quality to be explored across larger curriculum structures. Such visualisations may support ongoing quality enhancement, curriculum review and the monitoring of learning design changes over time.

The approach presented in this paper demonstrates how metadata can be used to make indicators of pedagogical quality visible within collaborative course development. By representing these indicators within storyboard documentation, metadata provides a structured way to support review, discussion and continuous improvement throughout the design process.

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