



Intelligent Textbooks: The Sixth International Workshop

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Abstract. From the early days of digital textbooks to the rapidly progressing age of Large Language Models, researchers from different areas explored multiple research directions on the crossroads of Textbooks, a traditional learning medium and Artificial Intelligence, a technology that could empower it. These research directions formed a new research area, often referred to as *Intelligent Textbooks*. The International Workshop on Intelligent Textbooks at AIED 2025, the sixth workshop in the series, aims to bring together researchers working on different aspects of Intelligent Textbooks to exchange complementary insights, review new results, and discuss emerging ideas.

Keywords: Online Textbooks · Adaptive Textbooks · Intelligent Textbooks

1 Introduction and Background

Textbooks have evolved over the last several decades in many aspects. Most textbooks can be accessed online, many of them freely. They often come with libraries of supplementary educational resources or online educational services built on top of them. As a result of these enrichments, new research challenges and opportunities emerge that call for the application of AIED methods to improve digital textbooks, their development, and the interaction of learners with them. This workshop seeks research contributions addressing these and other research questions related to the idea of intelligent textbooks. The workshop aims at bringing together researchers working on different aspects of learning technologies and AI to advance intelligent textbooks as a new interdisciplinary research field. The workshop builds on the success of the five previous events [2–6] and the recent special issue on Intelligent Textbooks published by the International Journal of AI in Education [7].

Several exciting new developments have been reported since the last workshop, which was organized in 2023. In particular, we expect that the iTextbooks 2025 workshop will reflect on the potential of generative AI techniques in intelligent textbooks. Many recent works on intelligent textbooks incorporate these technologies, especially large language models (LLMs). Digital textbooks have contributed greatly to the pre-training of LLMs, providing them with information on the knowledge and structure of textbook content. This opens many pathways to explore the synergy between LLMs and textbooks to enhance the functionality of textbooks with intelligent and adaptive services and enrich interaction between textbooks and their readers.

2 Topics of Interest

A review of 30 years of research on intelligent textbooks [1,7] revealed several broad research areas that address various aspects of making textbooks more intelligent and using artificial intelligence to develop a new generation of textbooks. This year, the workshop accepted contributions from all these areas as well as on a set of recently emerged research topics. More specifically, we focus on the following groups of topics:

- Modeling and representation of textbooks: examining the prerequisite and the semantic structure of textbooks to enhance their readability;
- Analysis and mining of textbook usage logs: analyzing the patterns of learners' use of textbooks to obtain insights on learning and the pedagogical value of textbook content;
- Generation, manipulation, and presentation: exploring and testing different formats and forms of textbook content to find the most effective means of presenting different knowledge;
- Assessment and personalization: developing methods that can generate assessments and enhance textbooks with adaptive support to meet the needs of every learner using the textbook;
- Knowledge visualization: augmenting textbooks with concept maps, open learner models and other knowledge-rich extensions;
- Collaborative technologies: building and deploying social components of digital textbooks that enable learners to interact with not only content but other learners;
- Smart interactive content: extending online textbooks with various kinds of smart interactive content to improve learning, engagement, learner modeling, and personalization;
- Intelligent information retrieval and question-answering for digital textbooks;
- Content curation and enrichment: sorting through external resources on the web and finding the relevant resources to augment the textbook and provide additional information for learners.

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