



Implementing Adaptive Courseware

A Guide to Courseware Development, Use and Evaluation Based on the Collaborative Experience of Four Public Research Universities

Personalized Learning Consortium
Association of Public and Land-grant Universities



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Executive Summary

The Personalized Learning Consortium (PLC) at the Association of Public and Land-grant Universities (APLU) launched the English Composition Adaptive Courseware Development project to educate faculty about recent innovations in adaptive learning technologies and to support cross-institution faculty collaboration in the development of adaptive learning modules for use in English composition instruction.

The project provided a collaborative opportunity for fourteen English composition faculty from four APLU institutions to explore approaches to improving learner mastery of English composition through the use of adaptive courseware, participate in the courseware development process, use the courseware with students on their campuses and gain valuable feedback from students and other department faculty about the impact of courseware on the teaching and learning experience. The primary objective of the project was to increase faculty engagement in and familiarity with use of adaptive courseware to enhance and personalize the learning experience for introductory-level English composition students.

The faculty experience of collaborating to create content within an adaptive learning platform was an important first step towards better defining the role adaptive courseware might play in supporting English composition learners and the product functionality needed to achieve this objective. Based on the experience of the faculty who participated in this project, this report provides a starting point for campus-based or multi-institution faculty teams seeking to launch similar adaptive courseware initiatives. It identifies the steps involved in launching a courseware development project as well as guidance on how this type of project might be used to engage faculty, department heads, and academic affairs leaders in thinking critically and creatively about the use of adaptive courseware to personalize learning for English composition students.

APLU and the four universities participating in the “Collaborative Development of Adaptive Courses in English Composition Using Next-Generation Learning Technology” project are grateful for the generous financial support provided by USA Funds throughout this project.

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1 Launching a Courseware Development Project

The objective of the English Composition Adaptive Courseware Development project was for English composition faculty from Georgia State University, Montclair State University, University of Georgia, and University of Mississippi to develop courseware using an adaptive learning platform that would support instructors of introductory-level English composition courses.

1.1 Goal Setting

The goal of the faculty teams participating in the English Composition Adaptive Courseware Development project was to create composition-related content and assessment questions within an adaptive learning platform. The resulting courseware was intended to serve as a central element of an introductory-level writing course; however, the courseware was developed to be a complete or “whole course” solution. The faculty aspired to create courseware that would provide opportunities for students to review, revise and reflect upon their writing, encourage active learning and engagement in writing practice and serve as a tool for providing students with increased agency in improving their English composition skills as they interacted with the adaptive courseware. Ideally, the courseware developed on the adaptive learning platform would enhance the ability for students to practice writing in ways not presently supported within the traditional classroom setting.

A secondary goal was to leverage multi-institutional collaboration to create a product that would reflect shared guidelines for the content of first-year English composition and could be used to support English composition at all four campuses.

1.2 Vendor Selection

With the overarching goals for the courseware identified, APLU developed a Request for Information (RFI) to solicit interest of adaptive learning technology providers in offering their products and services for use in the project. Respondents were invited to offer products focused on content delivery with embedded assessment and evaluation activities that result in adjustments in the course pathways presented to students. They were also encouraged to propose solutions that aggregate student data to support development of a learner profile used to inform the content presented (modality, duration, and frequency) and how it is sequenced (pathway and pace). The RFI noted that the faculty engaged on this project would design curricula and author and/or aggregate course content, thus flexible and easy-to-use authoring tools was a key product component in vendor evaluation and selection. Finally, the RFI highlighted interest in user

tools (i.e., reports and dashboards) which provide access to learner performance data for instructor use and student self-direction. APLU and the participating institutions expressed interested in considering a variety of approaches to adaptive learning and in understanding how proposed products and services would support development of English composition adaptive courseware.

Eight adaptive learning platform and content providers responded in writing to the RFI. From the submitted materials, APLU and the participating universities selected four provided for web-based presentations. Choosing a single vendor was a difficult decision for the faculty, and consideration of each supplier led to extremely high quality conversations about how to make teaching and learning adaptive, the value of peer review, and the importance (or not) of taking an open approach to content development. The faculty all noted how worthwhile they found the product selection process. It also gave the project leaders an opportunity to begin building the affirmative working relationship so critical to this collaboration.

1.3 Lessons Learned: Vendor Selection

No existing commercial adaptive learning platform met all of the product requirements desired by the faculty, and during the courseware development process the team understood more deeply the selected platforms specific limitations and the associated impact on the project's intended outcomes.

Faculty engaged in similar projects should consider how well the project team's expectations of a product align with the *current* functionality in that product. While many providers desired the opportunity to work with faculty to develop new product features, it is important to have a realistic understanding of the timeline, resources, and market demand for delivering new functionality. Development of new product features within the time period and budget allowed for this project was not possible for the platform provider, and the absence of this functionality impeded the ability of the faculty to develop the type of courseware they originally envisioned.

2 Using Commercial Adaptive Learning Technology and Building Courseware

2.1 Vendor Engagement

As the first step in the courseware development process, APLU held an in-person meeting with faculty from the four participating institutions (including faculty leads and ten faculty contributors) and the vendor team (chief executive officers, chief product officer, vice president for product and user experience, learning engineer, customer support director, and consulting project manager).

The meeting had three objectives: (1) deepen faculty understanding of the adaptive learning platform by discussing the current product features, especially the course authoring tools, data analytics capabilities, and training support available to faculty as they moved forward with courseware development; (2) brainstorm new product functionality with the product development team that would serve the needs of both composition students and instructors; and (3) develop a course outline including module themes, learning objectives, and skill maps along with a project plan for beginning the content and courseware development process.

2.2 Lessons Learned: Vendor Engagement

This meeting provided a strong foundation for the course development component of the project by allowing the faculty to collaborate directly in creating the course outline and project management plan. The faculty produced a course outline for four modules (Argumentation, Multi-modal Literacy, Advertisement Analysis, and Writing Process), including learning outcomes and skill maps, and assigned the development of one module to each institution team. The meeting was a very useful strategy for establishing clear expectations for how the project would be managed by the APLU program manager moving forward and for collaboratively developing a timeline of key project deliverable dates to drive the work forward.

While meeting with the platform provider to set expectations for the project was successful, and established a strong foundation for communication with APLU and the participating institutions, the faculty team's experience throughout the project would have been improved by establishing a better initial understanding of the roles, responsibilities, and *internal* communication strategies of the vendor team. This information would have ensured that all parties involved (APLU, the faculty, and the platform provider) better understood ownership of each component of the development process and with whom to communicate with during the development process. The

vendor team experienced significant turnover during the course of the project which had a negative impact on the continuity of communication between key collaborators. A better understanding of internal role responsibilities would have assisted in weathering these transitions.

Additionally, the initial project launch meeting was likely too early in the development process to be a useful time to review authoring tools and discuss design strategies. The faculty had better questions about design and authoring once they had developed some of the course content and began using the platform. Authoring tool overviews and design strategies were shared a second time once the faculty were working within the adaptive learning platform and they were much more beneficial at this point in the project.

2.3 Courseware Development

Facilitated by the APLU program manager, the faculty leads from each institution participated in weekly phone calls during the courseware development phase. These calls allowed the faculty team to track progress, discuss common areas of concern, prepare for vendor-delivered trainings and facilitate cross-institution team collaboration.

As a first step in the design process, learning engineers from the vendor worked directly with the faculty teams to draft skill maps and scope and sequence documents for each module. Each institution team developed one module within the course; however, all teams reviewed the scope and sequence for all modules and provided feedback prior to finalizing the documents.

Learning engineers from the vendor delivered training webinars with guidance on how to develop content and assessment questions within the platform based on the scope and sequence documents created in an earlier phase of the project. Topics included skill mapping and course design, building effective activities, data collection, content authoring using the platform's tools, and assessment design.

2.4 Lessons Learned: Courseware Development

Direct technical assistance from learning engineers is particularly important for teams of faculty who have little or no experience developing courseware. Our faculty team needed a better understanding from the learning engineers of how the learning objectives and scope and sequence documents informed courseware development and use of the platform.

Training webinars did not provide the level of direct support that the faculty needed to develop assessment questions within the platform. To provide faculty with additional

time to work directly with learning engineers within the platform, the APLU program manager established weekly “office hours” with the vendor learning engineers. Blocking off time each week for faculty to communicate directly with learning engineers and to work together in the platform was essential to increasing the faculty team’s familiarity and agility in working with the platform.

During the courseware development process the vendor product team promised new product functionality would be available for the faculty to use before completing courseware development and launching the courseware in pilot. The vendor learning engineers were often unaware of the timeline for delivering this new functionality. As a result, though the learning engineers were extremely helpful in assisting faculty in the course design process, the faculty often received mixed messages about what would be possible within the platform. Consistent communication between faculty developers, learning engineers and platform developers is a key component of successful and efficient courseware development.

Before finalizing the content for each module, APLU held an in-person meeting with the faculty teams and the vendor learning engineers. Participating faculty observed that the opportunity to review work together in the same physical space was essential to the success of the project, and that they would have benefited from additional in-person development and review time. While logistically challenging during an academic term and more expensive, cross-institution faculty teams need the opportunity to meet face-to-face during each phase of the project.

2.5 Implementation and Evaluation

Three institutions piloted the courseware in Summer 2016 and all four institutions implemented the courseware in Fall 2016. Including the Summer and Fall implementations, eleven faculty members used the courseware to support their introductory-level English composition courses serving 463 students in total. Faculty and students who used the courseware completed evaluative surveys.

To assist participating institutions in deploying the courseware, the vendor provided technical integration support services. Faculty team leads were asked to identify the information technology lead on their campus and provide contact information to the vendor. The vendor worked directly with IT teams to integrate the course into each university’s learning management system. The vendor team was very successful in ensuring that the integration process was seamless.

The vendor also provided product training to all faculty who would be using the courseware (especially those individuals who did not participate in the courseware development process) on how to use the platform's learning dashboard feature to monitor student progress and analyze learning data.

2.6 Lessons Learned: Implementation and Evaluation

The technical implementation of the courseware was very successful in part due to the active role the platform provider played in working directly with each institution's IT team. In all cases, implementation of the courseware proceeded without any significant issues.

Based on the feedback received from faculty and students through surveys following the implementation of the courseware, faculty found the courseware easy to use and expressed optimism about the potential of adaptive courseware to provide value as a tool for personalizing learning. Survey responses indicate that faculty would like to be able to use adaptive courseware to facilitate writing practice (including peer review), encourage reflection, capture multiple revisions over time, facilitate

Students indicated that they felt the courseware provided useful information about writing strengths and weaknesses and was a valuable component of their course experience. Students found the courseware easy to use and enjoyed the interactivity and ability to receive feedback from professors. The survey data indicated that students were very receptive to using courseware to enhance their learning and are interested expanding the capabilities of the courseware to include similar adaptive functionalities as those suggested by faculty.

3 Engaging Faculty and Leadership in the Use of Adaptive Courseware

The adaptive learning platform selected for this project did not deliver several of the product features expected by the faculty (generally and as a result of their experiences through the evaluation phase). As a result, the courseware developed by the faculty should be viewed as a first iteration and starting point for future courseware development. . Based on our project team’s experiences, the following sections are intended to provide guidance to faculty teams interested in engaging in similar courseware development projects.

3.1 Team Building

Building a strong project team that includes representation from all campus stakeholders is fundamental to launching a successful courseware development project. The faculty who participated in the English composition courseware development project were intellectually curious and excited about the opportunity to explore the potential use of adaptive courseware to improve introductory-level English composition courses. Many of the faculty development team members had participated in courseware development projects previously and held leadership positions on their campuses. Previously established support among university peers and leaders provided a strong foundation for our faculty team to collaboratively participate in the project.

To build broad campus support, administrators, faculty developers, faculty instructors, information technologists, and students should be included as members of the project team from the beginning. When selecting team members for a courseware development project, consider the culture of the department and institution. Faculty participants in the English composition courseware project benefited from environments in which administrators respected faculty and in which faculty felt supported. Project leaders should seek to engage supportive, influential faculty who are well respected within their department as the core team. To expand the reach of the project as an engagement strategy, core team members should also include faculty on the project team who are less familiar with adaptive courseware and may even be skeptical.

3.2 Courseware Development as an Engagement Strategy

Engaging deans and department heads proved essential in maintaining support for adaptive courseware projects particularly through leadership changes. Participation in a courseware development project can be an effective way to engage faculty, deans and administrators in thinking creatively about the potential use of adaptive courseware to support introductory-level English composition courses.

Faculty who participated in the English composition courseware project were able to engage instructors who had not participated in courseware development previously by appealing to intellectual curiosity about personalized and adaptive learning and by communicating about the project as a professional development experience. This way, participation was viewed as an opportunity rather than a burden.

Faculty participation in the development process also provided an opportunity for faculty to assume greater ownership over the courseware's use. Engaging faculty in the process of identifying gaps in instruction that could be filled by adaptive courseware, and brainstorming the ideal functions that courseware might serve to support instruction in a way that improves the student learning experience, engaged faculty who may have otherwise been apprehensive about the use of adaptive courseware in English composition courses.

3.3 Communicating about the Project

Launching a courseware development project is an opportunity to increase awareness of adaptive courseware and its use across the campus community. Faculty who participated in the English composition courseware project note the importance of communicating the student-centered nature of the initiative and the goal of using courseware to personalize learning. Faculty also recommend communicating about the courseware as a first iteration in the development of superior adaptive learning tools.

Future adaptive courseware developers might consider hosting a project launch meeting including all campus stakeholders who will need to be aware of or otherwise engaged in the project. This would serve as an opportunity to communicate project timelines and objectives and indicate when members of the campus community could expect to hear future communication about the project's progress. To leverage this opportunity, development teams may wish to establish a development and implementation communications timeline that identifies key project milestones when information will be available to share and indicates the audiences on campus who should receive the information to remain engaged in the project.

Including administrators and information technology specialists and establishing expectations and role responsibilities early in the project launch phase will provide an opportunity to identify areas where the project team will need support during the development and implementation phases of the project. The initiative will be more successful if information technology leaders and administrators understand the technology and training needs accompanying the launch phase and plan accordingly.

Equally important is establishing lines of communication between the courseware developers and the instructors who intend to use the courseware to maintain a common understanding of the purpose behind the project and to gain insights into the value of the courseware as it is used in the classroom.