APLU Adaptive Courseware Program Report

July 1 – December 31, 2016

Personalized Learning Consortium

Association of Public and Land-grant Universities

February 27, 2017

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1   Executive Summary

The Association of Public and Land-grant Universities (APLU) *Accelerating Adoption of Adaptive Courseware at Public Research Universities* grant program includes eight participating institutions: Arizona State University, Colorado State University, Georgia State University, Northern Arizona University, Oregon State University, Portland State University, University of Louisville, and University of Mississippi. The APLU grantees submitted their first set of semi-annual reports on January 31, 2017 based on data and work completed through December 31, 2016.

APLU collected five reports from the participating institutions: (1) a narrative report on faculty development; (2) an implementation report; (3) a course enrollment report; (4) a report on general education enrollments; and (5) a report on grant-support and in-kind budget expenditures (which are summarized in the APLU grant progress narrative and budget narratives dated February 27, 2017).

Key Findings:

- The participating universities' implementation plans are well aligned with the proposals submitted in March 2016.
- Institutions expressed high confidence in their ability to scale adaptive courseware use and to impact 15% or more of the enrollments in introductory-level and/or general education courses by the end of the program term.
- Program managers and other key staff spent the preponderance of their time in Fall 2016 meeting with faculty, engaging department leaders, and confirming courses and programs for courseware implementation in Spring 2017 and later terms.
- Participating institutions have identified 90 courses for adaptive courseware implementation. The most represented disciplines are mathematics, biology, chemistry, economics and psychology.
- A majority of the universities have targeted high enrollment, high impact introductory-level courses; however, some institutions have also selected courses across the curriculum to support scaling efforts and maximize impact on students and faculty. Thus, the number of courses targeted per institution varies widely (from a low of four and to a high of twenty-five).
- APLU calculated per institution weighted average success rates (using a "C" or higher) based on reported enrollments and student success rates. The scores range from a low of 70% to nearly 90%. Among the 90 courses targeted within the cohort, the success rates range from a low of 59% to a high of 94%.
- Most adaptive courseware programs on the participating universities' campuses are co-located with other digital learning initiatives.
- The barriers to success are formidable. Challenges include: limited support staff relative to the need; inadequate awareness of and knowledge about adaptive courseware among faculty; instructional support and technology management capacity; and most especially, constraints on faculty time.
- Initial participation and ongoing engagement of deans and department chairs is critical to success.

Seven institutions report that they will implement adaptive courseware using grant support during Spring 2017. Per the terms of its grant proposal, Georgia State University plans to implement courseware in Fall 2017. Arizona State University and Northern Arizona University also reported courseware implementations in multiple courses and course sections in Fall 2016.

2   University Report on Faculty Development

The University Report on Faculty Development is a narrative report on implementation progress. There are four sections in the report: (a) activities pursued since the beginning of the grant term; (b) program management update; (c) progress towards goals and outcomes; and (d) the effectiveness of APLU. University reports range from six to twenty-two pages depending on whether the university submitted a log of all meetings and the extent to which the meetings were summarized. In general, the reports are upbeat about progress towards the grant program outcomes.

Five of the eight universities identified program managers at the start of the grant, leveraging existing staff whose current job responsibilities included academic innovation, digital learning, and/or course redesign. Three universities recruited and hired new staff into the program manager role. Existing university administrators and staff connected to similar digital learning activities supported grant-related activities pending identification of permanent program managers in the fall. Most universities situate the program manager within a unit that includes instructional designers/technologists and digital learning support staff. Universities report that the nature of adaptive courseware requires a mix of knowledge and skills that weaves connections through instructional design, digital learning, and faculty development.

Program managers reported spending most of their time in meetings with faculty who teach the courses identified in the institutions' grant proposals. Key activities within the meetings included building awareness of adaptive courseware, discussing potential products and suppliers, discussing grant requirements, and confirming commitments to adaptive courseware implementation at both the department and individual faculty levels. Most meetings were face to face although the size and location of a campus seemed to influence whether or not the meetings were recorded.

Program managers leveraged institutional expertise of pioneering faculty, faculty doing research on adaptive learning, and external experts. Time spent connecting faculty and building internal networks often enhanced awareness building efforts at the department, college and institutional levels. Program managers were adept at recognizing the kinds of activities (e.g., workshops, communities of practice, connections to external groups) build a foundation for collaboration and best advance the program. APLU fostered discussions about faculty development activities in monthly teleconferences with the full cohort, individual update meetings with the APLU program director, informal gatherings at conferences, and on a web-based collaboration platform called Trellis.

Only one university created a new department to house the program manager. All others expanded existing operations to include program management of adaptive courseware. These expanded departments varied in focus from e-learning specifically to teaching and learning more generally. All departments include functional support for digital teaching and learning, and all program managers are aligned with academic support and instruction, not information technology business units. Only one program manager is an administrator with academic affairs responsibilities (in addition to her faculty status). All other program managers are academic support staff.

With only three to six months of activity to report, all of the universities acknowledge challenges and barriers to success. Respondents note that adaptive courseware is an emerging technology category and therefore faculty knowledge about its purpose, features, and leading suppliers is limited. Large publishers overshadow newer providers, and sorting through information from all vendors takes a considerable amount of faculty time. Some faculty perceive that university staffing for the initiative is limited and therefore a barrier to success. Additionally, the products from smaller suppliers seem more prone to technical issues and disruptions. Faculty often consider such challenges to be a very strong reason to avoid using the tools at the present time.

Only a few institutions describe constraints on faculty time and faculty attitudes as barriers to progress. All institutions identified participating departments and specific courses as targets for courseware implementation in their proposals. To date, the departments and faculty engaged are consistent with the universities' plans as described in the proposal evaluation process (May 2016). However, a majority of universities identify one or more courses that are at risk of failing to launch or scale. In every case, the institutions identify replacement courses and describe efforts to engage the departments and faculty in these disciplines.

APLU asked participating universities to report on progress toward shared goals and general program outcomes. At the July 2016 convening, APLU emphasized the importance of institutions sharing their experiences broadly and especially with other public universities that are likely to engage in this work. Responses to questions about interaction within and beyond the program cohort vary widely. Some program managers network broadly while others are relying on existing relationships and new connections fostered by APLU. Overwhelmingly, program managers request advice from Arizona State University. Both the program manager and faculty at ASU have been gracious and responsive to these inquiries.

The University Report on Faculty Development also considers discipline/course enrollments and potential impact on underserved learners. Five discipline areas are most represented among courses targeted by the eight participating institutions. All universities indicate that they pursing courseware implementations across the curriculum and seek to engage multiple disciplines within the grant program term. The institutions state that they are on track to achieve the goals set forth in their proposals regarding underserved learners. At this early date – recall that courseware delivery under the grant begins in Spring 2017 – it is not possible to assess each institution's progress toward these goals at the present time. APLU will collect impact data on Pell students (or Pell-eligible or similarly qualified students) enrolled in courses using adaptive courseware in future reporting periods.

The final section of the University Report on Faculty Development requests feedback on APLU's effectiveness as a grant program manager. All institutions acknowledge receipt of the first sub grant payment in a time manner. Universities evaluated APLU on a five-point scale in the following categories: Clear Communication (4.4); Sufficient Consultative Support (4.4); and Collaborative Network for Sharing Information and Experiences (4.1). Respondents request that APLU continue cohort facilitation and advance ongoing efforts to build a network of informed practitioners which would enable program managers to find and implement courseware-related solutions more quickly in their communities.

3　Implementation Report

The Implementation Report provides detailed information about course-level progress in discovering, adopting, and implementing adaptive courseware. The report includes Course Name, Course Code, Discipline Area, Academic Lead (last name), Academic Year (launch date), Academic Term, Number of Sections (anticipated or planned), and Status (green, yellow or red). If respondents indicate a yellow or red status, they are asked to identify course(s) and number of sections that might be substituted. The data presented in the current implementation reports supports the narratives provided in the universities' reports on faculty development. Program managers spend the preponderance of their time recruiting faculty, guiding the adaptive courseware discovery and selection processes, and preparing for implementation of the technology.

The implementation reports provide overviews of the year-by-year work plans of the participating universities. Some institutions and program managers are well versed in scoping, planning, and managing very large learning technology-related initiatives. Others work within the context of initiative-level goals, but focus their planning and program management on near-term (Spring 2017 and 2017-2018 academic year) launches. Given these different approaches to program management, it unwise to make a general assessment of the cohort's progress. Each institution's progress will be measured over time using the current report as a baseline. APLU expects to discern patterns in the universities' progress over the grant term and will offer assessments and share best practices as they become apparent.

Collectively, participating universities report on-track (green) status with a high degree of confidence in their progress toward intended outcomes (both scale and impact on underserved learners). In discrete cases where respondents report off-track (yellow or red) status, they describe efforts to engage other faculty and plans to implement courseware in other courses/disciplines. Most of the off-track status indicators in the current reports are for courses and course sections identified courseware implementation in 2018-2019.

APLU will use the implementation reports to guide discussions during university site visits in each year of the grant program. These visits offer the opportunity to explore each institution's program management strategy and tactics in greater depth. Interviews with lead faculty will provide much-needed insights into the pedagogical changes, implementation and support challenges, and courseware impacts experienced by instructors. Meetings with institutional and departmental leaders will confirm (or not) each university's success in achieving the grant program's intended outcomes.

4　Course Enrollment Report

The Course Enrollment Report tracks information at the course level and supports efforts to report student success outcomes. The universities' course enrollment reports in the current term describe historical data (2016 and earlier). Program managers collected this data without difficulty, and the program managers experienced in digital learning innovation routinely analyze this information.

The APLU-provided course enrollment template includes the variables described in Table 1.

4.1   Table 1. Outcome Collection Variables

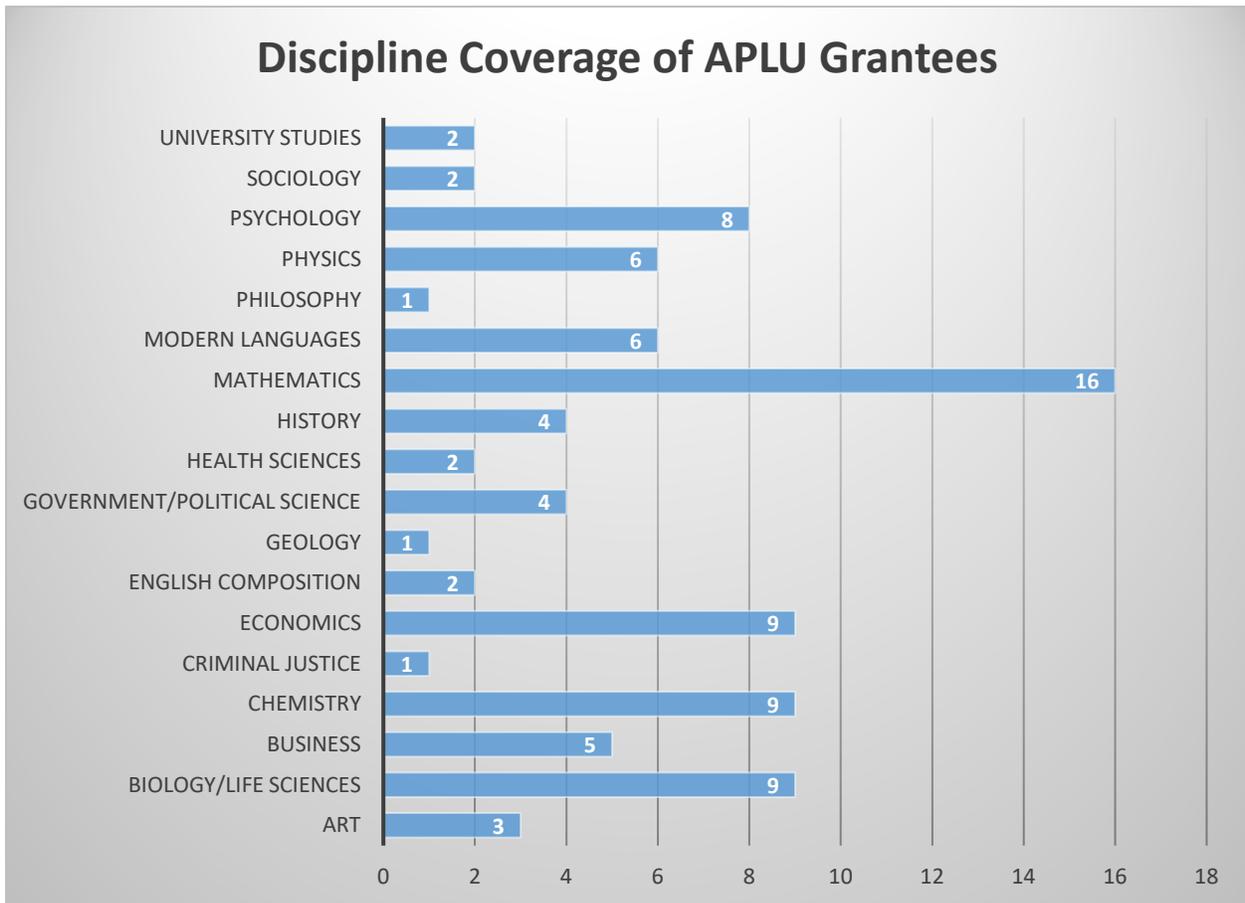| Course Information	Enrollments & Sections	Outcomes
Course Name	Total Enrollments 2015-2016 Academic Year	Success Rate (%) (grade of A, B or C)
Course Code	Number of Sections Offered 2015-2016 Academic Year	Drop Rate (%)
Discipline Area	2015-2016 Academic Year and Number of Sections Using Adaptive Courseware	Withdrawal Rate (%)
	Total Enrollments (%)	

APLU compared the participating institutions' outcomes as follows:

1. Enrollments in Adaptive Courseware Sections
2. Enrollments in NON-Adaptive Courseware Sections
3. Success Rate in Adaptive Courseware Sections
4. Success Rate in NON-Adaptive Courseware Sections
5. Withdrawal Rate in Adaptive Courseware Sections
6. Withdrawal Rate in NON-Adaptive Courseware Sections
7. Drop Rate in Adaptive Courseware Sections
8. Drop Rate in NON-Adaptive Courseware Sections

In collecting this data for the current reports, APLU learned that not all universities within the cohort calculate drop rates or track them separately. APLU will consider other ways to measure differences in student drop rated in courses using adaptive courseware and courses not using adaptive courseware. Please note that APLU will add Pell status (or Pell-eligibility or similar qualification) to this report in June 2017 once seven of the eight participating universities have implemented adaptive courseware. Only two universities reported Fall 2016 course sections using adaptive courseware, and this academic term is not included in the grant program.

Using the course enrollment and implementation reports, APLU aggregated number of courses and discipline areas where participating universities plan adaptive courseware implementations. Figure 1 illustrates that institutions in the cohort currently project ninety (90) courses using adaptive courseware by the end of the grant program term. This number will change, but it indicates that the average number of courses implemented be eleven (11) per university. The actual number ranges from a low of four (4) at Georgia State University to a high of twenty-five (25) at Northern Arizona University.

4.2   Figure 1. Courses and Disciplines Represented

Discipline Coverage of APLU Grantees

Discipline	Count
UNIVERSITY STUDIES	2
SOCIOLOGY	2
PSYCHOLOGY	8
PHYSICS	6
PHILOSOPHY	1
MODERN LANGUAGES	6
MATHEMATICS	16
HISTORY	4
HEALTH SCIENCES	2
GOVERNMENT/POLITICAL SCIENCE	4
GEOLOGY	1
ENGLISH COMPOSITION	2
ECONOMICS	9
CRIMINAL JUSTICE	1
CHEMISTRY	9
BUSINESS	5
BIOLOGY/LIFE SCIENCES	9
ART	3

As expected given the grant program's emphasis on high-enrollment, high-impact introductory-level courses, the represented disciplines include many popular 100- and 200-level courses. Mathematics is the most represented discipline; others heavily favored across the cohort include biology, chemistry, economics and psychology.

4.3   Selection of Courseware Products and Suppliers

The course enrollment reports include information on the adaptive courseware products selected for implementation where institutions and faculty have made adoption decisions. Participating universities, program managers, and most faculty understand that products and suppliers must be chosen from the approved list (affirmed most recently July 2016). The following providers have one or more adoptions confirmed:

- CogBooks
- Difference Engine by Learning Objects (Cengage)
- McGraw-Hill Education ALEKS
- McGraw-Hill Education LearnSmart
- Macmillan Learning Curves (LaunchPad)
- Pearson MyLab & Mastering (with Knewton)

Several program managers describe meaningful conversations with Realizeit and Lumen Learning for planned courses. APLU and the program managers observe that faculty prefer adaptive courseware from large commercial publishers (titles aligned with existing textbook adoptions). There has been very limited use of tools like the Courseware in Context Framework or other approaches to prompt a general reconsideration of courseware best suited to specific disciplines, pedagogies, or learner needs.

4.4   Baseline Student Success Rates

Data collected in the course enrollment reports provides a baseline for measuring changes in course success rates. Participating institutions target specific courses and faculty for adaptive courseware implementation using a range of strategies, and a majority of courses have lower overall student success rates. Outcomes in the targeted courses range from a student success rate low of 58.8% to a high of 93.5%. APLU calculates the weighted average success rate for each university based on the number of enrollments as a percent of the total enrollments intended to be impacted by adaptive courseware. The baselines for the participating institutions show a range of average success rates from 71.2% to 87.7%. Individually, each university's baseline is not especially meaningful; however, in aggregate they may provide view into changes in student success rates over time. Of course, if institutions in the cohort change the courses targeted for adaptive courseware implementation, the baseline student success rates will also change.

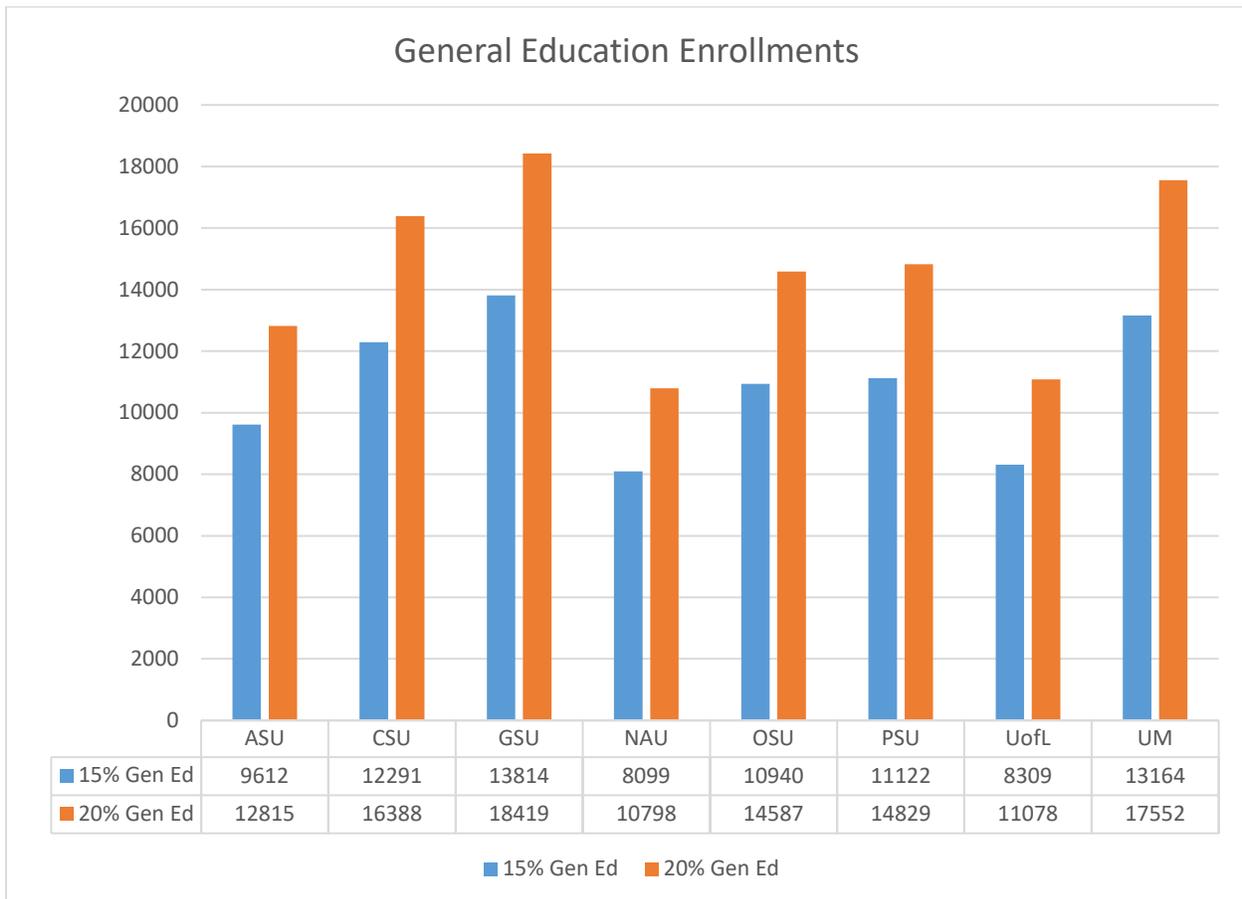## *4.5   Progress to Scale*

Together the implementation reports and course enrollment reports provide a snapshot view of progress toward courseware implementation scale and achievement of the 15-20% enrollment goal. Not surprisingly, there is broad range within the cohort of progress toward implementation scale. University pioneers in the adoption of adaptive learning plan to meet or exceed a 20% enrollment goal. This set of institutions includes Arizona State University and Northern Arizona University. Three universities – Georgia State University, Oregon State University, and University of Mississippi – report courseware implementation plans commensurate with a 15% enrollment goal. At present, Colorado State University, Portland State University, and University of Louisville do not have implementation plans which demonstrate a path to the grant program's enrollment goal. There is sufficient time for the institutions in this last group to expand their course targets and achieve the goals articulated in their respective proposals.

5   General Education Enrollments Report

APLU summarized the general education course requirements for each participating institution, and the universities provided the associated 2015-2016 academic year enrollment numbers for these courses. The total general education enrollments for each institution serve as the baseline for measuring progress toward the program goal of adaptive courseware use in courses and course sequences generating 15-20% of general education course enrollments by the end of the program term (December 2019) based on courseware availability.

Figure 2 illustrates the number enrollments needed for each institution to achieve the 15-20% program goal. The implementation and course enrollment reports indicate that several universities in the cohort are on track to meet or exceed the 20% target.

5.1   Figure 2. General Education Enrollments

General Education Enrollments

	ASU	CSU	GSU	NAU	OSU	PSU	UofL	UM
15% Gen Ed	9612	12291	13814	8099	10940	11122	8309	13164
20% Gen Ed	12815	16388	18419	10798	14587	14829	11078	17552

APLU and the Bill & Melinda Gates Foundation program officer agree that participating institutions have the flexibility, and are encouraged, to target high enrollment and/or high impact courses which may or may not fall within the university's general education requirements. This modification of the grant program terms enables institutions to focus more attention and resources on gateway courses in science, technology, engineering, mathematics and business disciplines.

The next APLU Adaptive Courseware Program Report (January-June 2017) will be provided to the foundation on or before July 31, 2017.