

VIVA

VIVA-IMLS-Planning

Project Narrative

“An Open Homework Repository to Aid Adoption Efforts in Open Education”

Project Justification

VIVA, a state-funded consortium of 71 non-profit academic libraries in Virginia, in cooperation with four library consortia, Notch8, a software development company with a proven record of contributing to open source software, and the Roy Rosenzweig Center for History and New Media (RRCHNM), the developers of Zotero, Omeka, and other open source academic digital tools, is requesting \$149,259 to fund a 2-year National Leadership Planning Grant entitled, “An Open Homework Repository to Aid Adoption Efforts in Open Education.” With the IMLS National Leadership Grants for Libraries program Goal 3, Objective 3.1 as its aim, the grant will fund the planning and development of a proof-of-concept open homework repository with the extensibility to integrate into learning management systems (LMS).

Building an LMS-integrated assessment repository is a critical step in advancing digital inclusion efforts, as it removes cost and access barriers to student success, enables the creation of homework and assignment content that is more inclusive and representative of student populations, provides critical support to and infrastructure for instructors adopting Open Educational Resources (OER) in the classroom, and supports an equitable student experience in the increasing trend toward online education. The sudden move to remote learning for many during the COVID-19 crisis has further highlighted how critical it is that students have unencumbered access to their course materials on day one, particularly for traditionally underserved student populations.

The cost of course materials contributes to increasing expenses that put higher education out of reach for many and impedes the success of those able to attend. The *2018 Student Textbook and Course Materials Survey*¹, conducted by the Florida Virtual Campus, and a *2021 Virginia Course Materials Survey*², conducted by VIVA, both found that the costs of course materials negatively impact students' academic careers in terms of progress, opportunity, and success. These surveys reached 21,000 and 5,600 students respectively, and the resulting analyses showed a high degree of similarity in responses and areas of concern. For example, in both surveys, due to the cost of course materials, over 60% of respondents had not purchased required texts; over 40% had not registered for a course; over 30% reported earning poor grades; and many reported dropping (over 20%), withdrawing from (over 15%), and failing (over 15%) courses. These types of results across states and student populations point to the broad and significant challenges students face with the high costs of course materials.

To help overcome the barriers presented by the high-costs of course materials, libraries and librarians increasingly lead campus efforts to support students and faculty in locating and implementing free and low-cost materials in the classroom. Library consortia, like VIVA, amplify this work, developing open education initiatives that take multiple approaches to addressing the high cost of resources, including training academic librarians, providing funding to develop and adopt OER, and providing support for smaller and less well-resourced institutions in these efforts.

¹ <https://dlss.flvc.org/colleges-and-universities/research/textbooks>

² <https://vivalib.org/va/open/survey>

However, locating or creating OER is only the first challenge in bringing down the costs of course materials. Encouraging faculty to adopt those materials for their courses requires convincing them to forego many of the advantages of expensive textbooks, including the associated test banks and homework platforms that reduce faculty workloads.

The high price of textbooks is often compounded by the cost of these homework platforms – online spaces in which students can turn in homework, gain instant feedback, and complete assignments. These platforms require access codes that add to course costs – costs that cannot be mitigated through popular coping strategies such as buying used copies or sharing texts with friends. Students in the 2021 Virginia survey often noted that access codes and homework platforms were barriers to their educational progress, including that the price of required homework programs had caused them to drop classes. One student noted that, “Right now I’m taking an A&P class with content that is wholly available as an OER text. Instead, I’ve paid \$400 for a book with duplicate info, just so I can have the right question bank.”

Although these homework platforms can be a significant barrier to student success, they are successful in easing the burden of teaching faculty. Even when faculty understand the struggles that their students face due to these costs, without access to user-friendly homework platforms, many instructors are reluctant to adopt OER that would eliminate course material costs. According to the Babson survey, “Freeing the Textbook: Educational Resources in US Higher Education, 2018,” 37% of surveyed faculty in 2018 were requiring an online homework system, with the number jumping to 48% for introductory courses.³ This is particularly a concern when examining the needs of introductory and gen-ed courses, which represent large numbers of students and which are often taught by contingent faculty, who, given time and financial concerns of their own, are even more likely to gravitate toward complete course packages. The problem is further exacerbated at two-year institutions, where more than 65% of all positions were part-time as of 2016.⁴

It is not a simple question of one size fits all when it comes to course material support, and librarians working with faculty are often left scrambling in the search for ancillary materials that meet pedagogical goals. Although using pre-written and packaged assessments, quizzes, and homework assignments may lessen the overall burden on instructors, current pedagogical practice demands the alignment of learning outcomes, assessments, and course materials because it improves the student experience and the effectiveness of the instruction. Pre-packaged materials may not be aligned with the learning objectives of the course, relying instead on a generalized set of goals. For instance, while nursing students are required to learn concepts of community health, some institutions integrate those concepts into core courses while others offer a standalone community health course. The different approaches demand different assessments that cannot be customized in pre-packaged plans.

Unlike pre-packaged content, customization is a core advantage of an open education approach, as the use of OER allows instructors to tailor course material to learning objectives established for the

³ <https://www.bayviewanalytics.com/reports/freeingthetextbook2018.pdf>

⁴ <https://www.aaup.org/news/data-snapshot-contingent-faculty-us-higher-ed>

specific institution or course of study. A VIVA grant recipient, on moving his course to OER and customizing his assessments to match both his pedagogical goals and the text itself wrote,

“It was refreshing to finally dive into the course content and redesign it for my own instructional style (that is less lecture-based and more experiential). I felt a sense of multi-year guilt wash away when I finally aligned the assessment to the instruction, having sent out so many emails in the past apologizing to students for questions that they weren’t really prepared to answer.”

Open Education Librarians are primed to respond to the need for assessments to accompany OER, and there is already content being produced. Grant-funded initiatives in OER, including the Department of Education’s Open Textbooks Pilot Program, have worked to address the impact of course material costs on student success, as have many state library consortia through open and affordable programs, including GALILEO in Georgia and the Louisiana Library Network. In Virginia, VIVA offers a state-funded Open and Affordable Course Content Initiative that aims to level the academic playing field for students through grants, outreach, and tools to increase discoverability of OER and no-cost resources. In its ongoing Open Grant Program, VIVA receives regular inquiries from faculty who want to share their questions and assessments with other faculty in open test banks, but there is no existing avenue to store and share the material.

The specific need for affordable alternatives to expensive homework platforms has also not gone unnoticed. In 2019, Open Oregon Educational Resources, a statewide OER program working with Oregon’s 24 public colleges and universities, worked with researcher Robert Bodily to produce a white paper, “Report on Lack of Homework Systems as a Barrier to the Adoption of Open Educational Resources,” the results of which have informed this proposal. In the report, Bodily noted, “There is no standout open-source homework system that thoroughly addresses known faculty concerns. Resultantly, faculty who rely on commercial homework systems are often unable to find an open equivalent to meet their needs.”⁵ These needs include an accessible, searchable system that can be customized to align with learning outcomes, respect the privacy of students, and permissions specificity that would prevent students from finding the answers as easily as instructors find the questions.

Although there have been developments in this area, the tools developed so far have had key limitations that prevent broad applicability. In response to the need for an innovative platform to use with their own OER, for example, LibreText has developed ADAPT, a homework platform that is open source but which anticipates costs of \$5/FTE for institutions to use. In addition, the platform requires use with a pre-existing repository, such as MyOpenMath, or that the questions be created in H5P, a web-based framework for creating interactive questions. These obstacles may leave faculty willing to generate open, ancillary course content with significant technological or financial hurdles. Similarly, OpenStax, a leader in open education, has developed OpenStax Tutor, but it is limited to their published textbooks and is provided at a cost of \$10/student/semester. And industry-standard OER repositories like OER Commons lack permissions specificity that prevent

⁵ https://drive.google.com/file/d/0B-J6TXqfqqmuM2Nmd3hRb2hNOGFkNVM3OXdxOTBcSnVLaFlJ/view?resourcekey=0-dlHYbEW-c_aVy7a5TLoXnA, pg. 6.

students from finding the questions – and answers – that instructors hope to assign. They also lack the question-level metadata that would allow instructors to search through hundreds of questions in order to find the ones they need to create quizzes and tests.

Although some discipline-specific open question repositories have been developed (for example, MyOpenMath and WeBWork), there is not one currently that could serve as a solution across disciplines. As there is growth in interdisciplinary work in higher education and a corresponding move away from strict disciplinary silos, there is a distinct need for a sustainable homework repository that is not limited to particular publications or subject areas. What is needed is a discipline-agnostic repository with a robust and extensible API, but technologically simple user interface. The proposed proof-of-concept repository will allow the structured and protected exchange of open ancillary materials, regardless of discipline, that is currently not possible. Not only would the proposed system create a more collaborative and inclusive environment that mirrors trends in higher education, but it would provide a more efficient and centralized service, making the most of available resources.

In addition, institutions often provide access to an LMS as a basic way for instructors and students to keep track of assignments and grades. An LMS-compatible repository for storing, tagging, searching, and sharing those assignments and test questions could leverage the power of LMS for open education, and the long-term benefits to providing a solution linked to the platform instructors and students are already employing would remove many barriers. To provide the foundation for the envisioned future fully-integrated system, the prototype will be integrated into a single chosen LMS and will include an API planned to be extensible enough to be integrated into multiple institutional LMS. It is anticipated that this would offer the labor-saving aspects of more expensive tools by allowing students to take exams, turn in homework, and see their grades calculated and recorded without the cost of an expensive platform, and, critically, in compliance with FERPA and existing institutional restrictions on software. An extensible repository that could integrate into future open homework platforms would also provide a foundational tool that can grow as open alternatives to homework platforms are developed.

Although the ultimate goal is a truly discipline-agnostic approach, the development and deployment of the initial prototype focuses on two disciplines for which no existing open homework system exists: history and nursing. Consequently, gen-ed courses, history courses, and the nursing and health disciplines will be the first fields to realize the benefits of the prototype. Consortial partners will ensure that the target groups are not geographically limited to Virginia, but rather will stretch across states represented by consortial partners, which serve libraries in Georgia, Louisiana, Pennsylvania, Ohio, and Oregon. Although not inclusive of general education required history classes, which are taken by the majority of undergraduate students, in 2021 in Virginia alone 1,520 history degrees were awarded, and 16,429 health related degrees were awarded – an indication of the broad potential reach of the prototype.

The initial target groups for the project are instructors, teaching faculty, and students at institutions of higher education, specifically in the fields of history and nursing. To ensure that the prototype meets varied disciplinary and institution type needs, instructors representing different institution types (such as community colleges, 4-year comprehensive schools, and research institutions) and diverse backgrounds will be recruited for focus groups and testing. The results and feedback from

these two target groups will inform the further development of the prototype, allowing the end-users to directly shape the tool in the ways that are most important to them.

Ultimately higher education students will be the true beneficiaries of this project. From the *2021 Virginia Course Materials Survey* and Florida's *2018 Student Textbook and Course Materials Survey*, we know that the negative impact of the costs of course materials on academic careers is significant, and that these impacts are broad and shared across populations. From the 2021 Virginia survey results, we also know that the impacts of costs go far beyond academic success, affecting life and wellness as students make difficult choices between items such as groceries and utilities and costly required course materials. Providing instructors with the tools they need to efficiently adopt no-cost materials, as this prototype aims to do by addressing the immediate barrier to OER adoption created by homework platforms, is a foundational step in giving instructors the resources to better support students across disciplines, institutions, and states.

Project Work Plan

Designed to be a true planning grant project, the work plan will both investigate the best approach to the problem of expensive platforms as an obstacle to OER adoption and begin to develop a solution in the form of a prototype homework repository with LMS compatibility. The work will be conducted in four phases over the two years planned for the grant. At each phase, faculty and subject matter experts will be consulted, ensuring that we return again and again to the needs of the target audience on a national scale. Genya O'Gara, VIVA's Deputy Director, and Dr. Stephanie Westcott, VIVA's Open and Sustainable Learning Coordinator, will act as Principal Investigators for the project, with Dr. Westcott taking on the role of Project Manager, coordinating the work of the Advisory Board, Notch8, RRCHNM, and the Instructional Designer.

Central to the project will be an Advisory Board consisting of representatives of VIVA, Notch8, and RRCHNM, as well as representatives from four collaborating consortia: [GALILEO](#) (Georgia), [The Louisiana Library Network](#), [Partnership for Academic Library Collaboration and Innovation](#) (Pennsylvania), [Ohio Library and Information Network](#), and one statewide OER program, [Open Oregon Educational Resources](#). The participating organizations serve more than 400 academic libraries across the US. There will be two library consultants represented on the board, including Dr. Juhong Christie Liu, Head of Online Learning Libraries for James Madison University. They will bring a depth of experience in implementing OER through library programs. The additional participant will be recruited from participating consortia with diversity of perspective as a crucial criteria. Lisa Becksford, Online and Graduate Engagement Librarian at Virginia Tech will serve as the Instructional Designer for the project. There will be two faculty members representing the initial targeted disciplines of history and nursing, including Dr. Celeste Tường Vy Sharpe, a member of the history faculty at Normandale Community College in Bloomington, Minnesota. Several candidates have been identified for the faculty consultant in nursing. The Board will meet four times a year, with assessment integrated into each meeting agenda. During every meeting, in addition to a briefing from the Project Manager and Instructional Designer on the progress toward milestones, the Board will review the overall progress of the project with effectiveness, efficiency, quality, and timeliness in mind. Minutes from each Board meeting will include a summary of the completed assessment in each category.

The Roy Rosenzweig Center for History and New Media (RRCHNM) will act as a liaison with and organizer of faculty testers and focus groups throughout this project. In addition to incorporating the perspectives of the target groups into the planning of the project from the beginning, this will allow the opportunity for early and consistent outreach about the project at campuses nationwide.

Lisa Becksford, the consulting Instructional Designer, will have a significant role in the planning aspects of this grant. She will prepare a survey of current homework platforms and test banks in order to assist the Advisory Board in the definition of initial and future repository functionality, work with RRCHNM to conduct focus groups and testing, and analyze testing outcomes and make recommendations for future directions of the project.

Resources needed to complete the project include the time and labor of the Advisory Board, the Instructional Designer, Notch8, and RRCHNM. VIVA will provide support through dedicating staff time to project management. We propose to complete this work with a budget of \$149,259. This budget includes two faculty members participating in the Advisory Board and developing content for the prototype, who will receive \$2,500 each. An Instructional Designer will conduct an accessibility review, participate in focus groups, assess the results of beta testing, and present the results to the Advisory Board for a total of \$24,000 over two years. Twenty faculty participating in focus groups and twenty faculty participating in beta testing will be offered \$200 honoraria in recognition of their time for a total of \$8,000. At \$150/hour, the development budget for Notch8 includes 375 hours of development, project management, and quality assurance time for a total budget of \$56,250. RRCHNM, in consultation with the Instructional Designer, will manage faculty focus groups and testing of the platform with faculty across disciplines for \$22,500. \$1,500 is budgeted for the cost of presenting the project at two conferences in order to aid adoption of the platform. George Mason University will receive 27.3% in indirect costs, or \$32,009.

Team members will work in four distinct phases over two years in order to develop a prototype repository, outreach plans, and a plan for future directions and the sustainability of the project. The phases and the work required to complete them are:

Phase One: Needs Assessment (August 2022-March 2023)

Two areas will have work in Phase One: a review of existing systems and focus groups conducted within the target population. The Instructional Designer will conduct a comprehensive survey of existing platforms and repositories to explore current approaches to this problem and identify platforms with which the repository should be compatible. During this phase, RRCHNM will recruit faculty to participate in focus groups in order to ascertain the needs of the instructors who will be using the repository. Members of the focus groups will be instructors in higher education courses in history and nursing, representing a diversity of location and institution types and ensuring the needs of a wide range of faculty will be taken into account. Collaborating consortia will assist RRCHNM in this recruitment process, ensuring that participating testers will be drawn from a national pool. Those selected will begin by answering a survey of their experiences and needs with regards to OER and homework systems and will ultimately take part in synchronous conversations. RRCHNM will compile a report of the outcome of these focus groups for the Advisory Board's review.

The Advisory Board, upon review of the prepared system report and the results of the focus groups, will define essential functionality and accessibility requirements for the repository as well as scope the future goals for the repository. Among the features they will need to define for the developers are the most popular LMS for prototype integration, metadata required for discovery and selection, and the workflow for instructors creating assignments.

Phase Two: Core Development (April 2023-January 2024)

In Phase Two, based on the requirements specified by the Advisory Board, Notch8 will develop a proof-of-concept Ruby on Rails-based web repository to hold course texts, assignments, and other media files. While the initial plan is outlined in the Schedule of Completion, including estimates to time of completion for milestones including the creation of the user interface and the deliverability to the chosen LMS, decisions made regarding functionality and compatibility will necessarily change that schedule as more specific details emerge. The development plan will include specific milestones, timelines, and budget targets. Ongoing progress will be managed using GitLab, using open tickets and a shared kanban board. The development team will regularly meet with the Instructional Designer and Project Manager to review progress, define and address challenges, and ensure the project is meeting scheduling and budgeting targets.

Also during this phase, subject matter experts in history and nursing will begin preparing content for the repository in a wide variety of assessment types. Material will be prepared and submitted to Notch8 in order to ensure that the development process keeps these assessment types in mind.

In anticipation of future needs, during this phase the Advisory Board will begin developing an outreach plan to make higher education professionals aware of the repository and its potential to make OER more appealing for instructors. Outreach will focus in two primary areas: library professionals and classroom instructors, with graduate programs and professional organizations, including consortia, as additional areas of interest. Conferences that reach these audiences, including the Open Education Conference and the Digital Library Federation Conference, will be identified and presentation proposals will be submitted. RRCHNM's Engagement Coordinator, Bridget Bukovich, will consult on this phase of the plan. In addition, RRCHNM will begin the process of recruiting and planning the testing phase of the project. Much like during the recruitment for focus groups, RRCHNM will be recruiting a diverse group of testers with experience in the targeted disciplines.

Phase Three: Testing (October 2023-May 2024)

The active testing of the prototype will make up the bulk of the work of this phase, lasting four months, beginning in the fall of 2023. On completion of the prototype, members of the Advisory Board will be asked to test the repository, and the targeted LMS integration, ensuring that the prototype meets the goals they have set for it. If it is deemed ready for further release, it will be passed to RRCHNM, which will work with faculty to test the repository. There will be two main activities involved in testing the repository. In the first,

the testers will be asked to create an assignment using the test questions already contributed by subject matter experts to the repository. In the second, they will be asked to add questions of their own to the repository, tagging each with the appropriate metadata. The participants will then meet with Dr. Nathan Sleeter, RRCHNM Director of Education Projects and grant project faculty liaison, to discuss their experiences with the repository, creating a list of bugs that must be addressed immediately as well as functionality that they hope would be developed in the future. In response to ongoing testing by the Instructional Designer, project manager, Advisory Board, and the faculty testing managed by RRCHNM, Notch8 will continue the process of fixing bugs and refining the user interface.

Phase Four: Dissemination and Future Planning (May 2024-August 2024)

In Phase Four, in cooperation with RRCHNM, the Instructional Designer will assess the results of the user testing and develop a set of recommendations for the repository going forward. These recommendations will be presented to the Advisory Board, which will develop future plans for the repository, including increased functionality and LTI integration. The Advisory Board will be responsible for developing a road map for the adoption of the repository at other institutions and consortia. Finalizing a robust outreach plan to share the results of the project and train instructors and librarians in the use of the repository will be a crucial part of the last phase of the project. This will include, but not be limited to, a plan for the creation of extensive documentation, a website, and webinars with recordings made publicly available. During this phase, Notch8 will investigate the installation, hosting, and management of the software by other institutions and consortia, and begin to develop a potential cost model for providing services at a sustainable rate for groups that do not have the resources to maintain open-source software.

Diversity Plan

As mentioned above, in Fall 2021, VIVA conducted the *2021 Virginia Course Materials Survey*, which had a central goal of researching the impact of course material costs on educational equity among Virginia students. With over 5,600 valid responses from 41 institutions, VIVA has gained deep insights into the student perspective on course material costs. Seven areas of concern were applied to the results: students using the Pell Grant Program, Education Loans, or Full Time Job(s) to fund their education (three financial aspects, treated separately), and students who selected a race/ethnicity other than or in addition to White, identified as First Generation students, were currently taking care of family members, or identified as having a Disability.

The compounding impact of increasing numbers of areas of concern on the level of stress placed on students due to course material costs was clear in the survey results. Only 7% of the students with zero of the areas of concern, for example, said they were “Extremely Worried” about meeting their course material costs, but 37% of the students with five or more of the seven areas of concern were “Extremely Worried.” Similarly, only 1.4% of the students with zero of the areas of concern responded that the cost of required course materials caused them to frequently earn a poor grade, but 10.4% of the students with five or more of the seven areas of concern responded in this way.

Since the beginning of its Open & Affordable Course Content program, VIVA has had a focus on using OER as a way to increase equity among students and increase diversity and inclusiveness in

the higher education experience, and the results of the *2021 Virginia Course Materials Survey* have provided specific and relevant evidence for the importance of these goals. The financial and social areas of concern identified above will be incorporated in this project in a number of ways, including taking institutional levels of Pell Grant-eligible students and students from underrepresented racial and ethnic groups into account when selecting faculty participants. The subject matter consultants will be expected to have demonstrated expertise in serving diverse student populations, including those identified by the areas of concern listed above, and will be committed to generating content for testing that is representative of a wide array of assessment types and communities in order to ensure that students with a variety of learning needs and backgrounds can be equitably served by the repository. As much as possible, feedback from students in diverse communities, as reported back through the faculty participants, will be taken into account and used to improve the project. Finally, the Instructional Designer's reviews will include accessibility requirements with feedback from accessibility experts, as needed. In all of these ways, it is hoped that this project will further and strengthen the field's commitment to diversity, equity, and inclusivity.

Project Results

In VIVA's *2021 Virginia Course Materials Survey*, a student respondent wrote, "If there are classes that seem interesting to me, but have a steep cost for web access code or book and it is not a required course for my major then I simply drop it." The cost of web access to course materials and homework platforms is locking some students out of courses of study before they even begin. Opening those courses up to all students, not just the ones who can afford hundreds of dollars for course materials in addition to tuition, is dependent on making OER a more reasonable choice for higher education faculty. Examining if and how an open homework repository with LMS integration can improve uptake of OER, help instructors achieve their pedagogical goals, and broaden digital inclusion is the most crucial aim of this planning grant. The answer to these questions, and the prototype repository created, will be the most immediate results of this project. At the close of the planning grant, the project will have the following deliverables:

1. A prototype repository tested with two disciplines, history and nursing, with integration into one chosen LMS. Disciplines chosen represent fields with varied assessment needs, in order to develop the prototype to be discipline-agnostic from the start. The instructor interface will allow for login, upload and tagging of questions, search for assessments, and assignment creation. The student interface will be via LMS, and allow for assignment access and completion.
2. A plan for outreach, including documentation, conference presentations, a website and recorded webinars.
3. Plan for future directions, including increased platform functionality and integrated identity management to ensure that only faculty can access the questions and answers.

Investment in OER promises return on investment from both a cost avoidance and a student success standpoint. VIVA estimates that the state of Virginia's \$748,000 investment in OER through VIVA grants to faculty to date, for example, will result in as much as \$18 million dollars in student cost avoidance over five years. Other library consortia, including those in Georgia, Louisiana, and Ohio, also have OER grant programs, indicating ongoing OER investment nationwide. This progress, however, will be limited if faculty choose not to use the OER created, and a major barrier to take-up

is the lack of a corresponding homework system. The potential cost avoidance for students across states can be further magnified by greater take-up if user-friendly homework systems exist as well.

The prototype developed with the broad input of stakeholders across many states will provide a map for the further development of a scalable and sustainable open homework repository. It has the added pedagogical advantage of supporting teaching faculty in providing homework and test solutions that they can adapt to align with their individual courses, rather than relying on static materials that are pre-packaged with an existing text. In addition, for libraries and institutions with programs aimed at increasing the adoption of OER, aggregating the associated ancillary materials, such as quiz questions and exams, through a homework repository that can then be shared with other faculty increases the reach of open education, strengthens ties among faculty across institutions, and helps standardize access to resources at a variety of institution types.

In order to achieve that goal, the prototype must be adaptable and generalizable from the outset. Rather than becoming obsolete as new homework platforms are developed, the repository will instead become more useful as there are more platforms that can integrate its content. All software produced through this grant will be made available under an open source license on github for download and use by any institution or consortium. The outreach plan will outline the documentation that will be necessary to develop in the next (post-prototype) phase of the project – including what will be needed by front-end users and what will be needed by campus and consortia IT. The plan will also investigate future options for campuses not interested in setting up their own instance of the repository, or consortia that would like to establish a statewide central resource. These options might include a shared repository or hosted instances on cloud servers. In addition, the future plans developed by the Advisory Board will include next steps for developing affordable, sustainable hosting options for any interested institutions or organizations.

Because the project has been developed as a response to an ongoing and growing need seen nationwide by library consortia—a way to store, access, share and assign assessments compatible with the OER created through grant programs—the sustainability of this project is a crucial issue for the sustainability of those grant programs, as well. As grants fund the creation not just of OER but of ancillary materials, more material will be available for inclusion in the repository and for discovery on search by instructors, instructional designers, and OER librarians. Future directions for the project, including the integration with multiple LMS, mean that students and faculty will be able to use the homework system without having to adopt platforms outside of their existing learning spaces and will contribute directly to ensuring that the project is sustainable as the uptake will be cross-disciplinary. This approach puts the focus on sustainability, as will the investment in the repository by a growing number of instructors and campuses.

Ultimately, the prototype created will be a tool that is flexible and extensible enough to meet the goals set by the Advisory Board in response to the results of the focus groups and in cooperation with subject matter experts. The open repository suggested here will allow faculty not just to write and store course-appropriate assessments, but to share the work of writing them. With a bank of test and homework questions to choose from, the choice between student access and time-saving tools will no longer be such a difficult one for overworked faculty and instructors.

VIVA-IMLS-Planning
Digital Products Plan

“An Open Homework Repository to Aid Adoption Efforts in Open Education”

The planning phase of this project will create one digital product: the LMS-integrated homework repository. All code for the repository will be open and freely available in GitHub, as will instructions on how to set up the repository and integrate it with an institutional LMS. All documentation and outreach documents, including a recorded webinar, will be made freely available on a project web page. In addition, a robust outreach plan is a key deliverable of the project and will include strategies for getting the products to as many members of the target audience as possible. VIVA and collaborating organizations will place no restrictions on the digital projects beyond attribution required by a CC-BY license, and will actively encourage their use and uptake.

Any project that involves the work of students must be sensitive to both the legal and ethical responsibility to their privacy. One advantage to an LMS-integrated system is that, as systems that handle grades and assessments, Learning Management Systems are already required to be compliant with the Family Educational Rights and Privacy Act (FERPA), and these systems already work within the bounds of existing higher-educational institutional guidelines, protecting student data and any identifying information. By ensuring that the primary student interface for the repository is via the LMS, we can address major concerns about privacy, such as who owns student data and the rights of the students who will use the assessments created in the system.

In part, the sustainability of this system relies on the project team’s success in making it widely available and easily adoptable. As instructors contribute to the repository, there will be more assessments for other instructors to choose from, and the more institutions and consortia create instances of the repository, the more time will be invested in maintaining and sustaining its development by the wider community. In addition, the extensibility of the repository, designed with a robust API to ensure that it can be incorporated into not just an LMS but existing and future open homework platforms, will ensure that it will not become obsolete as developments in this arena are made.

VIVA-IMLS-Planning
Organizational Profile

“An Open Homework Repository to Aid Adoption Efforts in Open Education”

VIVA, the Virtual Library of Virginia, is the consortium of nonprofit academic libraries within the Commonwealth of Virginia. Members include all of the 39 state-assisted collections and universities (the 6 doctoral universities, 9 4-year institutions, and 24 community and two-year branch colleges), as well as 31 of the independent (private, nonprofit) institutions and the Library of Virginia. In fiscal year 2021, VIVA members' student annualized full-time enrolled FTE was 431,937.

VIVA's mission is to build an equitable, accessible, and robust infrastructure of library resources and services for Virginia higher education students and faculty. VIVA programs create permanent, lasting benefits for the Commonwealth by building sustainable infrastructure for library cooperation; amplifying the Virginia academic library voice; and serving as a catalyst for improved and innovative library services and technologies. The VIVA Open and Affordable Course Content Program is one arm of the larger VIVA program and specifically investigates and supports open educational resource and access models that enable equitable and inclusive learning, give faculty control over instructional materials, and lower the costs of higher education for Virginia students. VIVA's Open and Affordable Course Content Committee guides the work of this program.

Formed in 1994, VIVA is funded by the [Virginia General Assembly](#) and the VIVA member institutions, and is sponsored by the [State Council of Higher Education \(SCHEV\)](#). VIVA is a founding member of the International Coalition of Library Consortia (ICOLC), and works closely with consortial partners on a variety of initiatives. The VIVA Central Office is located at George Mason University Libraries, and the VIVA Director reports to the University Librarian.

The VIVA organization operates under a Memorandum of Understanding (MOU), and is headed by a Steering Committee comprising 14 members representing the member institutions. Committee membership includes: standing public doctoral memberships; three representatives from the 4-year colleges; one representative from the nonprofit private colleges; two representatives from the community colleges; the chairperson of the SCHEV Library Advisory Committee; chairs of VIVA standing committees; and the VIVA Director (non-voting).

The Steering Committee is supported by four additional standing committees, also comprising members selected from the member institutions. Special ad hoc committees are convened as needed. Operational responsibility for VIVA is conducted by the VIVA staff, including the Director, Deputy Director, Budget & Operations Manager, Assessment & E-Resources Program Analyst, and Open and Sustainable Learning Coordinator.

- More information about VIVA's mission and purpose can be found here: <https://vivalib.org/va/about/mission>
- More information about VIVA's governance structure, including the VIVA MOU and VIVA Organizational Plan, can be found here: <https://vivalib.org/va/about/governance>