

THE PROMISE OF OPEN EDUCATION

May 2010

A report on the research
and findings of the Lane
Community College Open
Educational Resources
Team



Open Educational
Resources

www.bit.ly/laneoer





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MAY 2010

Prepared by Millennial Associates, LLC
Springfield, Oregon

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Summary

Lane Community College stands at a crossroads in learning opportunity and delivery. As information sharing technologies emerge, the skills required to be successful in today's workforce are being redefined. Employers are increasingly seeking individuals with the ability to actively solve problems, seek resources, analyze information, and communicate effectively. A spirit of lifelong learning is required for college graduates to meet expectations in today's knowledge-based economy.

The Lane Board of Education prioritized the exploration of innovative learning technologies through the 2011-2015 strategic direction, **Online Learning and Teaching**. According to the direction statement, "[Lane Community College's] aim is to identify appropriate technological enhancements to serve the college mission, and to providing fiscally sustainable support and tools."¹ Technologies such as OERs have the immediate capability to align with the intent of this strategic direction and the college mission by providing relevant, flexible teaching materials of value to students and faculty and improving student experience at Lane.

Emerging social and knowledge-sharing technologies have brought a renaissance in learning and content delivery methods to higher education. Of high interest to students, OERs can deliver highly relevant content on-demand, thereby increasing the value of a Lane education to students. With electronic delivery, the possibilities are endless with OERs, having the ability to address some of the critical shortcomings of textbooks and traditional content delivery.

With OERs, information is actively shared and adopted by individuals who likewise share their adaptations. Course materials are modified to meet the specific needs of courses, the instructor, or students. In the end, a new, improved product can emerge, which ignites the revision process once again. With OERs, knowledge has the potential to grow and become more relevant every time it is used, not simply in-between publishing revisions.

The Lane OER Team (www.bit.ly/laneoer) was charged with researching and assessing the current state of OERs and providing their findings in a report to the faculty and student body of Lane. This report includes the analysis of over 50 open educational resource providers, organizations, repositories, searches, and producers. The team was also responsible for identifying and recommending actions for Lane Community College to approach the implementation of OERs. This report describes 15 actionable items available for immediate approval and execution aimed to empower faculty in the use of OERs in courses.

KEY FINDINGS

AVAILABILITY

A variety of open educational resource modules continue to be developed on a daily basis, all of which are free of license or charge. As OERs continue to be adopted, their quality and value can continually increase due to increased involvement and sharing.

A key challenge surrounding OER adoption is locating and augmenting existing open educational resources to suit individual course needs at Lane. Due to the emergent nature of OERs, many course instructors have yet explored open curriculum and texts, opting for traditional methods provided through textbook publishers.

¹ Lane Community College Strategic Directions, 2011-2015.
<http://www.lanec.edu/research/planning/documents/OnlineLearning.pdf>

For Lane courses to effectively use OERs, a strong professional development and educational component for Lane faculty is needed. Empowering instructors to find, modify, and even create their own OERs can affect the direct relevance to students and improve the quality of the learning materials.

QUALITY

The culture of open educational resources encourages self-publication and sharing of information. Unfortunately, the traditional functions of an editor in OER publication are frequently omitted from the process. Many open educational resources lack the approval of a central body or publisher, a symbol which traditionally signified quality in a textbook or other learning module.

Despite a lack of official quality standards on the surface, higher-quality educational materials can emerge as a result of OER development and sharing. As more instructors adopt and modify content to meet specific course needs and likewise share their modifications and findings, richer course materials which are highly relevant to students are provided. OER materials can be updated instantly, with both students and instructors not having to wait or pay for new editions of a textbook.

DEVELOPMENT

Instructors and other subject-matter experts find it difficult to share their knowledge when few quality training options, guidance materials, or other empowerment tools exist. In addition, instructors find it more difficult to both adopt and create OERs when they are not compensated for the time it takes.

The active creation and modification of OERs for classroom and online instruction contributes to the furtherance of academic study. The professional benefits of OER adoption and development can be highly valuable, providing professional development opportunities for faculty in higher education.

Efforts to empower faculty in the adoption, development, and sharing of open educational resources is critical to the success of OERs at Lane. Training opportunities and other supportive programs can be created to assist faculty in the use of OERs in the classroom.

ACCESSIBILITY

As information increasingly becomes available without requiring membership or subscription, and as information also becomes hyperlinked and searchable, students can find and access relevant material easier than in the traditional textbook format. This could lead to more learning opportunities both inside and out of class.

With multi-channel learning and multimedia course materials also comes the improved ability to convey knowledge across methods of learning. Connecting with students who use textual, auditory, kinesthetic, and digital learning styles is more achievable today given the new tools of communication. This array of multimedia tools could correlate to student success and retention.

Advances in technology in education have also increasingly advanced the capability of individuals with disabilities to participate in classroom learning environments. Due to the electronic nature of OERs, texts and other materials are already converted to a *universal electronic design*, allowing for instant use in alternative formats for students with disabilities. Materials conforming to universal design principles eliminates mandatory cost associated with converting paper texts.

THE LANE OER TEAM

In fall 2009, the President of the Associated Students of Lane Community College approached the Vice President of Academic and Student Affairs at Lane, expressing interest in exploring the use of open educational resources in courses. Motivated by affordability and increased access to educational materials, ASLCC believed that adoption of OERs could be a win-win-win situation: they hold the potential to benefit students, instructors, and the institution as a whole.

The OER Project was commissioned by the Vice President of Academic and Student Affairs and a team was assembled in spring 2010 to explore the feasibility of OERs. The team was represented by various stakeholder groups at Lane, composed of students, faculty, staff, managers, and technology experts.

...OERs could be a win-win-win situation: they hold the potential to benefit students, instructors, and the institution as a whole

The Lane OER Team was chartered to accomplish the following:

- Research available OERs and the organizations that support OERs
- Recommend actions to implement OERs in courses at Lane
- Promote the use of OERs among faculty, staff, and the community
- Train and provide guidance to faculty in the adoption and development of OERs



The Lane OER Team, Spring 2010

RECOMMENDATIONS

The findings of this report identify the needs and interests of Lane Community College stakeholders regarding open educational resources. The following recommendations are aimed to create a supportive and practical environment at Lane in which open educational resources can thrive and instructors can develop professionally. As OER adoption specifically aligns with the Lane Community College mission, vision, and strategic directions, action should be taken using these recommendations as a guide to begin to realize the promise of open education.

1 – INFRASTRUCTURE

Create an environment in which open educational resources can thrive, are widely used, are supported, and are sustainable.

2 – ADOPTION AND DEVELOPMENT

Develop a comprehensive set of resources aimed at creating a culture of open education at Lane, increasing open educational resource awareness, improving skills in identifying, modifying, and adapting OERs, and fostering a culture of sharing and collaboration.

3 – COMMUNITY LEARNING

Create a fellowship of Lane Community College faculty to empower instructors to use OERs in their courses, provide support for curriculum development, and enable this community of instructors to explore, learn about, and share open education principles in a peer-learning environment.

Background

Lane Community College has been an icon of excellence and innovation since its inception. Founded in 1964, Lane's commitment to developing the highest quality pedagogies and empowering its students in the use of emerging technologies remains strong.

The recent emergence of open educational resources, or OERs, encourages colleges and universities to explore new methods of distributing knowledge to students. It is becoming more apparent that the integration of innovative technologies and content delivery systems in the classroom could further empower students to be successful in today's knowledge-based economy.

As a member of the League for Innovation in the Community College, it is in Lane Community College's interest to determine the availability, feasibility, and potential success in the use of open educational resources. Adoption and development of open educational resources can achieve multiple institutional and student goals.

BACKGROUND OF OPEN EDUCATIONAL RESOURCES

Open educational resources include text, videos, audio, and images with which instructors, departments, institutions, and students are able to freely use without cost and are legally allowed to modify the content to suit their needs. This offers the opportunities to distribute educational materials in an unprecedented manner in academia, not being as hindered by traditional barriers of access to books or instructors.

Recent developments in communication and information technologies have given rise to global sharing of knowledge. Specifically with the Internet, information can now be published and distributed far cheaper and more efficiently than ever before. Due to the potential for increased sharing of information and creative works, traditional models of publication and print are being challenged.

The Internet provides a platform on which any individual may publish and access information for far less resources than the textbook publishing industry has been able to provide. This is coupled with an increase in desire for sharing through social technologies such as social networking, personal publication through blogging and websites, and email.

Open sharing licenses have drastically increased in popularity as participation has increased via the web. The most common of these, the open attribution license, is one in which the creator of content gives free and unrestricted permission to use, change, reuse, and even sometimes resell their content as long as whoever uses it attributes the original author to its creation. The author retains the ability to remain in control of the original content. This greatly differs from the traditional "all rights reserved" copyright, with the author retaining sole use of the material.

It is the rise of both the open attribution license and sharing via the Internet that promoted the concept of open educational resources in higher education. The potential of a body of continually-growing knowledge and the ability to openly modify this knowledge to suit student needs is the great driving force behind the adoption of OERs. Materials can improve without having to wait for new textbook editions. In addition, the affordability of open educational resources is a valuable motivation for students. Coupled with the July 1, 2010 enacting date for the transparency and affordability-motivated Higher Education Opportunity Acts textbook provisions, OERs can provide a solid method in which to address the growing concern of the costs associated with higher education.

Due to the potential for increased sharing of information and creative works, traditional models of publication and print are being challenged.

HISTORY OF OPEN EDUCATION AT LANE

In 2006, Lane faculty webmaster Joe Escobar attended a conference workshop on open educational resources sponsored by the League for Innovation in the Community College. Bringing his findings back to Lane, Mr. Escobar planted the seed which would bring Hal Plotkin to present at the Lane 2007 Spring Faculty and Staff Conference. As an OER pioneer from the Foothill-De Anza Community College District in California, Mr. Plotkin demonstrated to Lane faculty and staff the potential of OERs at college campuses in his presentation “Building and Using Public Domain/Open Education Resources as Substitutes for Commercial Textbooks.”

Due to a variety of challenges including the lack of dynamic technologies, Lane’s OER efforts were set aside to wait for viable options to emerge. As content delivery, social networking, and other internet technologies improved over the years, the Associated Students of Lane Community College expressed interest in 2009 in reopening OER research at Lane, seeking to implement relevant, valuable, and affordable course materials. Coupled with the concept of universal content design and electronic text, learning technologies and content delivery methods have become more robust. The culture of knowledge sharing has also become increasingly popular in academia. It is this combination of opportunities which invoked a revival of research at Lane.

LANE’S ROLE

Actively pursuing and developing open educational resources directly supports the Lane Community College Mission and multiple Core Values.

Online Teaching and Learning is a strategic direction adopted by the Lane Board of Education for the college. This goal seeks to identify resources and methods which could improve the quality and relevance of a Lane education today and empower both faculty and students in the use of such emerging technologies.

Traditional textbook prices have risen at four times the rate of inflation since 2000. An average textbook costs more than \$75

The vision of the college to *transform lives through learning* further justifies the exploration of adopting OERs. By integrating accessible, affordable, and technology-empowered knowledge into course materials, Lane will equip students with the necessary tools to be successful in today’s workforce.

A variety of learning styles are addressed with OERs, offering visual, audio, and other multimedia components in addition to text. When using open educational resources, students are able to access content in a myriad of ways and can find learning opportunities which best suit them.

WHY OPEN EDUCATIONAL RESOURCES?

In their 2006 commissioned report titled “*A Test of Leadership, Charting the Future of U.S. Higher Education*”, the U.S. Department of Education highlighted that “academic programs must be transformed to serve the changing needs of a knowledge economy.”² Open educational resources exemplify this priority by providing valuable opportunities through innovative course delivery methods.

² U.S. Department of Education. (2006). *A Test of Leadership, Charting the Future of U.S. Higher Education*. Washington, D.C.: U.S. Dept. of Education [<http://www.ed.gov/about/bdscomm/list/hiedfuture/index.html>]

In 2008, the United States Congress passed H.R. 4137, the Higher Education Opportunity Act (HEOA). The bill contained measures specifically aimed to reduce the cost of textbooks for students at institutions of higher education in the United States. It was the focus of these provision to improve the transparency in the textbook selection process at colleges, increase the availability of text versions (bound, unbound, electronic, etc.), and justify the costs associated with new textbook editions.³

Taking effect on July 1, 2010, the HEOA's textbook provisions are now becoming a federal requirement for publishers, college campuses, and bookstores. While not specifically mentioning open education, the spirit of the textbook provisions HEOA are exemplified by the transparent and accessible nature of open education, as well as the affordability opportunities which OERs could provide. As the provisions of the bill begin to take effect, OERs could increasingly become a viable option for institutions, bookstores and faculty to meet the spirit and requirements of the law. The affordability of course materials for students will continue to be a driving force behind the implementation of OERs in the near future and beyond.

OERs also create professional and institutional development opportunities for faculty and staff. When using OERs, students, faculty, and the institution can also find value in increasing their competency with technology-based information retrieval, which is critical in today's information-heavy workforce.

³ The Higher Education Opportunity Act of 2008, § 133. H.R. 4137. 110th Cong. 2nd Sess. (2008).
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ315.110.pdf

Findings

The Lane OER Team conducted an extensive study of over 50 open educational resource primary sources, including platforms, repositories, search centers, and databases. In addition to the primary sources, the team researched information located at organization websites, expert interviews, webinars, conferences, blogs, news articles, and social media profiles.

These findings are those of the Lane OER team on the current state of the availability, adoption, and development of open educational resources in the community college.

It is the hope of the team that these findings can be used as a primer on open educational resource familiarization and can provide the necessary background to encourage further exploration into the use of OERs.

AVAILABILITY AND ADOPTION

The availability of open educational resources is scattered or non-uniform, mostly due to the decentralized, personal, and individually empowered culture surrounding OERs. Multiple organizations and collaborations exist, however, to collect, store, and categorize OERs. While many of these such organizations exist, groups don't frequently work collaboratively, have their resource storage infrastructure built electronically for easy search across websites or platforms, or categorize their resources in a way which is intuitive or easy for instructors to browse, leading to a challenge in OER adoption.

In addition to a non-uniform, non-central location when searching for OERs, full course materials are not readily available for many disciplines or courses, leading to an abnormally large required time investment for curriculum development for faculty who wish to teach with OERs but have no prior experience in finding such resources. With no standard path in finding and adopting OERs, faculty interested in exploring OER use at Lane are hard-pressed to find the time and energy to launch a full-scale search of the Internet to find a quality collection of course materials.

Many **thousands** of open educational resources exist in some form today from institutions, organizations, and authors. The challenge, however, is empowering faculty to navigate the repositories of OERs given their relative lack of organization, search capability, and availability across subjects and disciplines.

Any OER which does not sufficiently provide enough material for an entire college course is commonly called a **module**. Most OERs available today are modules. Knowledge collection, including the process of assembling traditional textbooks and courses, operates as a combining of modular ideas, topics, and discussions. It naturally requires more resources to gather a complete college course worth of materials than to find or create a module. Complete textbooks or course collections occur far less frequently in the OER sharing realm. As there are few, peer-reviewed, open texts in existence, the lack of OER adoption across college campuses is understandable.

In order to find value in the vast array of open educational resources on the web, faculty need to know where to look, know what to look for, and know the best practices associated with creating their own course materials out of OERs. To help solve this challenge, Lane can create a common web portal for faculty which provides a comprehensive directory to all known available resources and training materials. This would empower faculty to learn about OERs, browse and find resources, and develop their own courses using these resources.

Most OERs available today are modules...It naturally requires more resources to gather enough resources for a complete college course than to find or create a module.

Training and guidance materials outlining the best practices associated with adopting and developing new OERs is surprisingly absent from the primary OER providers. Efficient training opportunities which establish the importance of OERs and prevent frustration are essential as faculty time is highly valuable.

Empowering faculty with professional development and training opportunities are perhaps the most efficient and best ways to encourage OER adoption at Lane. To create a highly supportive and practical OER environment at Lane, special effort should be taken to develop the infrastructure and professional development opportunities for faculty members. Increasing the ease and developing OER literacy programs can positively impact course materials and students at Lane, leading the college to realize the promises of open education.

QUALITY

Traditionally published course materials exhibit a strong editorial component. Texts are reviewed for content, style, and consistency. Subject experts weigh in on the reliability of the information being presented. Multiple revisions are often made to satisfy an editorial board's standards and opinions.

The culture of open educational resources encourages self-publication and sharing of information, but unfortunately the traditional functions of an editor are frequently omitted at no fault of the author: no centralized or widely utilized process exists. However, this lack of centralized approval body is hardly new.

In the early 2000s, the publishing industry experienced a similar groundswell of independent and individualized publications. Over the last ten years, Web 2.0 technologies have literally given the capability for anyone to publish thoughts, research, opinions, and observations.

Once thought to be low-quality, unreliable information, blogging is now a powerhouse of the daily American media cycle. Wikis and other online encyclopedias are constantly enriched by their increasingly growing number users, with information constantly becoming more relevant and regularly updated. Other social media have empowered millions of people to publish valuable and rich material of interest to their social circles. New methods for filtering unwanted and unreliable information have also emerged, a trend which will likely emerge for OERs as they are increasingly adopted.

Open educational resources used by the higher education industry stand to gain from this rich individual involvement. OERs can be updated, revised, or modified instantly, thereby increasing the relevance and value to students and faculty. Mistakes can be eliminated and new versions shared simultaneously. The quality of OERs can be improved with every course, taking careful note of student needs, classroom environment, and technological trends.

User-generated content is becoming a critical component of information distribution and the Web 2.0 culture. Open educational materials follow this emerging model as they can be freely shared and consumed, allowing anyone to contribute and improve the product. OERs can increase in value to the consumer at a rate unachievable by traditional publication methods.

It is imperative to retain the highest-quality materials in college courses as student success is likely correlated in part to the relevance and quality of the materials with which they are presented. In addition, students expect the best materials in return for their tuition dollar. OERs provide a valuable opportunity for instructors to increase the relevance of their learning materials at any time. Students can contribute to the relevance and value of their materials. Instructors can “feel the pulse” of their courses through the use of their OERs.

Most OERs available to instructors in higher education lack established quality standards (FlatWorld Knowledge's hybrid commercial/open model being an exception). In addition, because

At no fault of the authors of OERs, those who publish open resources are generally prohibited from enjoying the credibility offered by traditional commercial publications

of the decentralized method of publication, no widely utilized peer revision or editorial opportunities exist for publishers of OERs. At no fault of the authors of OERs, those who publish open resources are generally prohibited from enjoying the credibility offered by traditional commercial publications. However, as OERs continue to grow in use, it is believed that the same incredible quality of richness experienced with today's Web 2.0 technologies will likewise affect OERs and community-accepted standards will become mainstream to filter out lower-quality resources.

How Quality Can Be Assessed

It is a primary function of faculty members to conduct curriculum development. This includes the review of potential curriculum that could be used in a course. Using a set of personally developed or shared standards, an instructor can assess the value, credibility, and quality of an OER (both modular or full text) and provide his or her approval of the material.

...students expect the best materials in return for their tuition dollar.

A tacit endorsement of the quality of materials can be inferred from faculty and institutions which have already adopted open educational resources. For instance, the popular open textbook *Collaborative Statistics* by Barbara Illowsky and Susan Dean has been adopted for use by De Anza Community College in California.⁴ The use of this text by the college in an actual course implies that the instructors who teach this course endorse the materials and that the course meets the curriculum guidelines of the college. While not often providing a formal endorsement in examples such as this, the actual use of an OER in course settings provides some indication as to the quality of a resource.

Quality measures used by Web 2.0 technologies such as blogs, wikis, crowd voting, and other independent publication platforms are emerging. These include offering institutional and expert endorsements, references, and popularity or "crowd" voting on OER websites. While these options are being explored by many open resource organizations, these measures are not yet to the level of providing the expected indication for faculty who are browsing available OERs. As more instructors and institutions embrace a culture of sharing and adopt OERs, the community of producers and adopters will invariably create standards which can help imply a resource's quality.

Instructors who are looking to adopt OERs in their courses are encouraged by most organizations to critically examine an open resource's content for style, subject, and semantics, the same as one would do in examining materials when developing a curriculum. In addition, it is valuable for faculty to adopt recommended content standards for OER adoption and to seek out testimonials, references, and other comments surrounding particular resources. What can result is a dialogue between developers and adopters, with OERs growing in value and richness when adopters provide feedback that leads to content improvement.

DEVELOPMENT

The continuous creation of new and valuable OERs is a challenging piece of the OER puzzle. Often requiring large amounts of time, financial capital, and knowledge, it appears that although the technologies that support the development sharing of OERs have become increasingly available, the actual adoption of OERs can lag due to the required resources to explore methods past the status quo (i.e. traditional textbook distribution).

The volunteering of knowledge and information has increased over the last few years due to the expansion of individual participation on the Internet.

This obstacle to campus-scale OER adoption is caused by the lack of faculty empowerment and guidance. Instructors and subject-matter experts often find it difficult to share their knowledge when they do not understand available OER options and don't have time to conduct research in finding OERs. In addition,

⁴ Connexions. (2010). *Collaborative Statistics*. [<http://cnx.org/content/col10522/latest>]

instructors are rarely financially compensated for OER development, frequently leaving only “free time” for the development of OERs.

The volunteering of knowledge and information has increased over the last few years due to the expansion of individual participation on the Internet. Participants are generally motivated by the gratification of advancing knowledge in their fields of interest and increasing their stature within their fields as a contributor and community participant. However, daily faculty responsibilities frequently triumph over exploratory and uncompensated OER research.

As the commercial sale of OERs is not viable, alternative encouragement to participate is being sought out by OER practitioners. Incentives are critical to promoting the development of OERs among faculty and subject matter experts.

Charitable grants and institutional investment in open educational resources appears to be a viable model providing financial capital in support of continued development and maintenance of open educational resources. As the OER industry is still in an infant state, however, the realized return on investment may take some time to become quantitatively evident.

While not officially established in any institution identified by the Lane OER Team’s research, institutional grants to faculty could provide a valuable incentive for production. In addition, the professional development opportunities of joining a network of OER developers, interacting with subject-matter experts, and contributing to one’s field can be valuable. Compensatory incentives and organizational support can make obsolete the challenges encountered by instructors who seek to develop OERs.

Professional Development an Incentive

Faculty at institutions of higher education, including Lane Community College, are increasingly developing open educational resources and other materials to advance both the knowledge in their field and to improve the success of their students. This non-traditional form of publication is giving value to the individual instructor and demonstrates their commitment the advancement of their field of expertise.

Lane Community College would greatly benefit from the development of OERs. Promoting the creation and implementation of OERs could improve the reputation of the institution as well as increase the value for both students and faculty through relevant material and individual professional development opportunities.

When developing OERs, metrics should be identified and used to assess if a resource creates student, faculty, and institutional value as well as promoted success. Reward for high assessments could increase the incentive to improve course materials as well as increase the adoption of OERs across institutions.

ACCESSIBILITY

The advances in technology in education have increasingly improved the capability of individuals with disabilities to participate in classroom learning environments. Due to the electronic nature of OERs, course materials are already transitioned into digital-ready alternative formats such as audio and speech software designed to read to visually-impaired students. When needed by students, alternative formats are federally mandated. OERs are a natural fit and a welcome blessing for the Lane Disability Resources Department, who spend thousands of hours annually converting paper copies of texts into digitally readable formats.

If an electronic text is not readily available for students who need alternative formats, physical textbooks must be converted from paper to digital form. This is a process that can last on average

The publication of materials is a valuable professional development opportunity for faculty.

With the increased availability and accessibility of hyperlinked knowledge and multimedia content, students and faculty alike are able to have more information at their disposal, contributing to success.

between five to fifteen days, leaving the student without a textbook during that period. As texts often don't arrive on bookstore shelves until days before the next term, this timeframe can be extremely limiting for students, especially if there is an unusually-heavy workload in the Disability Resources Department. It takes on average between two and ten staff hours to convert a single textbook for simple projects, longer for more complicated projects such as math and science textbooks. Once completed, a student's textbook is rebound and returned, but retains no resale value as the original binding is literally cut from the book and discarded. This process alone shows great potential for OER implementation at Lane, where electronic-ready course materials have additional value to students with disabilities.

In the classroom setting at Lane, students can benefit from OERs in their personal educational programs and courses due to the open nature of the materials. As information becomes increasingly available without membership or subscription and as information also becomes hyperlinked and searchable, it is possible to find and access relevant material easier than in the traditional textbook format, leading to increased learning opportunity.

Students can find related resources which may not be assigned in-class, but can enhance the learning process just the same. Assistance gained with the use of OERs and individual instructors, Lane students can increase skills in finding appropriate information on the web. With the increased availability and accessibility of hyperlinked knowledge and multimedia content, students and faculty alike are able to have more information at their disposal, contributing to success.

With multi-channel learning and multimedia course materials also comes the improved ability to convey knowledge across delivery methods. Connecting with students who use textual, auditory, visual, kinesthetic, and digital learning styles is more achievable today given the new tools of communicating knowledge. This array of multimedia tools could correlate to student success and retention.

Challenges currently exist within the current infrastructure in the delivery of course materials over the Internet at Lane, challenges that can be addressed through an extensive exploration into the delivery software, tools, and interfaces compared to today's needs. Some segments of the student body are limited in their ability to personally access, download, and print required course materials, and do not either have access to technology or strong technological skill. Lane staff and technological resources currently assist with these challenges, but in some departments acquiring additional resources or exploring new models of technology delivery to students is highly suggested.

In addition to individual student challenges, larger-scale issues currently faced by some departments could be exacerbated by the implementation of OERs and other electronic resources on campus. At the moment, a portion of the Technology Fee assessed per term is allocated to fund paper and printing costs in computer labs and other locations around campus, with students not being charged based on the amount nor are students specifically limited in the amount of allowed printing. As challenges in the use of technology exist currently on campus, further exploration to solving these challenges and empowering students will be increasingly necessary.

Current operating procedures would to be amended to be more sustainable in funding if print copies will increasingly be needed by some of the student population, including those regarding the use of on-campus technology such as computer labs and printers.

Community Lifelong Learning

Outside of the educational institution, OERs are influential in increasing public knowledge. Distribution of OERs can provide opportunities for non-college students to access educational resources, thereby enriching lives at all age levels and backgrounds. In addition, as the financial barriers to entry to accessing the Internet are disappearing, OERs are promoting universal access to education for the first time.

The ability to openly reach so many Lane County residents with high-quality educational materials fulfills Lane's mission to provide affordable, quality, lifelong educational opportunities.

INTELLECTUAL PROPERTY

The traditional © *all rights reserved* copyright with creative works in intellectual property law with has recently been challenged with the advent of attribution and public licenses such as the GNU public license and Creative Commons attribution licensing. The collaborative nature of the Internet has encouraged a culture of sharing and derivative works, with authors, artists, and other creators finding value in that their works are used, appreciated, and widely distributed. Attribution licenses such as those from Creative Commons encourage sharing and are used by countless individuals and organizations over the Internet, requiring only that the original creator of content be attributed to the work.

The OER movement is based on this culture of sharing. Coupled with the ability to retain ownership of ones' creations and observations, instructors and experts worldwide are able to share knowledge and actively participate in the growth of their field. Attribution is critical to the success of OERs. Faculty and experts depend on their contributions to increase their reputation and authority in the field, affording them new opportunities.

Lane Community College could greatly benefit from promoting a culture of sharing among faculty, students, subject-matter experts, and the community. The outcome could expand the community's academic, economic, business, and leadership capabilities in positive ways. In addition, the college could benefit in the increased reputation brought by faculty members who are becoming emerging leaders and experts in their fields, in turn making a Lane education considerably more valuable.

RETURN ON INVESTMENT AND INCENTIVES TO PARTICIPATE

While the barriers and challenges of adoption that have been identified can be discouraging, the benefits and potential returns of investment for students, faculty, and the institution can far outweigh these shortcomings. The incentive for stakeholders to participate are essential as well, as OER adoption is dependent upon a robust community of supporters, both student and faculty.

BENEFITS TO STUDENTS

- **Affordability.** Open educational resources are available to students for free or for greatly reduced cost in comparison to traditional commercial course materials. Even after costs associated with infrastructure, maintenance, and technology investments (such as the purchase of a personal computer to access materials), the cost of OERs remains likely much lower than their traditional counterparts.
- **Relevant content.** Open educational resources promote customized and relevant course materials for students that can be applied to students' coursework, lives, and career paths. OERs show great promise to be more flexible to meet student needs, interests, and paths.
- **Technological competency.** The use of OERs promotes technological competency with students by engaging them with dynamic content and electronic course materials. The ability to retrieve information across platforms (e.g. the Internet, electronic readers, email) is a critical skill for success in today's knowledge economy.

OERs also promote the use of multimedia and social components in course materials. Fluency with these methods increases the likelihood for students to gain skills in communicating effectively with coworkers, business partners, and customers.

- **Multiple learning styles.** With increased exposure to a variety of learning tools including textual, auditory, visual, kinesthetic, and digital multimedia content in course materials, students can potentially learn more effectively using their individual learning styles and better identify ways to solve problems. Increased fluency in multimedia can also increase students' ability to present information in ways which speak across learning and communication styles.
- **Value of education.** As OER course materials increase in quality, relevance, and affordability, the overall value of a Lane education will increase.
- **Increased employment opportunity.** As the value of a Lane education increases, so does the marketability of a student in the workforce with a Lane degree.

BENEFITS TO FACULTY

- **Professional development.** Faculty who adopt and even develop OERs of their own increase the value of their career work within Lane, within their field of expertise, and to their students. This could lead to greater opportunity for promotion, improved experiences, and greater sense of contribution to their students and their field.
- **Saved faculty time.** OERs are immediately editable. Inconsistencies and updates can be updated within a moment's notice. Course materials may be modified or augmented without much procedural issues, especially within the convoluted Lane course packet production process.
- **Ownership of content.** Faculty members who publish OERs can retain the rights of their work, allowing authors to use their work however they deem fit. This can directly translate to increases in professional opportunity, income, and improved reputation within fields of expertise. On the other hand, commercial publications often restrict use and usually assume partial or full ownership of content, leaving the author without any ability to control his or her content.
- **Increased marketability.** By producing OERs, faculty have the increased opportunity to promote their work which could help them reveal future opportunities, obtain grant funding for research, or network with others in their field.
- **Improved pedagogy.** OERs are based on a culture of continual improvement. As student needs change, faculty members are increasingly able to respond to and adapt course materials and teaching styles to meet these needs with OERs.

BENEFITS TO LANE COMMUNITY COLLEGE

- **Mission, vision, and core values.** The use of OERs directly meets multiple college goals which speak to innovation. Specifically, OERs are aligned with the Online Teaching and Learning strategic direction at Lane through use of emerging technologies in the classroom, increased access to education, and improved learning experiences.
- **Recruitment and retention.** The use of OERs within the institution can improve college recruitment and retention. Course materials which are adaptive, high-quality, and relevant to student interests and career goals will likely stimulate demand for a Lane education and increase student interest.

- **Leadership.** Lane is regarded as a leader in innovative learning methods, use of technology, and community education. Implementing OERs in courses at Lane affirm Lane's commitment to identifying how technology can be used to improve the educational experiences of students and to increase access to education.
- **Student engagement.** Due to their dynamic, interconnected, and high social nature, OERs can greatly increase student involvement with courses and course material.
- **Sustainability.** The development and adoption of OERs reaffirms Lane's commitment to sustainable practices by reducing waste, creating low-cost opportunities, increasing access, and establishing the college as a leader in development.

FUTURE EXPLORATION

A number of additional issues surface when exploring intellectual property and open curriculum development. While the following issues are beyond the scope of this report, they deserve further exploration as open education principles are introduced at Lane.

First, the adoption of policies which assign valuable weight to open educational resource publication and curriculum development for purposes of hiring, promotion, and tenure was an idea that was expressed by a number of Lane faculty during the research phase. While the logistics of such a policy are beyond the scope of this report, further exploration into the merits of valuing the adoption and development of OERs could improve the environment of sharing envisioned under this report.

Second, the application and assignment of intellectual property and digital rights management surfaced during discussions revolving OER adoption, modification, and creation. As the line between personal time and official duties is not always clear, an exploration into current intellectual property policy, assignment of ownership and rights, and integration of sharing principles and culture into the Lane curriculum development process could further the open education efforts at the college.

Third, some Lane Community College intellectual property, specifically curriculum and other learning resources owned by the college, could benefit the overall open education community if it was released under an attribution or similar style license. If it is deemed appropriate, making college-owned curriculum available for open use could stimulate other institutions to explore open education principles and encourage the adoption of open educational resources. Actively participating and taking leadership in this realm could further invigorate producers and adopters of OERs, developing the culture of sharing and collaboration that is necessary for OERs to thrive.

Recommendations

These recommendations are presented to the Lane Community College Vice President of Academic and Student Affairs and the Lane Student Affairs Leadership Team after careful deliberation and analysis of the available OER data, information, commentary, and references. Additional research will be conducted by the team and new information will be presented as it is identified which could positively affect outcomes.

As new evidence regarding the use of OERs is discovered, these recommendations may be amended or changed. These recommendations are non-binding on any party and are simply offered as ideas for the meaningful implementation of OERs at Lane and the creation of a productive and supportive environment in which OERs can thrive.

1 – INFRASTRUCTURE

Create an environment in which open educational resources can thrive, are widely used, are supported, and are sustainable.

In order for OERs to thrive at Lane, a supportive and sustainable infrastructure should be established. This includes the identification and sourcing of a suggested repository or storage software for faculty to publish and distribute their course materials. Also, technologies that guide, accelerate, and empower OER use should be implemented.

Using the research of the Lane OER team, a robust OER leadership group should be maintained to ensure the continued progress of Lane's professional development and OER infrastructure efforts.

2 – ADOPTION AND DEVELOPMENT

Develop a comprehensive set of resources aimed at creating a culture of open education at Lane, increasing open educational resource awareness, improving skills in identifying, modifying, and adapting OERs, and fostering a culture of sharing and collaboration.

Lane Community College should identify, create, and distribute a variety of professional development resources focused on empowering faculty to find and adopt OERs. In addition, the Lane OER team, faculty, and other interested parties should continue to encourage OER adoption when possible in courses. A large body of resources exists over multiple repositories – finding them and learning how to use them shouldn't be a barrier to entry.

In addition to the development of OER empowerment resources, continued research should be conducted on the ever-changing landscape of technology, OER availability, intellectual property management, and other issues which affect OER adoption and development.

The goal of this recommendation is to eliminate challenges associated with a lack of OER awareness, knowledge of their location, and how to easily implement resources into course curricula.

3 – COMMUNITY LEARNING

Create a fellowship of Lane Community College faculty to empower instructors to use OERs in their courses, provide support for curriculum development, and enable this community of instructors to explore, learn about, and share open education principles in a peer-learning environment.

The formation of a faculty fellowship or cohort could guide instructors in the acquisition, modification, and integration of OERs into their courses. If interest exists within the group, the faculty fellowship can also lead the development of new OERs at Lane.

A peer-learning community utilizes the community learning best practice at Lane, drawing from the valuable expertise of facilitators and organizational methodology which has proven itself most effective in previous Lane projects. The overall objectives of the fellowship are the active implementation of OERs by providing a peer-empowered professional development opportunity. Upon completion of the fellowship, it is encouraged that faculty continue to foster a culture based on open education principles among others both at Lane and the higher education industry.

Conclusion

Open educational resources provide great potential in making college more accessible and affordable. Despite the challenges associated with the nascent open education movement, more educational materials become available daily. In a short time, the quality and richness of open educational resources could surpass that of traditional publications due to the ability for knowledge to be shared freely.

Lane Community College has a great opportunity to be pioneers in the open education movement. The evidence supporting the availability, quality, and usability of open educational resources justifies the investment in exploration as a member institution of the League for Innovation. As technology continues to transform education, colleges must anticipate changes in the systems which assist with the learning process. Open education is no exception. In order to remain competitive and innovative as a world-class learning institution, Lane Community College should explore, learn from, and promote these new technologies and methods.

Open education can empower students to be successful in today's knowledge-based economy. By fostering a culture of open knowledge access, sharing, and progress, Lane leads the way in providing the best learning tools and classroom experiences.

Appendix I

BIBLIOGRAPHY AND SOURCES CONSULTED

Primary sources, searches, repositories, and indexes

Academic Earth	http://academicearth.org/
AMSER	http://amser.org/
BioSciEdNet	http://www.biosciednet.org/portal/index.php
BookBoon	http://bookboon.com/us/textbooks
ck-12	http://about.ck12.org/
Capilano University OpenCourseWare	http://ocw.capcollege.bc.ca/
ChemEd DL	http://www.chemeddl.org/
Community College Open Textbook Collaborative	http://collegeopentextbooks.org/textbooks/textbooksbysubject.html
ComPADRE	http://www.compadre.org/
Connexions	http://cnx.org/
CSERD	http://www.shodor.org/refdesk/
Curriki	http://www.curriki.org/xwiki/bin/view/Main/WebHome
Digital Marketplace	http://www.dmproject.org/
DiscoverEd	http://discovered.creativecommons.org/search/
Engineering Pathway	http://www.engineeringpathway.com/ep/
Ensemble Computing	http://www.computingportal.org/
FlatWorld Knowledge	http://www.flatworldknowledge.com/
FolkSemantic	http://www.folksemantic.com/
Forum Network Videos	http://forum-network.org/station/wgbh
FREE – Free Resources for Educational Excellence	http://free.ed.gov/index.cfm
Free Digital Textbook Initiative – CERN	http://www.clrn.org/fdti/
The Global Text Project	http://globaltext.terry.uga.edu/

GoldNodes – Excellent Webpages for Learning	http://www.learnodes.com/findability/findabilityAnimation.html
HippoCampus	http://www.hippocampus.org/
iMedPub Medical Resources	http://knol.google.com/k/medicine-healthcare#
Internet Archives’ Book Server	http://www.archive.org/bookserver
Internet Archives’ Open Educational Resources	http://www.archive.org/details/education
iTunes U	http://www.apple.com/education/itunes-u/
Math DL	http://mathdl.maa.org/mathDL/
MatDL	http://matdl.org/repository/index.php
MERLOT	http://www.merlot.org/merlot/materials.htm
MIT OpenCourseWare	http://ocw.mit.edu/OcwWeb/web/home/home/index.htm
National Science Digital Library	http://nsdl.org/
Notre Dame OpenCourseWare	http://ocw.nd.edu/
OCW Finder	http://www.ocwfinder.org/
Open Courseware Consortium	http://www.ocwconsortium.org/
Open Learn – Learning Space (The Open University)	http://openlearn.open.ac.uk/course/index.php
Open Learning Initiative	http://oli.web.cmu.edu/openlearning/index.php
Open.Michigan	https://open.umich.edu/
Open Yale Courses	http://oyc.yale.edu/
The Orange Grove – Florida’s Digital Repository	http://www.theorangegrove.org/OGMain.asp
Smile Pathway	http://www.howtosmile.org/
SOFIA	http://sofia.fhda.edu/
SOL*R	http://solr.bccampus.ca/cms2/
Stanford Encyclopedia of Philosophy	http://plato.stanford.edu/
Student PIRGs Open Textbook Catalog	http://www.studentpirgs.org/open-textbooks/catalog
Teaching With Data	http://www.qssdl.org/qssdl/welcome.action
Teacher’s Domain	http://www.teachersdomain.org/

Tokyo Institute of Technology	http://www.ocw.titech.ac.jp/index.php?lang=EN
Tufts University OpenCourseWare	http://ocw.tufts.edu/
UMass Boston OpenCourseWare	http://www.ocw.umb.edu/
University of California System College Prep	http://www.ucopenaccess.org/
University System of Georgia SHARE	http://usgshare.org/logon.do
Utah State University OpenCourseWare	http://ocw.usu.edu/
Wikibooks	http://en.wikibooks.org/wiki/Main_Page
Wikieducator	http://wikieducator.org/Main_Page
Wikiversity List of OERs (Hunter-Gatherer Project)	http://en.wikiversity.org/wiki/Hunter-gatherers_project
YouTube Edu	http://www.youtube.com/edu

Organizations, Collaborations, Coalitions

Access to Knowledge Initiative (BYU)	http://education.byu.edu/a2k/
The Bill and Melinda Gates Foundation (OpenEd)	http://www.gatesfoundation.org/postsecondaryeducation/Pages/default.aspx
Community College Consortium on Open Educational Resources	http://www.oerconsortium.org/
Institute for the Study of Knowledge Management in Education	http://www.iskme.org/
Intute (UK)	http://www.intute.ac.uk/
IssueLab's OER Research	http://oer.issuelab.org/research
Jorum (UK)	http://www.jorum.ac.uk/
OECD Centre for Educational Research and Innovation	http://www.oecd.org/edu/ceri
OER Commons	http://www.oercommons.org/
Open Courseware Consortium	http://www.ocwconsortium.org/
Open Education Resource Center for California	http://grou.ps/oercenter
The Open University (UK)	http://openlearn.open.ac.uk/

Students for Free Culture	http://freeculture.org/
The Student PIRGs – Make Textbooks Affordable	http://www.studentpirgs.org/textbooks/
UNESCO Open Educational Resources	http://oerwiki.iiep-unesco.org/index.php?title=Main_Page
Wikiversity	http://en.wikiversity.org/wiki/Wikiversity:Main_Page
The William and Flora Hewlett Foundation	http://www.hewlett.org/programs/education-program
Zunia Knowledge Exchange	http://www.openeducation.zunia.org/

Blogs on OERs

Abject Learning	http://blogs.ubc.ca/brian/
Andrew Rens' Blog	http://cyberlaw.stanford.edu/blog/andrew-rens
Brave New World	http://bookseller-association.blogspot.com/
Community College Consortium for Open Educational Resources	http://oerconsortium.org/
Connexions Blog	http://blog.cnx.org/
Creative Commons – Commons News	http://creativecommons.org/
Disruptive Technology Library	http://dtlj.org/
Jester	
Open Education News	http://openeducationnews.org/
Open Thinking	http://educationaltechnology.ca/couros/
NIXTY	http://nixty.com/blog
WA Open Educational Resources	http://blog.oer.sbctc.edu/

OERs on Twitter

@Curriki	http://twitter.com/Curriki
@educ8ter	http://twitter.com/educ8ter
@edustyle	http://twitter.com/edustyle
@flat_world	http://twitter.com/flat_world
@iskme	http://twitter.com/iskme

@MITOCW	http://twitter.com/MITOCW
@oer_center	http://twitter.com/oer_center
@OERCommons	http://twitter.com/OERCommons
@onlinelearningu	http://twitter.com/onlinelearningu
@openculture	http://twitter.com/openculture
@openednews	http://twitter.com/openednews

Appendix II

LANE OER TEAM MEMBERS

TEAM LEADERSHIP

James Manning
ASLCC President 2009-2010

Jennifer Steele
Director, Lane Titan Store

Jeremy Riel
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OTHER MEMBERSHIP

Velda Arnaud
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Vicky Kirkpatrick
Faculty Technology Specialist
Faculty, Mathematics

Don McNair
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Affairs Transfer

Lynn Lodge
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T.C. Osborn
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Katie Taylor
ASLCC Representative

Kienan Wear
ASLCC Representative

For more information on the Lane OER Team and Lane's OER efforts, visit the project site at www.bit.ly/laneoer

Many thanks to the various individuals and organizations who dedicated their time and knowledge to this project. The Lane OER Team is excited to see where we will go in the next couple years as OERs become an integral part of the learning experience in higher education!

This report and its recommendations were delivered to Sonya Christian, Vice-president of Academic and Student Affairs in May 2010. Reports of the ongoing progress of the Lane OER Team may be found at the project website, www.lanec.edu/OASA/OpenEducation.

Millennial Associates LLC was retained to assist with the management, research, and staffing components of this project. This report was written and prepared by Jeremy Riel and Millennial Associates LLC under authority and commission of the Lane OER Team.

THE PROMISE OF OPEN EDUCATION

May 2010

A report on the research
and findings of the Lane
Community College Open
Educational Resources
Team



Open Educational
Resources

www.bit.ly/laneoer





THE PROMISE OF OPEN EDUCATION

A report on the research and findings of the Lane
Community College Open Educational Resources Team



MAY 2010

Prepared by Millennial Associates, LLC
Springfield, Oregon

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And

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Summary

Lane Community College stands at a crossroads in learning opportunity and delivery. As information sharing technologies emerge, the skills required to be successful in today's workforce are being redefined. Employers are increasingly seeking individuals with the ability to actively solve problems, seek resources, analyze information, and communicate effectively. A spirit of lifelong learning is required for college graduates to meet expectations in today's knowledge-based economy.

The Lane Board of Education prioritized the exploration of innovative learning technologies through the 2011-2015 strategic direction, **Online Learning and Teaching**. According to the direction statement, "[Lane Community College's] aim is to identify appropriate technological enhancements to serve the college mission, and to providing fiscally sustainable support and tools."¹ Technologies such as OERs have the immediate capability to align with the intent of this strategic direction and the college mission by providing relevant, flexible teaching materials of value to students and faculty and improving student experience at Lane.

Emerging social and knowledge-sharing technologies have brought a renaissance in learning and content delivery methods to higher education. Of high interest to students, OERs can deliver highly relevant content on-demand, thereby increasing the value of a Lane education to students. With electronic delivery, the possibilities are endless with OERs, having the ability to address some of the critical shortcomings of textbooks and traditional content delivery.

With OERs, information is actively shared and adopted by individuals who likewise share their adaptations. Course materials are modified to meet the specific needs of courses, the instructor, or students. In the end, a new, improved product can emerge, which ignites the revision process once again. With OERs, knowledge has the potential to grow and become more relevant every time it is used, not simply in-between publishing revisions.

The Lane OER Team (www.bit.ly/laneoer) was charged with researching and assessing the current state of OERs and providing their findings in a report to the faculty and student body of Lane. This report includes the analysis of over 50 open educational resource providers, organizations, repositories, searches, and producers. The team was also responsible for identifying and recommending actions for Lane Community College to approach the implementation of OERs. This report describes 15 actionable items available for immediate approval and execution aimed to empower faculty in the use of OERs in courses.

KEY FINDINGS

AVAILABILITY

A variety of open educational resource modules continue to be developed on a daily basis, all of which are free of license or charge. As OERs continue to be adopted, their quality and value can continually increase due to increased involvement and sharing.

A key challenge surrounding OER adoption is locating and augmenting existing open educational resources to suit individual course needs at Lane. Due to the emergent nature of OERs, many course instructors have yet explored open curriculum and texts, opting for traditional methods provided through textbook publishers.

¹ Lane Community College Strategic Directions, 2011-2015.
<http://www.lanec.edu/research/planning/documents/OnlineLearning.pdf>

For Lane courses to effectively use OERs, a strong professional development and educational component for Lane faculty is needed. Empowering instructors to find, modify, and even create their own OERs can affect the direct relevance to students and improve the quality of the learning materials.

QUALITY

The culture of open educational resources encourages self-publication and sharing of information. Unfortunately, the traditional functions of an editor in OER publication are frequently omitted from the process. Many open educational resources lack the approval of a central body or publisher, a symbol which traditionally signified quality in a textbook or other learning module.

Despite a lack of official quality standards on the surface, higher-quality educational materials can emerge as a result of OER development and sharing. As more instructors adopt and modify content to meet specific course needs and likewise share their modifications and findings, richer course materials which are highly relevant to students are provided. OER materials can be updated instantly, with both students and instructors not having to wait or pay for new editions of a textbook.

DEVELOPMENT

Instructors and other subject-matter experts find it difficult to share their knowledge when few quality training options, guidance materials, or other empowerment tools exist. In addition, instructors find it more difficult to both adopt and create OERs when they are not compensated for the time it takes.

The active creation and modification of OERs for classroom and online instruction contributes to the furtherance of academic study. The professional benefits of OER adoption and development can be highly valuable, providing professional development opportunities for faculty in higher education.

Efforts to empower faculty in the adoption, development, and sharing of open educational resources is critical to the success of OERs at Lane. Training opportunities and other supportive programs can be created to assist faculty in the use of OERs in the classroom.

ACCESSIBILITY

As information increasingly becomes available without requiring membership or subscription, and as information also becomes hyperlinked and searchable, students can find and access relevant material easier than in the traditional textbook format. This could lead to more learning opportunities both inside and out of class.

With multi-channel learning and multimedia course materials also comes the improved ability to convey knowledge across methods of learning. Connecting with students who use textual, auditory, kinesthetic, and digital learning styles is more achievable today given the new tools of communication. This array of multimedia tools could correlate to student success and retention.

Advances in technology in education have also increasingly advanced the capability of individuals with disabilities to participate in classroom learning environments. Due to the electronic nature of OERs, texts and other materials are already converted to a *universal electronic design*, allowing for instant use in alternative formats for students with disabilities. Materials conforming to universal design principles eliminates mandatory cost associated with converting paper texts.

THE LANE OER TEAM

In fall 2009, the President of the Associated Students of Lane Community College approached the Vice President of Academic and Student Affairs at Lane, expressing interest in exploring the use of open educational resources in courses. Motivated by affordability and increased access to educational materials, ASLCC believed that adoption of OERs could be a win-win-win situation: they hold the potential to benefit students, instructors, and the institution as a whole.

The OER Project was commissioned by the Vice President of Academic and Student Affairs and a team was assembled in spring 2010 to explore the feasibility of OERs. The team was represented by various stakeholder groups at Lane, composed of students, faculty, staff, managers, and technology experts.

...OERs could be a win-win-win situation: they hold the potential to benefit students, instructors, and the institution as a whole

The Lane OER Team was chartered to accomplish the following:

- Research available OERs and the organizations that support OERs
- Recommend actions to implement OERs in courses at Lane
- Promote the use of OERs among faculty, staff, and the community
- Train and provide guidance to faculty in the adoption and development of OERs



The Lane OER Team, Spring 2010

RECOMMENDATIONS

The findings of this report identify the needs and interests of Lane Community College stakeholders regarding open educational resources. The following recommendations are aimed to create a supportive and practical environment at Lane in which open educational resources can thrive and instructors can develop professionally. As OER adoption specifically aligns with the Lane Community College mission, vision, and strategic directions, action should be taken using these recommendations as a guide to begin to realize the promise of open education.

1 – INFRASTRUCTURE

Create an environment in which open educational resources can thrive, are widely used, are supported, and are sustainable.

2 – ADOPTION AND DEVELOPMENT

Develop a comprehensive set of resources aimed at creating a culture of open education at Lane, increasing open educational resource awareness, improving skills in identifying, modifying, and adapting OERs, and fostering a culture of sharing and collaboration.

3 – COMMUNITY LEARNING

Create a fellowship of Lane Community College faculty to empower instructors to use OERs in their courses, provide support for curriculum development, and enable this community of instructors to explore, learn about, and share open education principles in a peer-learning environment.

Background

Lane Community College has been an icon of excellence and innovation since its inception. Founded in 1964, Lane's commitment to developing the highest quality pedagogies and empowering its students in the use of emerging technologies remains strong.

The recent emergence of open educational resources, or OERs, encourages colleges and universities to explore new methods of distributing knowledge to students. It is becoming more apparent that the integration of innovative technologies and content delivery systems in the classroom could further empower students to be successful in today's knowledge-based economy.

As a member of the League for Innovation in the Community College, it is in Lane Community College's interest to determine the availability, feasibility, and potential success in the use of open educational resources. Adoption and development of open educational resources can achieve multiple institutional and student goals.

BACKGROUND OF OPEN EDUCATIONAL RESOURCES

Open educational resources include text, videos, audio, and images with which instructors, departments, institutions, and students are able to freely use without cost and are legally allowed to modify the content to suit their needs. This offers the opportunities to distribute educational materials in an unprecedented manner in academia, not being as hindered by traditional barriers of access to books or instructors.

Recent developments in communication and information technologies have given rise to global sharing of knowledge. Specifically with the Internet, information can now be published and distributed far cheaper and more efficiently than ever before. Due to the potential for increased sharing of information and creative works, traditional models of publication and print are being challenged.

The Internet provides a platform on which any individual may publish and access information for far less resources than the textbook publishing industry has been able to provide. This is coupled with an increase in desire for sharing through social technologies such as social networking, personal publication through blogging and websites, and email.

Open sharing licenses have drastically increased in popularity as participation has increased via the web. The most common of these, the open attribution license, is one in which the creator of content gives free and unrestricted permission to use, change, reuse, and even sometimes resell their content as long as whoever uses it attributes the original author to its creation. The author retains the ability to remain in control of the original content. This greatly differs from the traditional "all rights reserved" copyright, with the author retaining sole use of the material.

It is the rise of both the open attribution license and sharing via the Internet that promoted the concept of open educational resources in higher education. The potential of a body of continually-growing knowledge and the ability to openly modify this knowledge to suit student needs is the great driving force behind the adoption of OERs. Materials can improve without having to wait for new textbook editions. In addition, the affordability of open educational resources is a valuable motivation for students. Coupled with the July 1, 2010 enacting date for the transparency and affordability-motivated Higher Education Opportunity Acts textbook provisions, OERs can provide a solid method in which to address the growing concern of the costs associated with higher education.

Due to the potential for increased sharing of information and creative works, traditional models of publication and print are being challenged.

HISTORY OF OPEN EDUCATION AT LANE

In 2006, Lane faculty webmaster Joe Escobar attended a conference workshop on open educational resources sponsored by the League for Innovation in the Community College. Bringing his findings back to Lane, Mr. Escobar planted the seed which would bring Hal Plotkin to present at the Lane 2007 Spring Faculty and Staff Conference. As an OER pioneer from the Foothill-De Anza Community College District in California, Mr. Plotkin demonstrated to Lane faculty and staff the potential of OERs at college campuses in his presentation “Building and Using Public Domain/Open Education Resources as Substitutes for Commercial Textbooks.”

Due to a variety of challenges including the lack of dynamic technologies, Lane’s OER efforts were set aside to wait for viable options to emerge. As content delivery, social networking, and other internet technologies improved over the years, the Associated Students of Lane Community College expressed interest in 2009 in reopening OER research at Lane, seeking to implement relevant, valuable, and affordable course materials. Coupled with the concept of universal content design and electronic text, learning technologies and content delivery methods have become more robust. The culture of knowledge sharing has also become increasingly popular in academia. It is this combination of opportunities which invoked a revival of research at Lane.

LANE’S ROLE

Actively pursuing and developing open educational resources directly supports the Lane Community College Mission and multiple Core Values.

Online Teaching and Learning is a strategic direction adopted by the Lane Board of Education for the college. This goal seeks to identify resources and methods which could improve the quality and relevance of a Lane education today and empower both faculty and students in the use of such emerging technologies.

Traditional textbook prices have risen at four times the rate of inflation since 2000. An average textbook costs more than \$75

The vision of the college to *transform lives through learning* further justifies the exploration of adopting OERs. By integrating accessible, affordable, and technology-empowered knowledge into course materials, Lane will equip students with the necessary tools to be successful in today’s workforce.

A variety of learning styles are addressed with OERs, offering visual, audio, and other multimedia components in addition to text. When using open educational resources, students are able to access content in a myriad of ways and can find learning opportunities which best suit them.

WHY OPEN EDUCATIONAL RESOURCES?

In their 2006 commissioned report titled “*A Test of Leadership, Charting the Future of U.S. Higher Education*”, the U.S. Department of Education highlighted that “academic programs must be transformed to serve the changing needs of a knowledge economy.”² Open educational resources exemplify this priority by providing valuable opportunities through innovative course delivery methods.

² U.S. Department of Education. (2006). *A Test of Leadership, Charting the Future of U.S. Higher Education*. Washington, D.C.: U.S. Dept. of Education [<http://www.ed.gov/about/bdscomm/list/hiedfuture/index.html>]

In 2008, the United States Congress passed H.R. 4137, the Higher Education Opportunity Act (HEOA). The bill contained measures specifically aimed to reduce the cost of textbooks for students at institutions of higher education in the United States. It was the focus of these provision to improve the transparency in the textbook selection process at colleges, increase the availability of text versions (bound, unbound, electronic, etc.), and justify the costs associated with new textbook editions.³

Taking effect on July 1, 2010, the HEOA's textbook provisions are now becoming a federal requirement for publishers, college campuses, and bookstores. While not specifically mentioning open education, the spirit of the textbook provisions HEOA are exemplified by the transparent and accessible nature of open education, as well as the affordability opportunities which OERs could provide. As the provisions of the bill begin to take effect, OERs could increasingly become a viable option for institutions, bookstores and faculty to meet the spirit and requirements of the law. The affordability of course materials for students will continue to be a driving force behind the implementation of OERs in the near future and beyond.

OERs also create professional and institutional development opportunities for faculty and staff. When using OERs, students, faculty, and the institution can also find value in increasing their competency with technology-based information retrieval, which is critical in today's information-heavy workforce.

³ The Higher Education Opportunity Act of 2008, § 133. H.R. 4137. 110th Cong. 2nd Sess. (2008).
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ315.110.pdf

Findings

The Lane OER Team conducted an extensive study of over 50 open educational resource primary sources, including platforms, repositories, search centers, and databases. In addition to the primary sources, the team researched information located at organization websites, expert interviews, webinars, conferences, blogs, news articles, and social media profiles.

These findings are those of the Lane OER team on the current state of the availability, adoption, and development of open educational resources in the community college.

It is the hope of the team that these findings can be used as a primer on open educational resource familiarization and can provide the necessary background to encourage further exploration into the use of OERs.

AVAILABILITY AND ADOPTION

The availability of open educational resources is scattered or non-uniform, mostly due to the decentralized, personal, and individually empowered culture surrounding OERs. Multiple organizations and collaborations exist, however, to collect, store, and categorize OERs. While many of these such organizations exist, groups don't frequently work collaboratively, have their resource storage infrastructure built electronically for easy search across websites or platforms, or categorize their resources in a way which is intuitive or easy for instructors to browse, leading to a challenge in OER adoption.

In addition to a non-uniform, non-central location when searching for OERs, full course materials are not readily available for many disciplines or courses, leading to an abnormally large required time investment for curriculum development for faculty who wish to teach with OERs but have no prior experience in finding such resources. With no standard path in finding and adopting OERs, faculty interested in exploring OER use at Lane are hard-pressed to find the time and energy to launch a full-scale search of the Internet to find a quality collection of course materials.

Many **thousands** of open educational resources exist in some form today from institutions, organizations, and authors. The challenge, however, is empowering faculty to navigate the repositories of OERs given their relative lack of organization, search capability, and availability across subjects and disciplines.

Any OER which does not sufficiently provide enough material for an entire college course is commonly called a **module**. Most OERs available today are modules. Knowledge collection, including the process of assembling traditional textbooks and courses, operates as a combining of modular ideas, topics, and discussions. It naturally requires more resources to gather a complete college course worth of materials than to find or create a module. Complete textbooks or course collections occur far less frequently in the OER sharing realm. As there are few, peer-reviewed, open texts in existence, the lack of OER adoption across college campuses is understandable.

In order to find value in the vast array of open educational resources on the web, faculty need to know where to look, know what to look for, and know the best practices associated with creating their own course materials out of OERs. To help solve this challenge, Lane can create a common web portal for faculty which provides a comprehensive directory to all known available resources and training materials. This would empower faculty to learn about OERs, browse and find resources, and develop their own courses using these resources.

Most OERs available today are modules...It naturally requires more resources to gather enough resources for a complete college course than to find or create a module.

Training and guidance materials outlining the best practices associated with adopting and developing new OERs is surprisingly absent from the primary OER providers. Efficient training opportunities which establish the importance of OERs and prevent frustration are essential as faculty time is highly valuable.

Empowering faculty with professional development and training opportunities are perhaps the most efficient and best ways to encourage OER adoption at Lane. To create a highly supportive and practical OER environment at Lane, special effort should be taken to develop the infrastructure and professional development opportunities for faculty members. Increasing the ease and developing OER literacy programs can positively impact course materials and students at Lane, leading the college to realize the promises of open education.

QUALITY

Traditionally published course materials exhibit a strong editorial component. Texts are reviewed for content, style, and consistency. Subject experts weigh in on the reliability of the information being presented. Multiple revisions are often made to satisfy an editorial board's standards and opinions.

The culture of open educational resources encourages self-publication and sharing of information, but unfortunately the traditional functions of an editor are frequently omitted at no fault of the author: no centralized or widely utilized process exists. However, this lack of centralized approval body is hardly new.

In the early 2000s, the publishing industry experienced a similar groundswell of independent and individualized publications. Over the last ten years, Web 2.0 technologies have literally given the capability for anyone to publish thoughts, research, opinions, and observations.

Once thought to be low-quality, unreliable information, blogging is now a powerhouse of the daily American media cycle. Wikis and other online encyclopedias are constantly enriched by their increasingly growing number users, with information constantly becoming more relevant and regularly updated. Other social media have empowered millions of people to publish valuable and rich material of interest to their social circles. New methods for filtering unwanted and unreliable information have also emerged, a trend which will likely emerge for OERs as they are increasingly adopted.

Open educational resources used by the higher education industry stand to gain from this rich individual involvement. OERs can be updated, revised, or modified instantly, thereby increasing the relevance and value to students and faculty. Mistakes can be eliminated and new versions shared simultaneously. The quality of OERs can be improved with every course, taking careful note of student needs, classroom environment, and technological trends.

User-generated content is becoming a critical component of information distribution and the Web 2.0 culture. Open educational materials follow this emerging model as they can be freely shared and consumed, allowing anyone to contribute and improve the product. OERs can increase in value to the consumer at a rate unachievable by traditional publication methods.

It is imperative to retain the highest-quality materials in college courses as student success is likely correlated in part to the relevance and quality of the materials with which they are presented. In addition, students expect the best materials in return for their tuition dollar. OERs provide a valuable opportunity for instructors to increase the relevance of their learning materials at any time. Students can contribute to the relevance and value of their materials. Instructors can “feel the pulse” of their courses through the use of their OERs.

Most OERs available to instructors in higher education lack established quality standards (FlatWorld Knowledge's hybrid commercial/open model being an exception). In addition, because

At no fault of the authors of OERs, those who publish open resources are generally prohibited from enjoying the credibility offered by traditional commercial publications

of the decentralized method of publication, no widely utilized peer revision or editorial opportunities exist for publishers of OERs. At no fault of the authors of OERs, those who publish open resources are generally prohibited from enjoying the credibility offered by traditional commercial publications. However, as OERs continue to grow in use, it is believed that the same incredible quality of richness experienced with today's Web 2.0 technologies will likewise affect OERs and community-accepted standards will become mainstream to filter out lower-quality resources.

How Quality Can Be Assessed

It is a primary function of faculty members to conduct curriculum development. This includes the review of potential curriculum that could be used in a course. Using a set of personally developed or shared standards, an instructor can assess the value, credibility, and quality of an OER (both modular or full text) and provide his or her approval of the material.

...students expect the best materials in return for their tuition dollar.

A tacit endorsement of the quality of materials can be inferred from faculty and institutions which have already adopted open educational resources. For instance, the popular open textbook *Collaborative Statistics* by Barbara Illowsky and Susan Dean has been adopted for use by De Anza Community College in California.⁴ The use of this text by the college in an actual course implies that the instructors who teach this course endorse the materials and that the course meets the curriculum guidelines of the college. While not often providing a formal endorsement in examples such as this, the actual use of an OER in course settings provides some indication as to the quality of a resource.

Quality measures used by Web 2.0 technologies such as blogs, wikis, crowd voting, and other independent publication platforms are emerging. These include offering institutional and expert endorsements, references, and popularity or "crowd" voting on OER websites. While these options are being explored by many open resource organizations, these measures are not yet to the level of providing the expected indication for faculty who are browsing available OERs. As more instructors and institutions embrace a culture of sharing and adopt OERs, the community of producers and adopters will invariably create standards which can help imply a resource's quality.

Instructors who are looking to adopt OERs in their courses are encouraged by most organizations to critically examine an open resource's content for style, subject, and semantics, the same as one would do in examining materials when developing a curriculum. In addition, it is valuable for faculty to adopt recommended content standards for OER adoption and to seek out testimonials, references, and other comments surrounding particular resources. What can result is a dialogue between developers and adopters, with OERs growing in value and richness when adopters provide feedback that leads to content improvement.

DEVELOPMENT

The continuous creation of new and valuable OERs is a challenging piece of the OER puzzle. Often requiring large amounts of time, financial capital, and knowledge, it appears that although the technologies that support the development sharing of OERs have become increasingly available, the actual adoption of OERs can lag due to the required resources to explore methods past the status quo (i.e. traditional textbook distribution).

This obstacle to campus-scale OER adoption is caused by the lack of faculty empowerment and guidance. Instructors and subject-matter experts often find it difficult to share their knowledge when they do not understand available OER options and don't have time to conduct research in finding OERs. In addition,

The volunteering of knowledge and information has increased over the last few years due to the expansion of individual participation on the Internet.

⁴ Connexions. (2010). *Collaborative Statistics*. [<http://cnx.org/content/col10522/latest>]

instructors are rarely financially compensated for OER development, frequently leaving only “free time” for the development of OERs.

The volunteering of knowledge and information has increased over the last few years due to the expansion of individual participation on the Internet. Participants are generally motivated by the gratification of advancing knowledge in their fields of interest and increasing their stature within their fields as a contributor and community participant. However, daily faculty responsibilities frequently triumph over exploratory and uncompensated OER research.

As the commercial sale of OERs is not viable, alternative encouragement to participate is being sought out by OER practitioners. Incentives are critical to promoting the development of OERs among faculty and subject matter experts.

Charitable grants and institutional investment in open educational resources appears to be a viable model providing financial capital in support of continued development and maintenance of open educational resources. As the OER industry is still in an infant state, however, the realized return on investment may take some time to become quantitatively evident.

While not officially established in any institution identified by the Lane OER Team’s research, institutional grants to faculty could provide a valuable incentive for production. In addition, the professional development opportunities of joining a network of OER developers, interacting with subject-matter experts, and contributing to one’s field can be valuable. Compensatory incentives and organizational support can make obsolete the challenges encountered by instructors who seek to develop OERs.

Professional Development an Incentive

Faculty at institutions of higher education, including Lane Community College, are increasingly developing open educational resources and other materials to advance both the knowledge in their field and to improve the success of their students. This non-traditional form of publication is giving value to the individual instructor and demonstrates their commitment the advancement of their field of expertise.

Lane Community College would greatly benefit from the development of OERs. Promoting the creation and implementation of OERs could improve the reputation of the institution as well as increase the value for both students and faculty through relevant material and individual professional development opportunities.

When developing OERs, metrics should be identified and used to assess if a resource creates student, faculty, and institutional value as well as promoted success. Reward for high assessments could increase the incentive to improve course materials as well as increase the adoption of OERs across institutions.

ACCESSIBILITY

The advances in technology in education have increasingly improved the capability of individuals with disabilities to participate in classroom learning environments. Due to the electronic nature of OERs, course materials are already transitioned into digital-ready alternative formats such as audio and speech software designed to read to visually-impaired students. When needed by students, alternative formats are federally mandated. OERs are a natural fit and a welcome blessing for the Lane Disability Resources Department, who spend thousands of hours annually converting paper copies of texts into digitally readable formats.

If an electronic text is not readily available for students who need alternative formats, physical textbooks must be converted from paper to digital form. This is a process that can last on average

The publication of materials is a valuable professional development opportunity for faculty.

With the increased availability and accessibility of hyperlinked knowledge and multimedia content, students and faculty alike are able to have more information at their disposal, contributing to success.

between five to fifteen days, leaving the student without a textbook during that period. As texts often don't arrive on bookstore shelves until days before the next term, this timeframe can be extremely limiting for students, especially if there is an unusually-heavy workload in the Disability Resources Department. It takes on average between two and ten staff hours to convert a single textbook for simple projects, longer for more complicated projects such as math and science textbooks. Once completed, a student's textbook is rebound and returned, but retains no resale value as the original binding is literally cut from the book and discarded. This process alone shows great potential for OER implementation at Lane, where electronic-ready course materials have additional value to students with disabilities.

In the classroom setting at Lane, students can benefit from OERs in their personal educational programs and courses due to the open nature of the materials. As information becomes increasingly available without membership or subscription and as information also becomes hyperlinked and searchable, it is possible to find and access relevant material easier than in the traditional textbook format, leading to increased learning opportunity.

Students can find related resources which may not be assigned in-class, but can enhance the learning process just the same. Assistance gained with the use of OERs and individual instructors, Lane students can increase skills in finding appropriate information on the web. With the increased availability and accessibility of hyperlinked knowledge and multimedia content, students and faculty alike are able to have more information at their disposal, contributing to success.

With multi-channel learning and multimedia course materials also comes the improved ability to convey knowledge across delivery methods. Connecting with students who use textual, auditory, visual, kinesthetic, and digital learning styles is more achievable today given the new tools of communicating knowledge. This array of multimedia tools could correlate to student success and retention.

Challenges currently exist within the current infrastructure in the delivery of course materials over the Internet at Lane, challenges that can be addressed through an extensive exploration into the delivery software, tools, and interfaces compared to today's needs. Some segments of the student body are limited in their ability to personally access, download, and print required course materials, and do not either have access to technology or strong technological skill. Lane staff and technological resources currently assist with these challenges, but in some departments acquiring additional resources or exploring new models of technology delivery to students is highly suggested.

In addition to individual student challenges, larger-scale issues currently faced by some departments could be exacerbated by the implementation of OERs and other electronic resources on campus. At the moment, a portion of the Technology Fee assessed per term is allocated to fund paper and printing costs in computer labs and other locations around campus, with students not being charged based on the amount nor are students specifically limited in the amount of allowed printing. As challenges in the use of technology exist currently on campus, further exploration to solving these challenges and empowering students will be increasingly necessary.

Current operating procedures would to be amended to be more sustainable in funding if print copies will increasingly be needed by some of the student population, including those regarding the use of on-campus technology such as computer labs and printers.

Community Lifelong Learning

Outside of the educational institution, OERs are influential in increasing public knowledge. Distribution of OERs can provide opportunities for non-college students to access educational resources, thereby enriching lives at all age levels and backgrounds. In addition, as the financial barriers to entry to accessing the Internet are disappearing, OERs are promoting universal access to education for the first time.

The ability to openly reach so many Lane County residents with high-quality educational materials fulfills Lane's mission to provide affordable, quality, lifelong educational opportunities.

INTELLECTUAL PROPERTY

The traditional © *all rights reserved* copyright with creative works in intellectual property law with has recently been challenged with the advent of attribution and public licenses such as the GNU public license and Creative Commons attribution licensing. The collaborative nature of the Internet has encouraged a culture of sharing and derivative works, with authors, artists, and other creators finding value in that their works are used, appreciated, and widely distributed. Attribution licenses such as those from Creative Commons encourage sharing and are used by countless individuals and organizations over the Internet, requiring only that the original creator of content be attributed to the work.

The OER movement is based on this culture of sharing. Coupled with the ability to retain ownership of ones' creations and observations, instructors and experts worldwide are able to share knowledge and actively participate in the growth of their field. Attribution is critical to the success of OERs. Faculty and experts depend on their contributions to increase their reputation and authority in the field, affording them new opportunities.

Lane Community College could greatly benefit from promoting a culture of sharing among faculty, students, subject-matter experts, and the community. The outcome could expand the community's academic, economic, business, and leadership capabilities in positive ways. In addition, the college could benefit in the increased reputation brought by faculty members who are becoming emerging leaders and experts in their fields, in turn making a Lane education considerably more valuable.

RETURN ON INVESTMENT AND INCENTIVES TO PARTICIPATE

While the barriers and challenges of adoption that have been identified can be discouraging, the benefits and potential returns of investment for students, faculty, and the institution can far outweigh these shortcomings. The incentive for stakeholders to participate are essential as well, as OER adoption is dependent upon a robust community of supporters, both student and faculty.

BENEFITS TO STUDENTS

- **Affordability.** Open educational resources are available to students for free or for greatly reduced cost in comparison to traditional commercial course materials. Even after costs associated with infrastructure, maintenance, and technology investments (such as the purchase of a personal computer to access materials), the cost of OERs remains likely much lower than their traditional counterparts.
- **Relevant content.** Open educational resources promote customized and relevant course materials for students that can be applied to students' coursework, lives, and career paths. OERs show great promise to be more flexible to meet student needs, interests, and paths.
- **Technological competency.** The use of OERs promotes technological competency with students by engaging them with dynamic content and electronic course materials. The ability to retrieve information across platforms (e.g. the Internet, electronic readers, email) is a critical skill for success in today's knowledge economy.

OERs also promote the use of multimedia and social components in course materials. Fluency with these methods increases the likelihood for students to gain skills in communicating effectively with coworkers, business partners, and customers.

- **Multiple learning styles.** With increased exposure to a variety of learning tools including textual, auditory, visual, kinesthetic, and digital multimedia content in course materials, students can potentially learn more effectively using their individual learning styles and better identify ways to solve problems. Increased fluency in multimedia can also increase students' ability to present information in ways which speak across learning and communication styles.
- **Value of education.** As OER course materials increase in quality, relevance, and affordability, the overall value of a Lane education will increase.
- **Increased employment opportunity.** As the value of a Lane education increases, so does the marketability of a student in the workforce with a Lane degree.

BENEFITS TO FACULTY

- **Professional development.** Faculty who adopt and even develop OERs of their own increase the value of their career work within Lane, within their field of expertise, and to their students. This could lead to greater opportunity for promotion, improved experiences, and greater sense of contribution to their students and their field.
- **Saved faculty time.** OERs are immediately editable. Inconsistencies and updates can be updated within a moment's notice. Course materials may be modified or augmented without much procedural issues, especially within the convoluted Lane course packet production process.
- **Ownership of content.** Faculty members who publish OERs can retain the rights of their work, allowing authors to use their work however they deem fit. This can directly translate to increases in professional opportunity, income, and improved reputation within fields of expertise. On the other hand, commercial publications often restrict use and usually assume partial or full ownership of content, leaving the author without any ability to control his or her content.
- **Increased marketability.** By producing OERs, faculty have the increased opportunity to promote their work which could help them reveal future opportunities, obtain grant funding for research, or network with others in their field.
- **Improved pedagogy.** OERs are based on a culture of continual improvement. As student needs change, faculty members are increasingly able to respond to and adapt course materials and teaching styles to meet these needs with OERs.

BENEFITS TO LANE COMMUNITY COLLEGE

- **Mission, vision, and core values.** The use of OERs directly meets multiple college goals which speak to innovation. Specifically, OERs are aligned with the Online Teaching and Learning strategic direction at Lane through use of emerging technologies in the classroom, increased access to education, and improved learning experiences.
- **Recruitment and retention.** The use of OERs within the institution can improve college recruitment and retention. Course materials which are adaptive, high-quality, and relevant to student interests and career goals will likely stimulate demand for a Lane education and increase student interest.

- **Leadership.** Lane is regarded as a leader in innovative learning methods, use of technology, and community education. Implementing OERs in courses at Lane affirm Lane's commitment to identifying how technology can be used to improve the educational experiences of students and to increase access to education.
- **Student engagement.** Due to their dynamic, interconnected, and high social nature, OERs can greatly increase student involvement with courses and course material.
- **Sustainability.** The development and adoption of OERs reaffirms Lane's commitment to sustainable practices by reducing waste, creating low-cost opportunities, increasing access, and establishing the college as a leader in development.

FUTURE EXPLORATION

A number of additional issues surface when exploring intellectual property and open curriculum development. While the following issues are beyond the scope of this report, they deserve further exploration as open education principles are introduced at Lane.

First, the adoption of policies which assign valuable weight to open educational resource publication and curriculum development for purposes of hiring, promotion, and tenure was an idea that was expressed by a number of Lane faculty during the research phase. While the logistics of such a policy are beyond the scope of this report, further exploration into the merits of valuing the adoption and development of OERs could improve the environment of sharing envisioned under this report.

Second, the application and assignment of intellectual property and digital rights management surfaced during discussions revolving OER adoption, modification, and creation. As the line between personal time and official duties is not always clear, an exploration into current intellectual property policy, assignment of ownership and rights, and integration of sharing principles and culture into the Lane curriculum development process could further the open education efforts at the college.

Third, some Lane Community College intellectual property, specifically curriculum and other learning resources owned by the college, could benefit the overall open education community if it was released under an attribution or similar style license. If it is deemed appropriate, making college-owned curriculum available for open use could stimulate other institutions to explore open education principles and encourage the adoption of open educational resources. Actively participating and taking leadership in this realm could further invigorate producers and adopters of OERs, developing the culture of sharing and collaboration that is necessary for OERs to thrive.

Recommendations

These recommendations are presented to the Lane Community College Vice President of Academic and Student Affairs and the Lane Student Affairs Leadership Team after careful deliberation and analysis of the available OER data, information, commentary, and references. Additional research will be conducted by the team and new information will be presented as it is identified which could positively affect outcomes.

As new evidence regarding the use of OERs is discovered, these recommendations may be amended or changed. These recommendations are non-binding on any party and are simply offered as ideas for the meaningful implementation of OERs at Lane and the creation of a productive and supportive environment in which OERs can thrive.

1 – INFRASTRUCTURE

Create an environment in which open educational resources can thrive, are widely used, are supported, and are sustainable.

In order for OERs to thrive at Lane, a supportive and sustainable infrastructure should be established. This includes the identification and sourcing of a suggested repository or storage software for faculty to publish and distribute their course materials. Also, technologies that guide, accelerate, and empower OER use should be implemented.

Using the research of the Lane OER team, a robust OER leadership group should be maintained to ensure the continued progress of Lane's professional development and OER infrastructure efforts.

2 – ADOPTION AND DEVELOPMENT

Develop a comprehensive set of resources aimed at creating a culture of open education at Lane, increasing open educational resource awareness, improving skills in identifying, modifying, and adapting OERs, and fostering a culture of sharing and collaboration.

Lane Community College should identify, create, and distribute a variety of professional development resources focused on empowering faculty to find and adopt OERs. In addition, the Lane OER team, faculty, and other interested parties should continue to encourage OER adoption when possible in courses. A large body of resources exists over multiple repositories – finding them and learning how to use them shouldn't be a barrier to entry.

In addition to the development of OER empowerment resources, continued research should be conducted on the ever-changing landscape of technology, OER availability, intellectual property management, and other issues which affect OER adoption and development.

The goal of this recommendation is to eliminate challenges associated with a lack of OER awareness, knowledge of their location, and how to easily implement resources into course curricula.

3 – COMMUNITY LEARNING

Create a fellowship of Lane Community College faculty to empower instructors to use OERs in their courses, provide support for curriculum development, and enable this community of instructors to explore, learn about, and share open education principles in a peer-learning environment.

The formation of a faculty fellowship or cohort could guide instructors in the acquisition, modification, and integration of OERs into their courses. If interest exists within the group, the faculty fellowship can also lead the development of new OERs at Lane.

A peer-learning community utilizes the community learning best practice at Lane, drawing from the valuable expertise of facilitators and organizational methodology which has proven itself most effective in previous Lane projects. The overall objectives of the fellowship are the active implementation of OERs by providing a peer-empowered professional development opportunity. Upon completion of the fellowship, it is encouraged that faculty continue to foster a culture based on open education principles among others both at Lane and the higher education industry.

Conclusion

Open educational resources provide great potential in making college more accessible and affordable. Despite the challenges associated with the nascent open education movement, more educational materials become available daily. In a short time, the quality and richness of open educational resources could surpass that of traditional publications due to the ability for knowledge to be shared freely.

Lane Community College has a great opportunity to be pioneers in the open education movement. The evidence supporting the availability, quality, and usability of open educational resources justifies the investment in exploration as a member institution of the League for Innovation. As technology continues to transform education, colleges must anticipate changes in the systems which assist with the learning process. Open education is no exception. In order to remain competitive and innovative as a world-class learning institution, Lane Community College should explore, learn from, and promote these new technologies and methods.

Open education can empower students to be successful in today's knowledge-based economy. By fostering a culture of open knowledge access, sharing, and progress, Lane leads the way in providing the best learning tools and classroom experiences.

Appendix I

BIBLIOGRAPHY AND SOURCES CONSULTED

Primary sources, searches, repositories, and indexes

Academic Earth	http://academicearth.org/
AMSER	http://amser.org/
BioSciEdNet	http://www.biosciednet.org/portal/index.php
BookBoon	http://bookboon.com/us/textbooks
ck-12	http://about.ck12.org/
Capilano University OpenCourseWare	http://ocw.capcollege.bc.ca/
ChemEd DL	http://www.chemeddl.org/
Community College Open Textbook Collaborative	http://collegeopentextbooks.org/textbooks/textbooksbysubject.html
ComPADRE	http://www.compadre.org/
Connexions	http://cnx.org/
CSERD	http://www.shodor.org/refdesk/
Curriki	http://www.curriki.org/xwiki/bin/view/Main/WebHome
Digital Marketplace	http://www.dmproject.org/
DiscoverEd	http://discovered.creativecommons.org/search/
Engineering Pathway	http://www.engineeringpathway.com/ep/
Ensemble Computing	http://www.computingportal.org/
FlatWorld Knowledge	http://www.flatworldknowledge.com/
FolkSemantic	http://www.folksemantic.com/
Forum Network Videos	http://forum-network.org/station/wgbh
FREE – Free Resources for Educational Excellence	http://free.ed.gov/index.cfm
Free Digital Textbook Initiative – CERN	http://www.clrn.org/fdti/
The Global Text Project	http://globaltext.terry.uga.edu/

GoldNodes – Excellent Webpages for Learning	http://www.learnodes.com/findability/findabilityAnimation.html
HippoCampus	http://www.hippocampus.org/
iMedPub Medical Resources	http://knol.google.com/k/medicine-healthcare#
Internet Archives’ Book Server	http://www.archive.org/bookserver
Internet Archives’ Open Educational Resources	http://www.archive.org/details/education
iTunes U	http://www.apple.com/education/itunes-u/
Math DL	http://mathdl.maa.org/mathDL/
MatDL	http://matdl.org/repository/index.php
MERLOT	http://www.merlot.org/merlot/materials.htm
MIT OpenCourseWare	http://ocw.mit.edu/OcwWeb/web/home/home/index.htm
National Science Digital Library	http://nsdl.org/
Notre Dame OpenCourseWare	http://ocw.nd.edu/
OCW Finder	http://www.ocwfinder.org/
Open Courseware Consortium	http://www.ocwconsortium.org/
Open Learn – Learning Space (The Open University)	http://openlearn.open.ac.uk/course/index.php
Open Learning Initiative	http://oli.web.cmu.edu/openlearning/index.php
Open.Michigan	https://open.umich.edu/
Open Yale Courses	http://oyc.yale.edu/
The Orange Grove – Florida’s Digital Repository	http://www.theorangegrove.org/OGMain.asp
Smile Pathway	http://www.howtosmile.org/
SOFIA	http://sofia.fhda.edu/
SOL*R	http://solr.bccampus.ca/cms2/
Stanford Encyclopedia of Philosophy	http://plato.stanford.edu/
Student PIRGs Open Textbook Catalog	http://www.studentpirgs.org/open-textbooks/catalog
Teaching With Data	http://www.qssdl.org/qssdl/welcome.action
Teacher’s Domain	http://www.teachersdomain.org/

Tokyo Institute of Technology	http://www.ocw.titech.ac.jp/index.php?lang=EN
Tufts University OpenCourseWare	http://ocw.tufts.edu/
UMass Boston OpenCourseWare	http://www.ocw.umb.edu/
University of California System College Prep	http://www.ucopenaccess.org/
University System of Georgia SHARE	http://usgshare.org/logon.do
Utah State University OpenCourseWare	http://ocw.usu.edu/
Wikibooks	http://en.wikibooks.org/wiki/Main_Page
Wikieducator	http://wikieducator.org/Main_Page
Wikiversity List of OERs (Hunter-Gatherer Project)	http://en.wikiversity.org/wiki/Hunter-gatherers_project
YouTube Edu	http://www.youtube.com/edu

Organizations, Collaborations, Coalitions

Access to Knowledge Initiative (BYU)	http://education.byu.edu/a2k/
The Bill and Melinda Gates Foundation (OpenEd)	http://www.gatesfoundation.org/postsecondaryeducation/Pages/default.aspx
Community College Consortium on Open Educational Resources	http://www.oerconsortium.org/
Institute for the Study of Knowledge Management in Education	http://www.iskme.org/
Intute (UK)	http://www.intute.ac.uk/
IssueLab's OER Research	http://oer.issuelab.org/research
Jorum (UK)	http://www.jorum.ac.uk/
OECD Centre for Educational Research and Innovation	http://www.oecd.org/edu/ceri
OER Commons	http://www.oercommons.org/
Open Courseware Consortium	http://www.ocwconsortium.org/
Open Education Resource Center for California	http://grou.ps/oercenter
The Open University (UK)	http://openlearn.open.ac.uk/

Students for Free Culture	http://freeculture.org/
The Student PIRGs – Make Textbooks Affordable	http://www.studentpirgs.org/textbooks/
UNESCO Open Educational Resources	http://oerwiki.iiep-unesco.org/index.php?title=Main_Page
Wikiversity	http://en.wikiversity.org/wiki/Wikiversity:Main_Page
The William and Flora Hewlett Foundation	http://www.hewlett.org/programs/education-program
Zunia Knowledge Exchange	http://www.openeducation.zunia.org/

Blogs on OERs

Abject Learning	http://blogs.ubc.ca/brian/
Andrew Rens' Blog	http://cyberlaw.stanford.edu/blog/andrew-rens
Brave New World	http://bookseller-association.blogspot.com/
Community College Consortium for Open Educational Resources	http://oerconsortium.org/
Connexions Blog	http://blog.cnx.org/
Creative Commons – Commons News	http://creativecommons.org/
Disruptive Technology Library	http://dtlj.org/
Jester	
Open Education News	http://openeducationnews.org/
Open Thinking	http://educationaltechnology.ca/couros/
NIXTY	http://nixty.com/blog
WA Open Educational Resources	http://blog.oer.sbctc.edu/

OERs on Twitter

@Curriki	http://twitter.com/Curriki
@educ8ter	http://twitter.com/educ8ter
@edustyle	http://twitter.com/edustyle
@flat_world	http://twitter.com/flat_world
@iskme	http://twitter.com/iskme

@MITOCW	http://twitter.com/MITOCW
@oer_center	http://twitter.com/oer_center
@OERCommons	http://twitter.com/OERCommons
@onlinelearningu	http://twitter.com/onlinelearningu
@openculture	http://twitter.com/openculture
@openednews	http://twitter.com/openednews

Appendix II

LANE OER TEAM MEMBERS

TEAM LEADERSHIP

James Manning
ASLCC President 2009-2010

Jennifer Steele
Director, Lane Titan Store

Jeremy Riel
Millennial Associates, LLC

OTHER MEMBERSHIP

Velda Arnaud
Faculty, Business

Barbara Delansky
Director, Student Life &
Leadership Development

Brad Hinson
Division Dean of Academic
Technology

Tom Johnson
Project Coordinator, Printing
and Graphics

Meredeth Keene-Wilson
Faculty Technology Specialist
Faculty, Art & Applied Design

Sheri Kendall
Faculty, Health Professions

Vicky Kirkpatrick
Faculty Technology Specialist
Faculty, Mathematics

Don McNair
Executive Dean; Academic
Affairs Transfer

Lynn Lodge
Staff, Disability Resources

T.C. Osborn
ASLCC Representative

Marika Pineda
Director, Library

Katie Taylor
ASLCC Representative

Kienan Wear
ASLCC Representative

For more information on the Lane OER Team and Lane's OER efforts, visit the project site at www.bit.ly/laneoer

Many thanks to the various individuals and organizations who dedicated their time and knowledge to this project. The Lane OER Team is excited to see where we will go in the next couple years as OERs become an integral part of the learning experience in higher education!

This report and its recommendations were delivered to Sonya Christian, Vice-president of Academic and Student Affairs in May 2010. Reports of the ongoing progress of the Lane OER Team may be found at the project website, www.lanec.edu/OASA/OpenEducation.

Millennial Associates LLC was retained to assist with the management, research, and staffing components of this project. This report was written and prepared by Jeremy Riel and Millennial Associates LLC under authority and commission of the Lane OER Team.