Introduction

This report has been drafted as a preliminary step in the strategic planning process for Southern Oregon University. Our Professional Learning Community, comprised of faculty, staff and administrators at the university, has been requested to collect insights for consideration by the larger university community. Our work emphasizes a 3-5 year timeframe.

Participants

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Executive Summary

This report has been drafted as a preliminary step in the strategic planning process for Southern Oregon University. Our Professional Learning Community, comprised of faculty, staff and administrators at the university, has been requested to collect insights for consideration by the larger university community.

For the purposes of SOU's strategic planning process, our PLC acknowledges an expansive view of technology, but has also chosen to focus on digital technologies embedded in everyday social life and professional practice as they are deployed in everyday life in Southern Oregon and beyond.

Some faculty and staff in higher education have responded to technological change by resisting the need to play a role in technology instruction and/or the adoption of new business processes. "Millennials" or "Digital Natives" already adopt new technologies and respond to technological change transparently, according to this position, and therefore educational institutions need to take little role in shaping or responding to technology use by our younger stakeholders.

Our PLC takes the position that this claim is false, on several levels:

- First, technology skills are not transparently or evenly distributed among Millennial and post-Millennial students.
- Second, SOU serves a diverse community of learners, including older non-traditional students.

- Third, the claim that an institution of higher education has little to say to any given student regarding any given technology platform or implementation denies the whole point of the liberal arts tradition.

For an institution such as SOU, the challenge entailed in responding to technological change is largely shaped by at least three structural features that define our institutional approach to the landscape of higher education:

- The accelerated rate of change related to the rapid evolution and adoption of new technologies experienced by all of the stakeholder groups served by the university.
- The needs for digital literacy and technological best practices expected of all our students as they transition away from our campus, and into their post-collegiate lives and careers.
- Resource constraints, uneven application of technology resources across our university communities, and institutional resistance to change at SOU.

Our PLC takes as a presumption a claim that might be controversial in the larger university community: that SOU should respond to this landscape by committing to more robust adoption of technology as a strategic imperative for the institution, and should embrace new technologies more proactively, more nimbly and more broadly across campus than we have in the past.

SOU currently features pockets of early adoption and innovation by which many of these technologies are applied, studied, and assessed within the liberal arts tradition. But the institutional challenge remains to make technology as central to the SOU learning experience as it is to the lives and careers of our students and other stakeholders.

If SOU is to evolve into an institution that broadly inspires technology adoption and innovation in its students, then it will need to articulate a clearer commitment to the visibility of technology proficiencies in its curriculum, learning outcomes and assessment strategies. To that end, we advocate for a transformed *attitude* of technology adoption by the faculty, staff and students.

Strategic Insights

For an institution such as Southern Oregon University, the challenge entailed in responding to technological change is largely shaped by at least three structural features that define our institutional approach to the landscape of higher education:

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- The needs for digital literacy and technological best practices expected of all our students as they transition away from our campus, and into their post-collegiate lives and careers.
- Resource constraints, uneven application of technology resources across our university communities, and institutional resistance to change at SOU. These all combine to make it more difficult for our university to respond to the landscape of emerging technology.

These needs are further articulated across a diverse set of institutional stakeholders, including:

- Students who live in a world largely characterized by their use of emerging technologies such as mobile phones and tablets, social media, gaming platforms, web-connected consumer goods, and more.
- Our students' future employers, who depend on us to help students adopt, apply and innovate in the use of new technologies wisely and effectively.
- The non-commercial stakeholders in society who depend on us to help students become adept participants in the creation of a just and ethical society, even as our future appears inescapably connected to digital technology and rapid change.
- And our campus community, which depends on shared understandings of proper deployment of technology to serve the pedagogical, scholarly and social functions of the university.

Our PLC takes as a presumption a claim that might be controversial in the larger university community: that SOU should respond to this landscape by committing to more robust adoption of technology as a strategic imperative for the institution, and should embrace new technologies more proactively, more nimbly and more broadly across campus than we have in the past. To that end, we advocate for a transformed *attitude* of technology adoption by the faculty, staff and students. This adjustment in the university's practices necessarily entails a transformation of our institutional culture (Kotter 2012) that will help us become more agile and more innovative (Schwab 2017).

Making Technology Matter

Diverse scholarly disciplines including anthropology, sociology, communication studies, cultural studies and the humanities have engaged with the role and nature of technology in human life. At the broadest, this scholarly work has suggested that technology entails nearly any human-created extension of human capabilities. This broad scope captures technologies as diverse as language, the lever, the clock, the automobile, and the smartphone.

For the purposes of SOU's strategic planning process, our PLC acknowledges this expansive view of technology, but has also chosen to focus on digital technologies embedded in everyday social life and professional practice as they are deployed in everyday life in Southern Oregon and beyond. Our consideration of technology and innovation encompasses, but is not limited by such categories as:

- The Internet.
- Personal computers.
- Mobile computing devices such as smartphones and tablets.
- Social media platforms.
- Online collaboration tools, including Google Suite, Slack and more.
- Learning Management Systems already in regular use for teaching and learning on our campus.
- Digital gaming platforms, including Xbox, Nintendo Switch and Playstation.
- Digital devices described by the terminology of the Internet of Things, including wearables and home-based technologies such as web-connected household appliances, energy-management platforms, and home security systems.
- Three-dimensional printing and fabrication platforms, which render data into material objects.
- Emerging platforms for Virtual Reality and Augmented Reality, and the cameras, code and display devices entailed in the creation of immersive visual experiences.

SOU currently features pockets of early adoption and innovation by which many of these technologies are applied, studied, and assessed within the liberal arts tradition. But the institutional challenge remains to make technology as central to the SOU learning experience as it is to the lives and careers of our students and other stakeholders.

Institutional Transformation

Some faculty in higher education have responded to technological change by resisting the need to play a role in technology instruction. “Millennials” or “Digital Natives” already adopt new technologies and respond to technological change transparently, according to this position, and therefore educational institutions need take little role in shaping or responding to technology use by our younger stakeholders.

Our PLC takes the position that this claim is false, on several levels:

- First, especially as demonstrated by the scholarship of Eszter Hargittai (summarized in Confronting the Myth of the “Digital Native”, O’Neil 2014), technology skills are not transparently or evenly distributed among Millennial and post-Millennial students, and we can reasonably expect inequities to emerge from socioeconomic status and other social and cultural variables.
- Second, SOU serves a diverse community of learners, including older non-traditional students. We must commit to serve urgent learning needs for all of our student and learner populations, and must strive to bring all students and learners up to a high level of proficiency.
- Third, the claim that an institution of higher education has little to say to any given student regarding any given technology platform or implementation denies the whole point of the liberal arts tradition. We are here to help our students become better in every dimension that we can. To argue that we have little to say about technology skills because students already know how to use their smartphones is akin to saying that we have little to say about writing skills because they already know how to use their pens and pencils.

Therefore, as SOU formulates its strategic plan, we advocate for the university to adopt these principles related to its adoption and use of contemporary technologies:

- Acknowledge the essential role of technology in personal achievement, engaged citizenship and ethical practice in a technologically mediated world. This entails a commitment to the adept use of technology as essential to both the liberal arts mission of the university, and the highest career aspirations of our students.
- Acknowledge the diversity of technology skills within our current and future student and learner populations, and our commitment to proactively guide students to stronger technology skills and practices. In particular, resist the myth of the Digital Native.
- Acknowledge the essential role of technology in helping the university serve the diverse communication problems entailed in our mission. Commit to best practices of technology use and communication strategy at an institutional level.

- Embrace rather than resist the ways that new technologies reframe hierarchies and power relationships. Encourage faculty to conceive of their relationships with students as collaborative rather than authoritative.
- In both our students and the larger university community, instill a culture and a set of dispositions oriented toward innovation. This commitment will entail a fresh alignment in our relationship with technology, and will call us to become proactive drivers of change, rather than responding passively or reactively to change in the community and the landscape of technology around us.
- Adopt a stance that embraces technology and innovation without abandoning or compromising the traditional strengths of our institution. These especially include the close relationships we promote with our students, and the personal, nurturing environment that characterizes so many of our classrooms.

SOU is not alone in its need to adapt to rapid change in contemporary society. Nearly every significant enterprise now faces the need to confront rapid change, and new approaches to collaboration and management have emerged in response, including Lean Startup methodologies (Blank 2013), Design Thinking (Fast Company Staff 2006), Agile project management (Alexander 2017), and Open-Source production models (Finley 2016). Those approaches should become part of the vocabulary and framework by which SOU responds to today's technological landscape. Although these approaches are each distinct, they generally share a contemporary emphasis on a handful of common principles relevant to our institutional challenges and the landscape of modern enterprise:

- Use qualitative data from actual stakeholders to guide design and innovation.
- Create and test lightweight prototypes before investing in large-scale implementations.
- Deploy new implementations incrementally.
- Create new products and services based on pre-existing, cloud-based, or crowd-sourced components, rather than building from scratch.

Higher education is not alone in its need to grapple with the implications and consequences of continuous technological change. In diverse ways, employers in the Rogue Valley and beyond also struggle with how to recruit, train and retain employees who are genuinely committed and adept at the styles of rapid collaboration and innovation entailed in economic growth in post-industrial economies today. We call attention to Google's approach to creating a culture of innovation (undated) as a helpful sketch that showcases the worldview of ambitious enterprises and their employees.

Our institution currently promotes pockets of innovation and strategic practice consistent with best-practices in industry nationally and globally, and our faculty and students should be supported in taking a leadership role in the region. However, SOU is a mature

enterprise, and university culture entails deliberation and reflection on evidence. A call to deliberate and reflect more quickly and with less certainty about outcomes might be controversial on our campus.

Meanwhile, as we observed previously in this document, institutional cultures in higher education often serve to resist the impulse toward change and innovation, and we might anticipate that some members of our university community will prefer a passive approach to technology over an active one.

One important way in which we should change the culture of the institution entails our relationship with the business community in the Rogue Valley. Employers in Southern Oregon have expressed dissatisfaction with the ability of our graduates to meet their expectations, and perhaps rightly so. However, SOU should not automatically assume a passive stance toward the regional business community. Rather, we should become an instrumental source of innovation, bringing new ideas into the Rogue Valley, and sparking new innovation and enterprise throughout the region.

Essential Skills

If SOU is to evolve into an institution that broadly inspires technology adoption and innovation in its students, then it will need to articulate a clearer commitment to the visibility of technology proficiencies in its curriculum, learning outcomes and assessment strategies.

Although the specific details of these proficiencies must necessarily evolve in their precise application as new technologies emerge, our PLC advocates for a strategic plan that addresses these categories of technology literacy and proficiency:

- **Baseline technical proficiencies.** An evolving set of technologies are so pervasive that they should be considered essential to the ability of any student to secure employment and advocate for political or social causes in the 21st century. SOU should have a clear understanding of the scope of these technologies, should adopt new technologies for instruction as they emerge, and should instill in all of our students a flexible ability to assess and use emerging digital technologies.
- **Coding and data competency.** Not every student needs to be an expert programmer, but understanding the nature of code and the relevance of data in today's technology comprises an important entry point for robust digital citizenship and critical practice today. This competency should be understood both as essential to the liberal arts mission of the university, and distinct from our commitment to promote quantitative reasoning skills in our students.

- **Social and critical competency.** The functional skills of technologies comprise an important starting point, but skills alone are not enough. Our students are leaving our campus into a world in which technologies are social and political frameworks, and their understanding of technologies must include social and political consciousness beyond simple skills. In particular, most new technologies with great social relevance are communication platforms at their core, and communication and collaboration skills for a digital age comprise an essential part of the value an institution such as SOU can provide. Our challenge is not just to teach students how to use Google Docs, but to teach them how to communicate effectively using the best available tools, selecting appropriately from a broad selection of tools, possibly including Google Docs.
- **Digital Literacy.** As well-illustrated by current controversies regarding fake news and the rising influence of social media platforms, the university's traditional role as a critical arbiter of knowledge and information literacy is reinforced in the current landscape.

Our PLC's deliberations have included extensive consideration of which specific technologies we might recommend as essential to the baseline competency we hope to bring to SOU students. Among the laundry list of technologies we have contemplated, our considerations have included robust training in Google Suite, Microsoft Office, Learning Management Systems, HTML/CSS and webhosting principles, basic file and folder management on personal computers, and online collaboration platforms such as Slack. Within our committee, we agree that it is premature to specify technologies within the context of our strategic planning process, but we look forward to a serious curricular commitment to boost students' technology proficiencies in the future.

Emerging Technology Platforms, Now & On The Horizon

In this section, we provide brief observations of some emerging technology platforms that could help to frame SOU's impending strategic deliberations. However, we intend these observations as conversation starters for the university community, rather than advocacy for any particular platform or technology. We must clearly understand that adoption of a technology platform does not comprise a strategy.

Massive Open Online Courses

Several years ago, Massive Open Online Courses (MOOCs) emerged into the landscape of higher education, sustained by large investments of venture capital and utopian claims about the potential of MOOCs to reach global communities of students

and “disrupt” the conventional university. Many premier institutions made significant commitments to MOOCs.

These learning platforms, deployed by tech startups such as Coursera and EdX, typically featured online learning delivered by video, supported by online discussion boards, and assessed by computer-scored exams. Some courses amassed student headcounts of the tens of thousands. Despite the early buzz, very few institutions have offered degrees based entirely on MOOCs. Georgia Tech is one salient example: http://www.omscs.gatech.edu/.

We observe that MOOCs have neither fully lived up to their early hype, nor are they completely dead yet. The potential for high-touch online learning as yet seems only imperfectly realized. While MOOCs and all self-directed online learning methods can be aids to supplementing students' education, we support the claim that the primary means of getting ahead in the world will be a degree offered by an accredited university. These supplemental learning avenues should be explored in how they may best fit into our existing curriculum.

Utopian advocates for MOOCs have yet failed to demonstrate how online platforms can both provide a satisfactory learning experience AND scale to large audiences when the expected learning outcome entails something that a student *does*, rather than what she *knows*. Those who envision MOOCs as a “disruptive” replacement for the in-person learning experience choose to elide from the college experience journalism, public speaking, filmmaking, sculpture, theater and other disciplines that resist the scalability of the MOOC model.

Despite the limitations of MOOCs, SOU should seek opportunities to adopt and improve our online learning capabilities in those areas where it makes sense. For many topics, to learn online is a skill of growing importance to our students’ professional success, and should be welcomed as one element of the full learning experience provided by SOU.

Classroom Instruction/Personalized Learning/Flipped Classrooms

In a world in which MOOCs and other online technologies are reshaping learning, how should in-person classroom instruction change to respond to changing technologies and the needs of students and other stakeholders of SOU? Another recent pedagogical innovation has entailed flipped classrooms, in which instructors reshape the in-class experience to prioritize interpersonal communication and collaborative work by students and instructors.

Especially in large introductory classes where students can hide in the back and get lost when a standard lecture format is used exclusively, student engagement is an ongoing challenge in higher education. Meanwhile, managing flipped classrooms typically entails new adoptions and applications of classroom technology, which has slowed the adoption of flipped pedagogies at SOU.

Recent ideas about modifying large classroom instruction have focused on the flipped classroom model (Berrett 2015). Instructors can use readings and video lectures (or MOOC deployments) to deliver content, and spend class time on what would have previously been considered homework. The goal of in-class engagement is achieved through real-time survey/quiz interactions using clickers or more recently cell phone apps, demonstrations, “help sessions” for topics that students are finding problematic as well as small group topical discussions and problem solving (Mangan 2013). Although the flipped classroom idea is spreading, it is not a panacea and has its own set of problems (Talbert 2014; Berrett 2012). Our task here is not to mandate any pedagogical method, but to make sure the technology is available at SOU for faculty who desire to test new methods.

Further adoption of new pedagogical methods at SOU would require access to some of the software listed above, faculty training, student accessibility, a campus culture that encourages innovation and understands that failure is possible, and maybe most importantly, time (faculty loading) to make major changes as to how we reach the learners of today.

Media Production Skills & Dispositions

We might be tempted to frame required tech skills of the future around STEM disciplines (Science, Technology, Engineering, and Mathematics). But, as the broad outlines of our PLC’s assessment demonstrates, skills and dispositions related to emerging technologies are becoming more broadly diffused across disciplines, and associated with communication competencies distinct from tech skills such as coding and engineering.

These new skillsets call for an expanded scope for the conventional notion of literacy called for by the liberal arts tradition and the university’s traditional emphasis on verbal literacy. Visual competencies associated with design, motion picture storytelling and image-based construction of meaning have growing importance in the practices of communication common in disciplines such as education, media and the social sciences. These skills, and the tools required to master them, should also be in the scope of SOU’s deliberations on our curricular future.

Augmented Reality/Virtual Reality

Augmented Reality and Virtual Reality technologies will radically transform the way in which we interact with the real and the created world, revolutionizing the way in which we experience the Internet, interpersonal and mass communication, entertainment, travel, and business. It is essential that SOU play a leading role in preparing our students to be proficient and innovative players in this rapidly developing field.

SOU is well-positioned to be a leader in developing creative AR/VR content. SOU's Communication program has already launched a course in 360VR documentary filmmaking, which is debuting in Spring 2017. EMDA's existing curriculum already contains the foundational components of AR/VR in animation, 3D modeling, interactive game development, transmedia storytelling, digital audio, and non-linear writing and will be teaching a new course in AR/VR in 2017/18. Our institution already features green shoots in creative development that can grow into larger initiatives in AR/VR.

However, these early initiatives do not represent the full scope of consideration needed by SOU. For example, how should the institution think about AR/VR not only as a production skill to be taught, but as a technology for providing learning experiences in almost any discipline? Does it make sense for SOU to build that curriculum itself, or license AR/VR applications that will inevitably emerge from third-party vendors?

Approaching these questions represents an important step in SOU's consideration of the emerging AR/VR landscape for higher education (Velev & Zlateva 2017).

3D Printing/Fabrication

Emerging 3D printing and fabrication technologies are providing on-demand and just-in-time manufacturing capabilities revolutionizing traditional factories and labor practices. As 3D printing becomes more affordable and effective, a working proficiency with this technology will become central to students in diverse fields ranging from science, fine arts, design, and business operations.

SOU has begun to explore 3D printing and object scanning through SOULA, The Hannon Library, Art, Theatre, and EMDA, and has recently acquired fabrication equipment including a CNC router, a laser cutter, and 3D printers capable of printing in polymer and porcelain.

As one pertinent example, consider Wikihouse, an open-source initiative to make embed modular construction in a global community of architects, designers, builders and activists.

As with Augmented Reality/Virtual Reality technologies, we anticipate familiarity with 3D fabrication to be increasingly foundational to "digital literacy" for our students, faculty, and staff, and to play a major role in developing, prototyping and communicating ideas across the spectrum of academic disciplines.

Online Collaboration and Communities

In spite of rapid advances and availability of new communication tools, adoption of these technologies in higher education, and workplaces in general, remains very low (O'Donnell 2017). Tools like Google Apps, Office 365, and SMS are ubiquitous. Although many of these tools are university-provisioned and supported, usage among faculty and staff varies considerably. Even usage of established technologies specific to education, such as learning management systems, can be sporadic or basic.

The most frequent comment made by students in the university's annual information technology survey is about the lack of faculty adoption and usage of Moodle (Information Technology 2016). It is incumbent upon staff and faculty to model adoption of communication tools and build robust online communities for our students. More than a decade ago, the importance of using technology for communication, collaboration, and fostering the development of online communities was recognized (Kvavik 2005). It is likely even more important today (Boyum-Breen 2017).

Open Educational Resources

One of the contributors to the increasing cost of higher education is textbook prices. The National Association of College Stores reports that average college textbooks have increased in price from from $57 in 2007 to $82 in 2014. Indeed, the most expensive new textbook in the SOU Bookstore is over $400. A possible solution to this phenomenon, in part, includes the adoption of open educational resources (OER).

It could be argued that OER is anything you can freely link to on the web with relevance to your topic. However, OER typically refers to free materials that have been written and/or developed with the intent to act as an educational resource. Usually by an authority or someone who has done research and made it publicly available via an open source licensing body like Creative Commons or the Open Knowledge Project. Examples important to higher education are undertakings like the Open Access Textbooks Project and WebWork, an open source online homework system for math and the sciences, and a Portland-based enterprise called Lumen Learning, which has a significant grant from the Gates Foundation to create and promote OER.

SOU has undertaken some preliminary explorations of OER, but response has been muted. Two mathematics professors applied, and received, grants offered by the

Oregon Higher Education Coordinating Commission to evaluate OER texts for possible adoption. For both grants, evaluators included other SOU math faculty, RCC math faculty and students. The Math 112, Precalculus II, group identified a text which was used in a pilot course. The text was then adopted as the official text for all Math 112 classes following the math department's usual procedures. A possible OER text for Math 243, Intro to Statistical Methods is now being piloted. It is expected to be proposed as the official text in Fall 2017. When this process is finished, the students will be saving over $200, the cost of a new commercially produced textbook.

Although the primary selling point of OER entails the reduction of textbook costs, adopting these platforms will likely lead to further innovation and evolution in pedagogical approaches. After speaking with several individuals on campus about OER initiatives, it would appear that the main driver for successfully initiating and utilizing more free textbooks will need to come from individual faculty. We encourage such exploration.

Adaptive Learning

It is helpful to think of personalized learning as a practice rather than a product (Feldstein and Hill 2016). Personalized learning itself is the goal of providing a learning environment that is more specific to learners pre existing knowledge, needs, and goals (Alli, Rajan, Ratliff 2016). Technology’s role in personalized learning, based on current practices, generally falls into one of these categories: moving content out of the classroom (aka flipped classrooms), turning homework into contact time, adaptive testing, and providing tutoring and remedial instruction (Feldstein and Hill 2016). Adaptive learning can also integrates with universal design, providing multiple modalities in which students can engage with the material and demonstrate their learning.

By itself, implementation of adaptive technologies does not personalize learning. Rather, it is the process of using these techniques in course development and delivery. Absent from most of the literature we reviewed is the need to engage with faculty and instructors. While the need for institutional leadership and focus is highlighted, little attention is paid to providing faculty with the training and skills necessary to revise course materials or teach with these new methods. That is unacceptable oversight and without engagement of faculty, it is highly unlikely that any personalized learning program will be successful.

Although the university's infrastructure is incomplete, there are still opportunities to begin integrating personalized learning into courses. As needs from faculty and academic programs become clear, new technologies can and should be added as

supplements to existing systems like our learning management system (Moodle) or as new standalone technologies.

Infrastructure & Technology Assessment

A robust infrastructure is essential for technology enabled teaching and learning along with efficient, effective, and convenient administrative operations. Some key elements include a high speed Internet connection, ubiquitous wireless networking, well-equipped classrooms, up-to-date personal computing devices, and appropriate software and administrative systems. Throughout our literature review, the importance of infrastructure was highlighted in both successes and failures of organizations to adapt to the changing circumstances of higher education. It is the foundation upon which most other activity depends.

The technology infrastructure at Southern Oregon University is mixed; neither exceptional nor utterly deficient. In some cases, we far exceed our peers in planning and execution, while in others, we remain behind.

Our current Internet connection is provided through membership in the Network for Education and Research in Oregon (NERO), which provides commodity Internet and Internet2 access to all of the Oregon public universities. Every year, we continue to procure additional bandwidth and later this year, we will move from a only a one gigabit per second connection to a ten gigabit per second connection. This additional bandwidth will provide a significant amount of overhead to accommodate more demand and institutional growth.

Our internal network consists of over three thousands wired nodes and nearly five hundred wireless access points, providing coverage to every building, every residence hall, family housing, and our Medford campus. Connectivity is ubiquitous, reliable, and generally high performing.

There are 44 technology-equipped classrooms on the Ashland campus and 33 technology-equipped classrooms at our Medford campus. The classrooms at our Medford campus are shared with Rogue Community College. At our Medford campus, all classrooms are built to the same standard and include a projector, computer, sound system, and podium with touchscreen. Our classrooms at the Ashland campus vary widely in quality and available technology. There is no single standard, frustrating users, making class scheduling more difficult and, in some cases, preventing faculty from relying on certain technologies for their courses. The barrier to addressing this issue on the Ashland campus is financial.

Starting in 2013, a campus-wide replacement and maintenance plan was enacted that provides for a four-year replacement cycle for faculty, staff, and lab/classroom computers. When the plan started, the average age of a campus computer was around eight years with many machines even older. Our first cycle completes this year. Compared to our Oregon public university peers, our replacement program is well funded, extremely robust, and guarantees access for faculty, students, and staff to current technology.

The university provides many software resources to faculty and students for academic use. Whenever possible, we have negotiated software site licenses for commonly used software packages such as SPSS, Qualtrics Research Suite, and Adobe Creative Suite. By centrally funding these software licenses, we ensure access to all students and all academic disciplines.

Our administrative systems are currently in a state of renewal. In some cases, we already employ industry-leading infrastructure such as Google Apps and Moodle while in others, like Banner, we are in the process of significant upgrades. Our barriers to software upgrades and business process changes are largely organizational, not financial. It is imperative, however, that our administrative systems become easier to use and less burdensome to connect together.

An emerging area that requires further strategic consideration by the university entails the adoption and use of mobile devices as platforms for instruction. Especially as mobile usage grows, SOU should be more active in using mobile technologies in learning, and guiding students who are more adept at using them. This need represents both a proficiency oriented to career preparation, and a disposition oriented to the liberal arts tradition, and a critical understanding of technology's role in contemporary life.

However, if it emerges from our strategic plan that we will be systematically promoting more mobile activity in our classes, then that will entail a higher standard of proactive preparation and planning in IT and instructional technology than we have previously been resourced to accomplish.

Accessibility

In this context we're going to define accessibility as the degree to which users can interact with a given piece of technology; that is, can the user perceive, operate, and use the technology to the same extent as other users. While this is usually an issue of the interaction between a given user's abilities/disabilities, there are other variables at play as well. (For example, must students be adept at all Mac/Windows/Linux platforms, or do they have the ability to interact in their classes on the platform on which they are most comfortable?) Accessibility in relation to disability is a requirement of several state

and local laws, most notably the Americans with Disabilities Act and the Rehabilitation Act. However, considering accessibility from the ground up provides the greatest opportunities for all students to interact with technology and, more importantly, the concepts and opportunities that technology provides (Fitchen, Acunsion, & Scalpin 2014).

Accessibility is both an opportunity and a challenge, and this is especially true in mobile environments. Apple's iOS, used for both iPhones and iPads, provides a robust platform for making accessible many apps that would not have otherwise been accessible in a keyboard-and-mouse environment. Android lags behind iOS in this arena in many ways. However, if we require students to possess and use mobile devices, then the accessibility burden for the institution shifts from the hardware and assistive technologies to the ways that we require students to use them. If we are using SOU-built apps, we have an obligation to make them accessible (see Dear Colleague Letter). But this is quite different from needing to provide the assistive technology directly. It will mean a different infrastructure, and we'll need to be ready to support it. How do we shift support to a BYOD environment, and what might that look like? How can other institutional structures, such as financial aid, be leveraged?

Accessibility is but one portion of the larger concept of universal design, the technique of designing learning, environments, and processes to be usable by the broadest diversity of people without need for special adaptations. Universal design of technology benefits a number of users far beyond those with disabilities (Fitchen, Acunsion, & Scalpin 2014) and is positively associated with improved student outcomes (Al-Azawei, Serenelli, & Lundqvist 2016).

Risks & Obstacles

In our participation in this stage of the strategic planning process, our PLC does not see it in the scope of our work to provide a detailed risk assessment or solutions to the problems that might arise from the current landscape of technology adoption. However, we are not technological utopians, and we consider it essential for the university to pragmatically assess the risks entailed in technology. In this section, we provide a preliminary sketch of risks currently threatening the university, or which might emerge in the future:

- How much resources commitment will it take to keep pace with ongoing technological change?
- How can the university ensure broad access to technology in cases where students are limited by socioeconomic status (Bulger & Davis 2017) or other variables outside of their control?

- What legal risks and compliance considerations are entailed in rapid innovation and technology adoption?
- What should be the university's response when students encounter online harassment or breaches of personal privacy due to their participation in technology-based instruction?
- How can the university prevent or mitigate impersonation of students working online, especially with the goal of preventing academic dishonesty?
- What unintended access barriers might be presented through the increased adoption of technology, and how should the university mitigate them?
- How can the university ensure a pipeline of eligible faculty with up-to-date skills, including adjunct instructors?
- How can the university ensure that we become more innovative while also retaining our traditional strengths in interpersonal learning, and our commitment to the liberal arts tradition and critical thinking?

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