I. Introduction

As part of our response to the Mt. Vernon 8 goal of developing strategies for incorporating academic technology, I have asked members of the Library and Academic Technology (LAT) team, Directors of the Office of Academic Skills, the Writing Center, the Writing Program, the First Year Program, and the Center for Teaching & Learning to respond to two recent Educause Review articles: Malcom Brown’s “Trajectories for Digital Technology in Higher Education,” and Mark Valenti’s “Beyond Active Learning: Transformation of the Learning Space.” The Brown article can be found here and the Valenti piece can be found here. (Note: A video highlighting faculty innovations at Washington College can be found here.)

Specifically, I asked these members of the faculty and staff to identify which trajectories discussed in the articles have the greatest relevance for Washington College and what steps would be necessary to move the College forward.

The two trajectories identified as having the most relevance for WC are the changing ways in which 1) physical learning spaces are being designed and used and 2) the changing ways that virtual learning spaces such as Canvas—what Brown refers to as Next Generation Learning Management Systems—are being designed and used. As both Brown and Valenti note, physical learning spaces are moving away from being places of presentation and toward being places of discovery, invention, and knowledge construction. Similarly, virtual learning spaces are moving away from a place to “park” course resources and toward being dynamic environments of collaboration, creativity and knowledge sharing. Among the trends discussed in Brown and Valenti, it is these shifts in physical and virtual learning spaces, we believe, that have the greatest relevance for WC, as they are critical to advancing the WC value proposition. Specifically, investment in both these areas will allow us to differentiate ourselves from institutions that focus primarily on knowledge reception and acquisition, and move more decisively in the direction that will enable our students to become creators/makers/discoverers/producers/collaborators.

Arguably, it is this constellation of capabilities that defines the distinctive quality and character of a Washington College education. Further, investment in both these areas will better enable us to meet students where they are cognitively and culturally, opening up multiple pathways by which students can gain entrance into challenging course content and providing alternative pedagogical practices that will better enable students to meet the learning goals established by their faculty.

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1 Educause Review is the leading trade magazine for the academic technologies industry.
II. Students as Creators/Makers/Producers/Discoverers/Collaborators

We prepare our students for life after Washington College in myriad ways. WC emphasizes the connections between critical thinking and clear and coherent writing, for example, and is recognized for excellence in this area. The “boundary-crossing competencies” Valenti describes, such as collaborative teamwork, and communication, perspective, networking, and critical thinking across multiple disciplines have emerged as critical competencies for work and civic life in the 21st Century. As has been identified in our current strategic plan, developing these competencies is emerging as a signature strength of the College. We challenge students to be the genesis of new knowledge and creative works, and to master alternative forms of expression. The student as creator/maker/producer is one approach to developing the “T-shaped” student Valenti describes (p. 36), i.e., someone who has depth within at least one discipline and systemic way of thinking, as well as a breadth of competencies that allow them to understand, communicate and collaborate with a wide variety of people drawn from diverse disciplines, training, and experience. As Valenti points out, by challenging students to create their own content such as videos, blog posts, annotated readings, prototypes and productions, we are asking them to produce real world artifacts that establish authentic connections between course content and the world.

Examples of this kind of teaching and learning at Washington College include the many student productions staged by Department of Theatre & Dance, video ethnographies and documentaries created by students in visual anthropology and sociology, student-developed blogs, and poster presentations at professional conferences by students in the psychology and other disciplines in the Natural Science & Mathematics Division. (See Faculty Innovations videos for further examples.) LAT, CTL, the Writing Center, and the Writing Program Director support this approach to learning by providing support, training, and pedagogy workshops to faculty. LAT and the Writing Center provide similar training and support to students. Over 800 students a year attend one or more digital workshop session(s) with their class, and equipment and spaces such as the Beck Lab, the MPC, One Button Studio, and Archives support these projects.

In order to support the development of our students as creators/makers/ producers/discoverers/collaborators, we need to direct attention and resources toward developing the quality and flexibility of both our physical and learning spaces.

A. Developing technology-rich physical learning spaces

The surest way to promote pedagogical experimentation and innovation is to put appropriate and efficient technology in physical teaching spaces (Classrooms, labs, MPC, Beck Lab etc.). At Washington College, faculty pride themselves on creating active and collaborative learning environments that are student- or subject-centered. Such teaching requires that learning spaces are flexible so that a wide variety of pedagogical practices can be employed. We plan to extend more broadly these kinds of spaces to our academic classrooms and virtual
environments. We have already made some progress in this area by updating technology-enhanced classrooms to ensure that they are equipped with current and appropriate technology based on established classroom design standards.

**Makerspace & One-button Studio**

To expand the reach of these high-impact pedagogical practices described above, the College is also developing a Makerspace called IDEAWORKS, which is currently housed in the Miller Library. A “makerspace” or “hackerspace,” as it is sometimes called, is a physical commons where digital and analogue tools are available for individual and group experimentation and creation. It’s a place for idea prototyping on a number of levels. IDEAWORKS boasts two 3-D printers, a laser cutter, and a small workshop. The One-Button Studio, also located in the Miller Library, provides faculty and students with everything they need to record and edit their own video content. The LAT team is developing programming for the new Makerspace pilot and the One-Button Studio so that faculty and students can understand better the possibilities of how these spaces can be leveraged toward greater collaboration, experimentation, and creativity. As students create content such as videos, blog posts, annotated readings, prototypes and productions, and other tangible artifacts, they put ideas to work in the world.

With its array of digital and analogue tools, IDEAWORKS offers faculty and students capabilities that ordinary classrooms cannot. The IDEAWORKS concept, however, has broader implications for pedagogical innovation. Ideally, all classroom spaces become Makerspaces of one kind or another. For example, an appropriately outfitted classroom can serve as a Makerspace for a student-produced digital magazine. Such a magazine produced by a First Year Seminar can serve as a model and resource for student writing in the first year. Similarly, a senior seminar or interdisciplinary upper level course might produce a magazine that showcases more advanced student research within a discipline or academic division. (See Harvard University’s Writing Program magazine *Exposé: Writing from the Harvard University Community*, which serves doubly as model for students and resource for faculty and faculty development.) But if ordinary classrooms are to be transformed into vibrant learning spaces that highlight collaboration, experimentation, and knowledge creation, we do need to invest in flexible technology/media and furniture that allow faculty to take advantage of student collaboration and connectivity. At present, not all classrooms have up-to-date computer stations, projectors, or smart boards, and not all classrooms are structured to allow for group work, multi-media production, collaborative discovery, invention and knowledge construction during class time.

**What do we need in order to enhance and update our physical learning spaces?**

- Advance expertise of academic technologists through greater support of their professional development.
• Lend expertise of academic technologists to faculty in the form of classroom design, consultation with syllabus and assignment construction, faculty development workshops.
• Increase the number of academic technologists, able to dedicate time and attention to building creative-collaborative projects for courses and programs: as a start, one per academic division. We would also need someone who could dedicate time to programming and maintaining the digital sites that would be created for faculty. This support work can’t be left to already busy faculty or web support staff; the projects simply won’t get started or won’t be sustained.
• Increase funding to upgrade the classrooms over the next five years and then move to a sustainable upgrade cycle. We estimate it will cost approximately $15K to $17K per classroom to update the audiovisual equipment and the furniture. It could cost $51K to update three classrooms per year. This breaks down to approximately, $12K for furniture and $5K for audiovisual equipment. This does not include updating the instructor’s workstations.

B. Developing transformational virtual learning spaces

Above we discuss ways we can enhance our physical learning spaces, but if we are to support our students as creators/makers/ producers/discoverers/collaborators, we also need to enhance our virtual learning spaces. We see the learning management system currently in place (Canvas) as a virtual extension of the physical learning spaces of classrooms, labs, commons, library and archives. The direction in which we are moving is to facilitate greater fluidity between our physical and virtual learning spaces. For instance, the success of flipped classroom—in which content presentations are viewed outside of class and collaborative problem solving and discussion are privileged in class—depends upon seamless integration of physical and online spaces. The concurrent development of physical and virtual spaces will help us generate more gateways for students to enter into a discipline, lead to greater content sharing capability, and offer students more opportunities to be producers as well as receivers of knowledge and creative works.

Virtual Learning Spaces: Next Generation Digital Learning Environment (NGDLE)

WC uses Canvas as its “course management system,” which is in some ways a misnomer. Developed for a web environment, Canvas is more than a course management system; it is a blank canvas that faculty can use to design engaging online learning environments that support a robust classroom experience. The word “classroom” is used loosely to refer to any place-based learning environment. Canvas was designed to be adaptable and able to address the five critical domains for NGDLE Brown describes.

Unizin is a collaborative of higher education leaders who are seeking to provide an evolving and integrated set of digital learning services for content, software, and analytics, layering their design tools on top of the Canvas platform. Should the Unizin group successfully develop “the Next-Generation LMS,” Washington College is strategically positioned to
implement it. In the meantime, our focus will be on maximizing our use of the current capabilities in Canvas. Canvas provides a powerful means of connecting with students outside of the traditional classroom space, but most faculty do not take full advantage of Canvas’s capabilities. Increasing support in the academic technologies area would spur innovation by driving down the time-costs of experimentation.

Canvas has advanced features, such as Learning Tools Interoperability (LTI) integration for professors to extend the learning experience to external online textbooks, instructional videos, and blogging tools. Further, Canvas's advanced features provide extra support for students with disabilities. Students with disabilities need the structure, timely feedback, and supplemental resources that an advanced LMS can facilitate. With this support, students stay engaged and have a greater chance of success.

What do we need to take full advantage of Canvas’ rich learning environment?

• Support and advance a culture of innovation: The LAT team will be developing more opportunities for faculty to reflect, discuss, and share their teaching challenges, evidenced-based practices and innovations in teaching and learning. Further, light structures such as design loops, rapid prototyping and short-cycle innovation opportunities foster a culture of ongoing innovation. Clear, consistent processes for how innovation is to be promoted, supported and rewarded that are continually reinforced even when those efforts do not always lead to clear “wins” help develop “habits of mind” the cadence and routines of regularized innovation. An organization-wide tolerance for risk, comfort with failure and “growth mindset” allows stakeholders at every level of the organization to become effective innovators. Successful cultures of innovation often involve “distributed leadership,” where all team members, regardless of organizational level, have power to act in service of the project’s success.

• Transition Canvas as a place in which we manage courses (a place where students find course materials) to using it as a robust and comprehensive digital learning environment that is focused on student engagement with course materials and with one another.

• Research and pilot tools that have the greatest potential to help faculty meet their existing and emerging pedagogical goals. For example, Canvas can enable team-based course design and teaching, sharing and collaboration among faculty members as well as among instructional technologists, librarians, and other academic support providers.

• Providing funding and professional development opportunities for faculty or staff who want to develop interdisciplinary and multimodal approaches to teaching.

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2 We note that Canvas is highly ranked for 504/ADA compliance, allowing for equal access to programs and services.
Not only do we want our students to collaborate more, faculty and staff should be collaborating more as well. The reference point for the Brown and Valenti discussions is largely the university. We should explore and learn from models that come from the small liberal arts college with our mission and strengths and limitations. Following the very logic of this discussion, we should be collaborating with peers (just as we want our students to do) on creating and producing new curricular experiences transformed by learning technologies (not exclusively digital technologies—we shouldn’t forget analog technologies like the Print Shop or the laboratory) appropriate to our ecosystem. We want to be engaged with, and informed by, faculty and educational technologists from other colleges with whom we share values in common, places that we aspire to be. We might create projects with them as well as receive from them some balanced wisdom on the benefits and limits of new trends in higher education. Collaboration, not individuation, should be the focus of our use of educational technology.

III. Least Relevant for Washington College

Integrative Planning and Advising Systems (IPAS): The IPAS trajectory that Brown describes is the least relevant for Washington College. It is designed primarily for much larger institutions, in which students are too numerous to expect personal advising relationships to develop between faculty and students.

IV. Already Happening at Washington College

E-Textbooks and Open Educational Resources: In our view, the era of e-textbooks and open source educational resources is already here. Accordingly, LAT and other offices have shifted human and financial resources in a direction that supports this broader trend in the Academy.

Hand-held Mobile Devices: The use of hand-held mobile devices for pedagogical purposes is already being used by some faculty for instant polling and analysis, legislative simulations, and as clicker response devices. As disciplines continue to develop low-cost apps that suite specific disciplinary purposes, we can expect that their use will expand. With this said, we should not expect that the use of mobile devices will be ubiquitous. Many faculty see time in the classroom as a rare (and increasingly rarer) opportunity for students to unplug. By making use of academic technologies outside of the classroom, we can have greater opportunity for what Jose Bowen describes as “teaching naked,” i.e., unplugged face-to-face engagement inside the classroom.³

V. Worthy of Further Discussion

Adaptive Learning Technologies: Adaptive technology allows students a non-linear way to interact with and learn content. In some subject areas, built-in opportunities for content-support, resources, and remediation can assist students in making progress toward content mastery. Advanced adaptive learning technologies anticipate the types of support needed by the student in response to previous performance. Adaptive technology is relevant to students with disabilities and those who need this level of support. It is in this respect that being able to “personalize” the learning experience outside of class is appropriate, as it enables the student to have some control over the pace of learning and gain access to just-in-time resources. In general, such support helps us accommodate the natural variability of college students. This type of accommodation for all learners is a defining principle of Universal Design for Learning (UDL).

Assistive technology is another relevant digital technology for students with disabilities. Assistive technologies, such as text-to-speech and speech-to-text software, screen readers, and smart pens for recording lectures can aid students with learning disabilities, and may have broader application beyond this student population. We have already started leveraging assistive technology by providing the Read & Write Gold literacy support software to all learners on campus. A fuller integrating of assistive technology into the classroom may be possible, but would require a broader cultural shift toward Universal Design for Learning principles.

Implementing the above mentioned technologies will take dedicated time and directed attention so that faculty and staff can see the possibilities of an integrated digital technology future. Extensive training of the underlying pedagogies that would support UDL and time to have deliberate discussions regarding efficacy and implementation are pivotal to the successful implementation of digital technology initiatives. The Library and Academic Technology (LAT) staff will need significant time to research, develop, and test LMS and adaptive learning components and materials. As far as resources, there will be some cost involved to purchase the software and hardware needed to augment what we already have in place – Canvas. That being said, the primary resource needed to launch us into the future is people. We will need additional faculty and staff willing to lead the initiatives - content experts, instructional technologists, media designers, etc. – in order to create and facilitate training; create and implement content; and troubleshoot issues and provide support.

Concerns about over-personalization and modularization:

We are excited about the ways in which we can use educational technology to serve an increasingly diverse population of learners. That said, some aspects of the “personalization” trend trouble us. To learn, there are some things that we tend to do “on our own,” such as reading the text in advance of coming to class and developing a first draft of a writing assignment. But the learning process, and in particular the process of acquiring a liberal education, is a fundamentally social process. We read the text deeply so that we can discuss it
with others and engage in the learning that can only happen beyond the text. Similarly, learning to write well is a social and iterative process, ideally not only between an individual student and a single faculty member, but among a community of scholars.

Further, it is in the social setting of classroom environments, faculty-student mentoring, and student-to-student collaborations that we foster the values and habits of mind essential to the development of civic engagement and citizen leadership: integrity, determination, curiosity, civility, and moral courage. In short, to over-personalize learning would be contradictory to our mission. Further, an over-personalization would be counter to our goal of improving student engagement; NSSE, for example, places great emphasis on common learning experiences. As teachers we want to find multiple pathways for a student to gain access to difficult material, but once that access is gained, we will expect the student to participate in the community of learners that constitutes a course. (To gain a foothold in a difficult text, for example, I may benefit from watching a faculty-generated mini lecture on the topic first. But I still must do the reading so that I can discuss the text in class. The mini-lecture video is an assist; not a substitute.)

Interestingly, an overly personalized notion of learning is at odds with the “T-shaped” student that Valenti describes—the student who is able to cross boundaries of disciplines and systems by repeated opportunities to engage in teamwork, cross disciplinary communication, and collaboration. Given our mission and our educational values, we believe that we should be offering a clear alternative. Education is, literally, a drawing out from the self, an enlarging of the self by relation to what isn’t the self. Courses certainly need to be adaptive (adaptability is a liberal learning skill and value) and engaging, but should not be personalized in the senses described by Brown.

Similarly, we are skeptical that higher education is decisively moving toward post-course modularization of knowledge, or at least, it is clearly not moving in that direction at Washington College. It is true that educational technology allows us to divide content into more easily digested chunks, but as we describe above, content delivery and acquisition is but one early (and relatively low level) step in a process of liberal learning. There is some irony in the fact that modularization of knowledge moves learning backward toward a more traditional model of “education as reception,” in which the student receives information and reports back on what has been received. We believe that meaningful, transformational educational experience needs to balance reception with production. Yes, knowledge has to be acquired in this process, but students engaged in a liberal learning environment are also the generators of new knowledge; new discoveries. In other words, at Washington College we are shifting away from the model that casts learning as receiving (only), and toward a model, as we describe above, of learning as creation, making, producing, discovering, and collaboration.