

1. Student demographics - In 2030 what percentage of students will be attending UW online or virtually, for the majority of their courses?

- a. 16 people - < 30%
- b. 5 people - 31-45%
- c. 6 people - 46-60%
- d. 2 people – 61-80%
- e. 1 person - > 80%

2. Student Demographics - In 2030 what percentage of full-time matriculated students will be over 30 years old?

- a. 11 people - < 20%
- b. 18 people - 21-40%
- c. 1 person – 41-60%

3. Imagine undergraduate education in 2030. What technologies will be central to providing efficient world-class undergraduate education?

- a. Fully wired classrooms; fully wired and equipped dormitories; capabilities to provide classroom instruction to both in-person and online (or tech based of some type) at the same time, regardless of whether the student is in Seattle or Nairobi. Textbooks in their current (hardback) form will be nostalgia and for alumni only. All materials will be in electronic format, and contained in a medium that includes all other connectivity tools.
- b. Office hours. World class research opportunities. Technologies for teaching will be largely irrelevant. We'll have Power Point version 35 or 39. Consider the following: Why would someone pay for college in a world where (based on a projection assuming that things don't totally fall apart) any course can be had for free or nearly free online? Why would someone pay to sit in a lecture? They won't. They'll pay for interaction with faculty and high performing students, and to purchase prestige, and for the opportunity to engage in high-impact networking. Inexpensive public schools will either gravitate toward a mostly-online community college model or toward a high-prestige private school model. The middle ground is already getting pretty thin. One model would be to accept many but fail many, in order to create value in the degree. It's an older model for running a university, but one that may return.
- c. Technologies that enhance quality, efficiency and time of the in person, in classroom, in lab experiences.
Every class will have an Internet/web portal for disseminating information (hard to believe that not all do today).
Next generation of Kindle (or other brand) electronic reader will be used. However, how this is used relative to or in conjunction with laptops will be interesting.
Higher education throughout the country (and world) will come to a crossroads that will require a major self-evaluation about how technology helps (or hurts) our mission. There is

a fine line between leveraging the efficiencies gained through the use of technology in the academy and the downsides associated with the "hassle" factor (we're not all network administrators) and unintended ways that tech takes away from the learning experience by forcing students not to think for themselves.

- d. Cloud computing. E-books. Decentralized computing. Excellent teachers equipped with flexible IT tailored to their specific needs.
- e. I don't think Questions 1-3 paint the right landscape, or a clear landscape. In (1), for example, are we talking about full-time students pursuing a Bachelors degree? My view is that we will very rapidly begin to offer "specialized certificate programs" for fee. Many of these will be online. There will be a lot of pressure to allow students to assemble these into a Bachelors degree, and we will succumb to this pressure. Entrance and placement will be based upon competency exams; secondary education will change greatly as the public schools cease to be able to provide anything useful beyond about 9th grade. The equivalent of our freshman and sophomore courses will be offered online, by us and by others. There will be inescapable demand for us to offer course credit for demonstrated competency in areas corresponding to our traditional "large lecture courses." This will destroy the economic model under which we operate, in which cheap lower-division instruction cross-subsidizes expensive upper-div insc.
- f. I think the real question is, "what is the balance point for efficient institutional "learning" delivery to education consumer "convenience" expectations and necessity. The networking of (whatever) technologies around the campus experience, online learning and in-the-field internships will be the three-legged stool that will come to define the quality and relevance of the academic experience. Each leg of the stool will require an organized "socialization" component to re-integrate diversity experiences.
- g. I'm guessing that universities will choose to "share" the best lecturers. Thus UW students could watch a course at Harvard or Idaho.
- h. Why do you not ask a similar question about graduate education? These are huge issues there -- so you should be getting advice and information there, too. Graduate students represent 25% of our current students and that will probably increase proportionately by 2030. Increasingly, the 2030 versions of what we see know: video, multimedia, slides, quick-response questions (a la clicker).
- i. We will be back in a "mainframe" computing environment, except that instead of a mainframe box, it will be some successor to the cloud. Folks won't know or care where their computing takes place, they'll be accessing it via a universal interface with a very thin

or nonexistent client. However, "world-class" and "efficient" don't belong in the same sentence relative to undergraduate education. Undergrads will still need to grow up while at college: to proceed with their intellectual and emotional development in a challenging but safe environment. To be sure, all online all the time will be available, and may suffice to replace large lecture classes with class sizes over 25, but class time in seminars and small <25 classes, labs and group projects will be very important to achieve world class. Talking to one another, in person, face to face, and working together in each others' physical presence will continue to be the primary "technology" of a world class education.

- j. Knowledge management tools will be crucial for the future - with the expansion of knowledge and information; education will not be able to convey all that an undergrad needs to know in the future. This means that we will need ways in which we can actually manage in a qualitative and technologically accessible fashion - and helping students master both. By 2030, artificial intelligence will be pervasive - and may also present a challenge with respect to management of artificial intelligence and having the technological & intellectual capacity to do so.

Social networking will have evolved in ways that the virtual and physical world will converge in more planned and strategic ways ---the concept of meaningfully connected communities will be more well defined.

Given this - technologies for managing technologies will be important - beyond firewalls & spam mgt. Technologies that support self management will also be important: everything from health, relationships, finances. citizenship, etc.

4. Imagine online or virtual instruction in 2030. What technologies will be central to leveraging the expertise of our top faculty, to support broad learning communities?

- a. Students will pay a premium to be instructed in person or by really effective telepresence by people who really know their chosen fields (real CXO's in the business school, for instance).

Online and virtual instructions are going to be commoditized. Places with very high prestige brands (Harvard) will be able to charge a significant premium for mostly or all online curricula. If we're where Berkeley is today in 20 years, we might be able to do the same. But branding is going to be the key for online success, since it's hard to make the research advantages of a first rate school really play out as strength in online courses. How do we create strong networking opportunities between students in an online course? If Wellington was right and Waterloo was won on the fields of Eaton, then it's perhaps fair to say that the US is governed from the bars of Cambridge. How do we replicate that offline interaction online? Does college become an MMORPG? I don't know.

- b. There will be an overwhelming glut of good quality educational content available to anyone online. Only a small fraction of people will have the ability to use it well, without the intervention of expert faculty. Thus, creating a higher value education will be linked to the ability of faculty to be the organizers, interpreters, and analyzers of content that is matched

to a student's learning styles. It is possible that one will be able to take an online surveys that accurately predicts which instructor's teaching style is most effective for a particular student learning style, and then learning communities will be built based on these matches rather than by physical location.

- c. To empower faculty and students will be more about clear, detailed and current inventories of resource assets and access to those resource assets. Again, it's about empowering networking so the "like-minded" can self-select either from personal interests or commercial incentives. Technology, per se, is not relevant ... easy access to a well indexed networking, technical and social, is.
- d. Virtual instruction won't work in labs. And it's not going to be about "our" top faculty, either. Why take physics from a T.A. when you can take it from Stephen Hawking? Why take a lecture from UW's best, when a lecture on the same topic by a Nobel Laureate is available online? Tenure needs to die, and the UW needs to focus on getting the "best" either in their labs doing research or in front of students in small classes teaching.

5. Long before 2030 our students will be using portable e-identities, which will make our identities, preferences, accounts, etc. available through the cloud, wherever we are. In 2030, what are the most significant ways these profiles will be used as part of the UW community? (academia, administration, campus safety)

- a. My concern is where they will not be used. Students should feel free to openly discuss important and sensitive topics, without the fear that their opinions may come back and haunt them in the future (e.g., when they run for a political office). I think the shift to e-identities should be taken with great caution.
- b. I don't understand the question.
 - i. This response was included because it was common across all 4 Survey Rounds.
- c. If we solve the problems with e-identity (which I'm not fully confident we will), services will be available without any additional logon once signed in, which will make virtually all authorized activities seamless online. Course registration, grading, assignments, online course environments, all will be available for everyone depending on their level of authorization. What a wonderful world it will be.
- d. Definitely academics (save documents, create portfolio of class work, etc) and certainly administrative logistics (probably easier to see who is in class, assigning grades etc) and for safety reasons (classroom and building access, late night studying on campus)
A concern: security of e-identities.
- e. Oh boy! So much to talk about - Top faculty will also have their research results and papers published on line rapidly after peer review, also on line;

- Their innovations will be streamlined and rapidly disclosed on line, and (hopefully) the patents will also be disclosed on line;
- there will be companies, looking for patents to purchase on line.. So universities will have to adapt on streamlining their faculties' innovations, IP, and patents (I know this question is not asked - but it was tempting to answer it anyway);
- No sabbatical for top faculty as they won't have the time to do that.. they will have to take a couple of days here and there to take advantage of the places as they travel;
- Most of the times, the top faculty will not have to travel to a conference as on line conferencing will be much more efficient; etc.

- f. The obvious areas are simplifying administration and increasing security. The most interesting application of e-identities will be in having them as life-long identities that track to the student's detailed educational career results (both formative and summative), enabling customized educational delivery at all times. This benefits the students and instructors, and also results in data showing policy makers at local and national level what's working and what's not across the entire educational system.
- g. Profiles will be used across the spectrum, to capture and retain information about everyone who contacts the UW. We will need integration from applicant (Admissions) to SDB, to alumni, also including H.R./Payroll for faculty and staff, patient information from UW Medicine, all of our affiliates like KEXP, KUOW, Burke, Henry, etc., and vendor relationships. Rick Redman, CEO of Sellen Construction, which is currently building Paccar Hall, will have an identity that includes his student, alumni, donor, volunteer, and vendor relationships to the UW, including his connections to various wives, children and grandchildren. Any time anyone connects with the UW in any way, they'll have an "identity." Not just students.

6. Will broad adoption of online instruction materially change the economics of the UW? What are your thoughts about the new balance between changes in the number of undergraduate and graduate students, changes in tuition, changes in TA roles, and changes in faculty/student ratios?

- a. Broad adoption of online instruction will only be cheaper for UW if faculty is trained in technology. If they are not, then I cannot see how it will be more cost effective. There will need to be a larger grad/undergrad ratio. Tuition will likely be much higher. TA's will become almost junior faculty as graduate students get older and time to completion of PhD gets even longer.
- b. Higher education throughout the country (and world) will come to a crossroads that will require a major self-evaluation about how technology helps (or hurts) our mission. There is a fine line between leveraging the efficiencies gained through the use of technology in the academy and the downsides associated with the "hassle" factor (we're not all network administrators) and unintended ways that tech takes away from the learning experience by

forcing students not to think for themselves.

I am generally of the belief that in person instruction--whether in the lab, classroom or field--cannot be wholly replaced by the computer.

- c. Online instruction currently has a high start up and little impact on the overall economics. However, in the future, productivity tools will enable the creation and maintenance of online instruction to become increasingly cost effective. The challenge will be to effectively balance the need for in-person instruction and online delivery. There should be courses (perhaps 100 level to start, particularly those courses that have 100-200 students per class where that materials are largely baseline and less analytical) that should always be offered both electronically and online. TAs will largely consist of folks that are quite adept with technology and thus comfortable with providing instruction and assistance.
- d. Yes, but I'm not sure how. On the one hand, it should be possible to teach larger classes and more students with existing resources, on the other, I'm not at all sure that the costs for creating the virtual environments and maintaining and operating them will be offset by the increased revenues. We may find that the infrastructure takes up more of our resources than we expect, and that although our reach is farther, our costs are also greater. It will be interesting to track this over the next 5 years as online instruction grows and see what patterns emerge.
- e. Yes. There is no substitute for the one-on-one human "engagement" for high quality learning. Inherently, the pool of instructors (all types) that will have that unique engagement skill set will be smaller and probably shrink in the future. Enhanced differential compensation will be necessary to reward those engagement skills. That means that quality of instruction will be defined as a smaller institutional core and with limited access. The balance between political and financial considerations for tuition will remain unstable. Online instruction as a cash generator subsidy for campus operations diminishes the learning experience value position.
- f. The rite of passage of students will mean a campus life and environment will not be easily abandoned. Online instruction will continue to grow but it will not exceed 40% of all instruction. Regarding balance of UG, Grad students at UW I believe a 50/50 split will become the norm.
- g. I don't think these adoptions will NECESSARILY change the economics -- but since the current economics are not sustainable, we'll have to use these adoptions and anything else to disrupt the current funding models.
In no particular order:
(1) Residential, immersive educational experiences seem to be esp important for undergrad education of young adults; that role needs to continue.
(2) The UW (and many institutions) can develop much broader curricula for post-

baccalaureate education, using a range of online possibilities.

(3) I'm curious about the different ways of making this work financially. Yes, a lot of content is available for free -- and our own personal experiences point out the importance of (a) structured curriculum, (b) carefully designed pedagogy, and (c) encouragement, feedback, and assessment for the individual to gain disciplined knowledge and approaches. So it's (a), (b), and (c) that serious students will pay for.

- h. The big issue is sustaining the UW's relevance to the students we most attract to our credentialing system. The cost of education is not sustainable, so we will need to find "long tail" methods for cost efficient quality. Quality that returns relative value versus our competitors will attract students; so we need to continue to focus on efficient ways to provide the value that the community determines to be of high quality. Technology that permits them to organize the knowledge they are receiving with minimum effort. The fundamentals of learning do not change just their delivery and how it is retained.
- i. Ah! I addressed this briefly above. Yes, we're totally screwed. There was a terrific article a year ago in the Chronicle of Higher Education which pointed out that what the Internet had done to newspapers, it was about to do to higher ed -- namely, destroy the economics of the business by stripping away a cross-subsidy (advertising in the case of newspapers, cheap lower-division instruction in the case of universities).

7. In 2030 what will be the minimum technology platform for any research? (For example, today these would include a laptop and a wireless connection.)

- a. Whiteboard is the most important thing. After that, whatever is the predominant computing platform at the time (i.e., the 2030 equivalent of a laptop)
- b. Laptop and wireless connection would seem to be the minimum.
- c. Same, but wireless connection has to be much faster.
Tablet with good voice and handwriting recognition.
Instant boot-up.
Laptops lighter, less fragile, cheaper.
Instant access to good-quality translation.
Portable immersive technology.
- d. I don't know if I can even guess what our technology would look like that far ahead, but based on what I see now, I would expect that all the forms of interactive inputs we have now (keyboard, mice, etc.) will be replaced by voice and gesture systems, and that devices for visualization and interaction will be either so small and portable that we won't even notice them, or large enough that they are part of our physical environment (room computing). Wireless will be the norm, though I expect bandwidth to be so much larger than today that it will be essentially a non-issue.

- e. I envision that the evolution of smart phones would allow us to run much of our technology through these interfaces with computational backends provided by the university. Wireless technology incorporated with these smart devices will be, perhaps, the essential ingredients.
- f. I cannot even imagine the kind of devices people will have for accessing the information cloud 24/7/365. However, in my world, the minimum tech platform for research is the ability to safely handle chemicals. However, microfluidic systems will make the quantity of reagents, making safe handling more straightforward. Simulation will also supplant parts of the chemical research.
- g. It depends. Poets can still ply their trade with a quill, an ink well, and parchment. Experimental physicists will need supercolliders. Folks will continue to need a device and a network connection to communicate with the broader community and access networked resources.
- h. Similar to now but much faster and more oriented to the human body. Interestingly the telephone that most of us grew up with was a good approach to interfacing with our bodies even down to the ability to hold the handset in the crook of the shoulder allowed one to listen and talk and do other things. Small cell phones take one hand out of action. Some hands-free devices are not better if one needs to wear an ear piece. Minimum platforms will be human-oriented and allow us to be in many places in the world simultaneously, sending, retrieving, processing, and calculating data with visual, aural, and haptic feedback systems.

8. In 2030 what technologies will be required to support the researchers who are the most demanding technologically? (Today these would include our eScience researchers.)

- a. There will still need to be large data repositories. However, these repositories will need to be accessible, organized and available to anyone, anytime, with minimal intervention to be useful (i.e., self-service).
- b. Massive data storage, probably in the cloud, direct access to authorized data sets and analytical tools through e-identity. I see the bigger problems to be solved not in the technology but in the management of the information and data that will be generated through the research and the analysis of the results.
- c. Large amounts of money and well-managed shared facilities. Anything beyond that is pretty speculative. Big endowment is the cure to all ills.
- d. No telling, the evolutionary aspect of this is exponential.

- e. Astrophysicists need a Hubble, nuclear physicists need a supercollider. However, most really cutting edge researchers design and help build their own lab equipment. It's not a set piece. What we'll really need is the equivalent of a machine shop, where tool and die makers build what is needed. By the time you build and equip a lab, it's obsolete, so it's not about more labs, it's about more flexible space and more tool building capabilities in whatever context we're addressing.
- f. In the world of software and hardware, we also have the "warm ware" resource = people. The real challenge will be in this domain - to find ways to invest in those who will make good use of the most demanding technology and offer solid platforms for everyone. As we move forward, we need to ensure that there is technology that supports the art historian, as well as the scientist - and that the value is reflected in the decisions and resource allocations. For me, research is about discovery; our university is about discovery across all of the human experience; and our technology needs to support the work of all who responsibly, creatively, effectively and creatively discover and disseminate.

9. Who are our most important international research partners over the next 20 years?

- a. High-tech companies in India, China, Israel, Japan, Korea, Brazil, Europe
- b. Not sure how to answer this, but I suspect that international may mean something quite different in 20 years. Certainly major research institutions, corporate entities, governments and non-profits will all be part of the mix.
- c. Schools wherever we decide to build a brand. I'd suggest israel, india, taiwan, the philippines, chile/argentina, and former eastern europe as a first cut. Vancouver BC is an under-exploited resource.
- d. Puget Sound/Pacific Northwest is the gateway to NAFTA. Canada and northern Pacific Rim nations.
- e. International research partners could be any one around the world.. not a single country will have the dominance.. the world will be flatter.
- f. BRIC nations and the world's poorest nations.

10. In 2030 what technologies will be central to supporting international research collaboration?

- a. Massive cloud data storage, data visualization tools, immersive online environments, collaborative/interactive online meeting spaces, robust security and authentication programs, creative backup and restoration technology

- b. Instant translation; more bandwidth between continents and countries; quicker and more flexible publication.
- c. Better than the CISCO virtual meeting environment.
- d. Not sure, specifically. However, tools should support efficient and effective collaboration that today, with some partners, is almost non-existent due to gaps in bandwidth.
- e. Personal relationship networking based on common academic and commercial interests.
- f. Improved video-conferencing
- g. Cyber-security of intellectual property....via whatever the high bandwidth modems that will be utilized
- h. Much of the same as in #7, scaled down to match then-current international least common available tech.

11. Imagine industry partnerships and US research collaborations in 2030. What technologies will facilitate seamless research collaboration across institutional boundaries?

- a. We badly need less cumbersome legal structures to enhance such collaboration. Technology is not currently the bottleneck. IP, industry contracting, and similar legal issues are.
- b. Secure connections between the PIs at the UW and PIs in companies are the key ingredients. If secure "shared" servers and resources can be provided, the exchange could be seamless.
- c. Online collaborative tools with transparent IP management
- d. Better markets/exchanges where researchers and industrial needs can be matched. Improve patient privacy protection while at the same time expanding access to clinical data to promote biomedical research.
- e. Not sure and/or too general to answer.
- f. Well developed social networking tools and organized consistent outreach to private sector industries. A new open collaboration intellectual property culture is essential.
- g. Anything that allows data and materials to be watermarked or coded with provenance and IP use rights such that the data and materials can safely and quickly be shared. Pre-negotiated master agreements between collaborators, and perhaps even "most preferred

nation" status with certain collaborators would cut down the time and effort now required to make sure the proper MTA's and IP agreements are in place for each transfer under current normal systems. The last is not technology per se, but would be a good innovation.

h.

12. What support will our staff and researchers need to facilitate the broad adoption of new technologies across the UW?

- a. We've seen an increase in the ratio of support staff to faculty. IT, data wranglers, staff running shared facilities, etc. This will continue. Technology does not reduce commitments; it allows us to take on more. Thus we need people to manage the tech. This will not stop soon.
- b. Ideally, the job description of most employees will change very little, if at all. Technology will improve efficiency, but not require a MS to use it.
- c. Infrastructure that can support secure, backed-up, access to all the data and information that is needed for seamless access to authorized online environments. That probably entails robust training/help systems (either virtual or physical), as well as 24 hour response systems for problem resolution.
- d. Convenient, self-explanatory teaching tools – trainings, classes, demonstrations.
- e. A clear, simple and defining value proposition, both culturally and financially.
- f. A support staff to help with upgrades and with educating faculty, students, and staff of new technologies.
- g. Resources to ensure that newest technologies can be adopted and access to these technologies in secure venues.
- h. UW will need to be **agile** and **cost-effective**. Today, we are neither, and we are headed in the wrong direction. For example, the creation of the College of the Environment is the **opposite** of agility -- new Schools and Colleges take years to create and decades to get rid of. We need to be able to bring teams together, and allow them to re-form as times change. Technology can certainly help with this. In terms of cost-effectiveness, the lack of **institutional** support for all things (but certainly technology) means that **either** people waste their time and are ineffective, or support is provided redundantly (and thus inexpensively and of varying quality). Better support is needed across the board, including at the leading edge.

- i. Standards, standards, standards! Eprocurement just went live with an ap that apparently only works with Mozilla. So now you need to check which browser you're using before you open a particular ap. It's stupid! We need standard technologies to adopt, that actually work and do what is expected of them. It's a business practice issue, not a technology issue.
- j. Some kind of custom tutorials (*not* classes) to use the new tech, plus some commitment to new platforms such that time invested in learning them is not wasted when the tech is replaced (or even updated) too quickly.
- k. Unlike almost any other sector of the world, universities don't invest in academic human resource development in ways that promote optimal use or development of technologies. I believe that we currently underuse what is available and need to understand why that is --- this is probably another warm-wear challenge.

13. Running a premier global research university will require frictionless processes for communication and planning at the highest levels. In 2030, how do you imagine new IT tools being rolled out amongst the UW administration?

- a. Poorly, as now. The university will never be able to attract the very best IT talent from industry, since they have a profit based mission and will always pay better than a university can afford for the support staff. Our society would have to change pretty radically for that not to be true anymore.
- b. Training training training! In my experience, new technologies come on board with little or no support, thus making it hard for people to get onboard with its uses. Things also change quickly and this leads to skepticism on the part of faculty to invest the time.
- c. That's a tough one-- it assumes that we will change human nature, which I don't think is possible in 20 years. We'll still have the necessary planning cycle, strategic planning, tactical skirmishes over resources and priorities, etc. What may help is a better way to shepherd the processes along through interactive online meeting spaces, but I really don't see a large change in the overall processes.
- d. I don't imagine because I still don't see how the major legal issues discussed earlier will be streamlined.
- e. Executive level administrators only lightly use available technologies, and that almost exclusively for communication. A lot of them are luddites or just ignorant at best, and get their technology suggestions from their children or staff. Even 20 years from now, exec. level admin. types won't be "digital natives."

14. Today we have the web, RSS, e-newsletters, Twitter, Facebook, etc. The next few questions address how we will communicate with various sectors of our community. In 2030, what technologies will be central to communicating and coordinating between UW and our industry partners, the state government, and our federal delegation?

- a. All of them. I see this only getting more varied with time. The trick will be to find the preferred communication mechanism for each situation and manage that well across all the platforms. Not an easy problem to solve and one that I think will get harder as we get more creative about this.
- b. Face time will always be the most valuable interface for the foreseeable future. Hopefully the technology will start making more time for that rather than less, but that's not the direction things seem to be going right now.
- c. Personal contact with relevant information. Provide flexible, creative and sustainable solution scenarios that address the value propositions of your various audiences.
- d. Technologies are irrelevant -- content is most important. Better filtering of what's important, better search to reduce amount of junk.
- e. Answer similar to some of the earlier questions: will need a good combination of high quality tele-presence / multi-point video capabilities, closed and public social networking, and ubiquitous access via desktop and mobile devices. All with a standards-based security model both for identity and for digital asset protection/management.
- f. They're going to drive that train, not us. It's also important to note that you don't just port your old style of communication to a new medium. We learned with email that it does a terrible job of conveying emotional nuance, and a lot of people mis-communicated on that account. Precision in writing has never been more important, yet these more abbreviated forms like twitter lend themselves to ambiguity. You're going to need different styles for different media, and some media will never be adequate for some messages. Moreover, trust will be more important than ever, and that will have to be established face to face first.

15. In 2030, what technologies will be central to communicating and coordinating between UW and our alumni and our donors?

- a. More electronic methods for fundraising. Snail mail of brochures, flyers, etc., will be a distant memory. Suggests a need to maintain up to date electronic (or whatever the medium is) addresses.
- b. Donors will always prefer face-to-face communication. Alumni will be happy with web or email based communication augmented by a strong UWTV presence.

- c. No idea for alumni. Probably some form of spam, just like now.
Probably face time with donors. Email hasn't changed that interaction all that much.
- d. Email, again, it's not how, but what. Drop the broadcast UW branding propaganda and create "communities of benefit" that add financial value to alumni/donors interests. Be a vehicle for real investment and not a hand-out whore.
- e. Their credit card numbers.
- f. Communication is important, but too much communication will irritate alumni and donors. The irritation threshold is different for individuals.
So we need some way to query alumnus and donors, asking them to set the level of communication.
- g. Whatever replaces whatever replaces whatever replaces Facebook, assuming it still takes 5-10 years for new social media systems to grow and replace the previous generation. Alum and donors will all be in the social media generation by then, or they will be effectively dead.

16. In 2030, what technologies will be central to communicating and coordinating between UW and our prospective students?

- a. Certainly the "cool" technology of that day -- converged devices running the equivalent of twitter in that time.
- b. Very hard to foresee. Will be cutting edge at the time because that is what young students often value.
- c. Students will have email addresses at earlier and earlier stages in their lives. The opportunity to connect much earlier and stay connected electronically will be critical. And, the challenge to create a brand and connection in competition with others will be significant, particularly for the best and brightest.
- d. Ability to "sample" the UW experience prospectively.
Better feedback from students as to what they want/need to improve match with what's offered.
- e. Getting grad students into K12 schools on a regular basis. Make it a part of their PhD requirement.
- f. Ever-evolving social media is likely the dominant means of communication with youth for the next few decades, until we get telepathy working...

- g. Might be useful to give prospective students a trial access to some classes, so they can see what we have to offer.

17. In 2030, what technology will we need to provide to attract and retain the best researchers? What technologies will make the UW a distinctive and compelling place to do research?

- a. Technologies that ease effectiveness, at a reasonable cost. Technology must not be in the way, but rather facilitate discovery. The ability to use technology to facilitate collaboration, across the globe, will be critical.
- b. Availability of highest technology for specific research areas (genotyping, imaging). Does not have to be in individual UW labs (could be shared resource), does not need to even be at UW or even in US.
- c. Centers of shared resources -- so that separate research groups don't need to purchase and maintain identical resources.
- d. Seriously, the best technology would be a big endowment. Money cures most problems in this regard.
- e. I'd have to answer the same as I did for the questions about research environments earlier. Without a fully supported and managed virtual research environment, no one will play. The standards will keep rising, and if we don't keep up, we'll be left behind.

18. We want our alumni to continue to be among the most productive people in their communities. What are the minimum technical competencies that our graduates should have?

- a. Fluency in using the current technologies available, enabled by us teaching them how to learn about them as they change. I think we need to focus on the latter as our primary goal, since we're going to be learning along with them. If we can develop students who learn how to learn, and how to use tools to achieve their larger goals, we will have succeeded. Emphasis should not be on the technology but on what they can do with it.
- b. How do you measure that? What's backing the implicit claim here?
I don't think we have the data to claim that this is true now. Let's not congratulate ourselves for something that we're not sure of.
Different strategies for revenue generation suggest different levels of qualification. Who do we want to compete effectively with?
- c. Our alumni should be well-versed in office tools, regardless of discipline. They should be able to use and understand how to interact with stored data.

- d. Too variable to answer, but the notion of "graduate" may be dated in a world in which learning is lifelong.
- e. I think the non-technical competencies are the most important: writing, critical thinking, ability to speak publicly and interact socially. Of course, people should also be familiar with the latest technologies.

19. The majority of technical advances will continue to be introduced in society at large, and UW will integrate these into our practice and provide these to our university community. What will UW do beyond what society does? In what areas is it important that we develop and deploy technologies ahead of society at large?

- a. Mission critical technology (instruction, research and patient care) should be "bleeding edge". Administrative tools should be utilitarian. We don't need to be trailblazers here. Just need to get the job done and done in an efficient and cost effective manner that is transparent with easily accessible data and information.
- b. Technologies specific to specific fields of research.
- c. In our role as a research university, I expect that we will continue to be the innovators in technology, and to use those innovations ourselves as part of the research we are engaged in. As we create new technologies, we should embed them in our teaching and internal systems to understand better how they work and don't work, and take those learnings out into the world for others to benefit from.
- d. I believe the role of the non-matriculated student must increase so that the UW does become the most important source for deploying emerging technologies to society. There is no better place for this to happen than the UW.
- e. UW can be an experimental lab for new technologies before they enter society. We should be willing to experiment with something new.
Green/sustainable new technologies are a good place to start.
- f. Provide a truly balanced and clinically objective framework and context for discussion and debate. It is the greatest strength of a university education that has been sadly diminished.
- g. I don't see this happening outside the lab. It very nearly broke UW Technology to figure out how to support Mark Emmert's Blackberry. Cell phones were widely available for eight years before we added the capacity to list a mobile number to the online UW directory. Medicine and science will deploy cutting edge tech, if they can afford it, before it becomes widely available, but this will be in very specialized applications. In popular, public, consumer technology, we lag and will continue to do so, because we are, at heart, very conservative despite our politically "liberal" leanings.

h.

20. We're looking forward to your participation in this critical focus group. In addition to going over our responses to the questions above, we will look at business models and investment decisions. Rank the importance of the following topics for us to take up in our meeting. Please rank each from 3 (most urgent) to 1 (can wait).

- a. Existing models for funding university technology (e.g. fees & taxes)
 - i. 5 people - 1 (can wait)
 - ii. 11 people - 2
 - iii. 14 people - 3 (must discuss)
- b. New models for funding university technology that are possible today
 - i. 2 people - 1 (can wait)
 - ii. 8 people - 2
 - iii. 20 people - 3 (must discuss)
- c. New models for funding that will arise from the changing character of education
 - i. 4 people - 1 (can wait)
 - ii. 9 people - 2
 - iii. 17 people - 3 (must discuss)
- d. How essential is it that UW remains at the vanguard of technology enablement?
 - i. 5 people - 1 (can wait)
 - ii. 7 people - 2
 - iii. 18 people - 3 (must discuss)
- e. How important is it that our business models be able to fund leap-frog implementations versus incremental improvements?
 - i. 5 people - 1 (can wait)
 - ii. 10 people - 2
 - iii. 15 people - 3 (must discuss)
- f. If our wish list is a \$3B proposition, and we can only raise \$2B, what do we prioritize?
 - i. 3 people - 1 (can wait)
 - ii. 11 people - 2
 - iii. 16 people - 3 (must discuss)
- g. How do we engage alumni donors who may have attended UW virtually?
 - i. 14 people - 1 (can wait)
 - ii. 14 people - 2
 - iii. 2 people - 3 (must discuss)