

Moving To the Future Now

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Summary:

By definition, a Big Idea is disruptive in nature. Therefore, Big Ideas are difficult to implement. However, the act of implementing a Big Idea in a

large scale institution should result in a complete movement away from business as usual (BAU) within that institution. For the University of Oregon (UO) (and most other state research universities) BAU, with respect to undergraduate education, consists of the following eight components:

1. 180 Credits toward degree within departmentally based programs
2. A credit portfolio entirely dominated by coursework (40-45 courses)
3. A disconnected general education requirement existing only to expose students to other disciplines at the introductory level (e.g. X101)
4. Lecture based curriculum delivery in outmoded and overcrowded classrooms
5. Isolated student learning with emphasis on competition for grades and not on collaborative problem solving
6. A legacy based curriculum designed for assimilation into the Post WW II world
7. One professor per course
8. Faculty that are physically (e.g. buildings) segregated into their associative disciplines (e.g. humanities, social sciences, natural sciences, professional areas)

This **Big Idea** proposal details a process and the development of new tools and structures that will allow this legacy undergraduate structure to be swept away (as it surely will be eventually by competitor institutions) to be replaced by the following set of defining components:

1. A credit portfolio which contains a significant number of project based credits (e.g. real undergraduate research, field experiences, interns, community based learning, etc) and a capstone expression of these projects.
2. An interdisciplinary based connected general education pathway that leads to interdisciplinary based degree programs that are better connected to real world problems
3. The creation and use of robust instructional technology tools that facilitate and support collaboration among students in both physical space and network space – the Academic version of Facebook.
4. Instructional teams that replace the one professor model.
5. A classroom redesign that promotes flexibility, collaboration and inquiry based learning.
6. The slow disintegration of departments and re-integration as Centers of Interdisciplinary teaching, learning and research based on real world problems.

If colleges miseducate their students, the nation will eventually suffer the consequences. If they can do a better job of helping their students communicate with greater precision and style, think more clearly, analyze more rigorously, become more ethically discerning, be more knowledgeable and active in civic affairs, society will be much the better for it. – Derek Bok (Our Nation's Underachieving Colleges).

Background and Supporting Evidence that Change is needed:

In 1998 the Boyer Commission (funded by Carnegie) released their detailed report titled *Reinventing Undergraduate Education: a Blueprint for America's Research Universities*. Many universities (including the University of Michigan - http://www.ur.umich.edu/9899/Oct07_98/3.htm) held roundtable discussions on the voracity of this report and its various implementation possibilities. About this same time, the University of Oregon was going through an exercise broadly similar to the current Big Idea process. This exercise was known as the Process for Change (see <http://zebu.uoregon.edu/p4c/index1.html> for the only surviving documentation of this exercise and the final report) and the logo below sets the agenda and the various milestones - although rather little was implemented and this process is mostly a historical footnote:



While institutional planning and self-reflective studies are relatively easy to implement and engage campus with, actual institutional change is clearly (and self-evidently) difficult and the barriers to change are best described by three basic factors:

- Insufficient resources to support change – often times this is related to the inability to support higher instructional costs and/or leveraging more favorable faculty to student ratios.
- Lack of recognition for the need to change – this is likely the biggest obstacle and it all depends on whether or not the 8 items listed under BAU above are perceived to be okay to maintain for the next N years. **The entire point of this Big Idea proposal is to suggest that BAU is no longer viable in our rapidly changing world.**
- Faculty resistance to anything other than BAU – faculty inertia to change for either legitimate or idiosyncratic reasons is always greatly underestimated in any planning process. This is self evident in faculty use of IT where IT is primarily used to support traditional teaching methods.

Resistance to change is not specifically UO-centric but is an affliction associated with most all state research Universities. Despite the well thought out points of the Boyer report, it has had relatively little effect on producing any systemic reform in undergraduate education though some networking efforts directed toward such reform are now in place (e.g. The Reinvention Center <http://www.reinventioncenter.miami.edu/>). So

clearly change is difficult but as emphasized in Derek Bok's 2007 book: *Our Nations Underachieving Colleges: a Candid Look at How Much Students Learn and Why They are Not Learning More* – the current system is **no longer producing relevant or responsible citizens of the world**. This situation, therefore, cries out for change in significant and impactful ways. With respect to this need for change, the 10 principles in the Boyer report can be distilled down to 6 steps, the first of which is fundamental, that the Research University needs to perform in order to evolve.

1. Make Research Based Learning the Standard – this can also be defined in broad terms as replacing passive, fact-based learning by active inquiry methods based on either doing research or accessing research.
2. Starting in the freshmen year, inquiry-based learning, collaborative problem solving and research, and presentation experiences need to characterize the whole of a research university education
3. Research universities must remove barriers to and create mechanisms for much more interdisciplinary undergraduate education.
4. Use information technology (IT) creatively to both promote collaborative work and improve the link between course work and the establishment of effective communication skills.
5. Culminate the undergraduate experience with a Capstone Experience - The final semester(s) should focus on a major project and utilize to the fullest the research and communication skills learned in the previous semesters.
6. Research universities should foster a **community of learners**. We must find ways to create a sense of place and to help students develop small communities within the larger whole rather than reinforce the isolation of student learning

Not surprisingly, this list does not have much overlap with the BAU list above. Change and innovation are therefore required to keep undergraduate education relevant and to keep the UO competitive in attracting the best undergraduate minds available. The biggest first step towards change and innovation is the honest admittance that BAU no longer works and that new academic structures and programs are required. In terms of the Big Idea test, once again, ideas that merely seek to augment the BAU structure, in the end, can only produce incremental results.

Plan of Action: Moving Away from Legacy towards Integration:

The core of the research university emerged from Post WWII priorities to invest more in science and engineering so that America would retain its competitive advantage and the nation would be rich in technical innovation. While this model has served the nation well over much of the past 60 years, the world is now in a new stage of complexity and much of our legacy based post WW II curriculum is no longer relevant to the actual state of the world in 2010. In addition, the State research University is vastly underfunded compared to the 1950-1990 cold war period of basic research. This has set the stage for our new financial reality which calls for innovation and **recognizable** change in our various educational pathways so as to effectively differentiate the UO from its competitors. When viewed externally, this differentiation should include **new degree pathways** (see box

below for one example) , new kinds of educational experiences, new classroom design, innovative uses of technology to enhance teaching and learning and an emphasis on collaborative problem solving and document production. All of these components should integrate seamlessly to produce an overall undergraduate experience that a) **has an overall increase in scholarship and scholarly activities compared to the current 180 credit hour model distributed over 40 or so courses (many of which are meaningless) and b) produces more responsible citizens of the real world by better engaging them with real world problems.** The achievement of these two outcomes would like produce a more competitive and visible institution among the quagmire of institutions still imbedded in BAU and unable to exercise any vision to find a way out.

To accomplish the principles espoused above, I suggest that the long term academic plan of the UO should consist of radical change in its academic structure and the methods by which students earn credit toward degree. These changes have to be phased in using various practical criteria (budget restrictions, space restrictions, faculty reluctance, new program approvals, etc) but in principle these goals will produce transformative change in the overall undergraduate experience and will, in the end, distinguish the UO as a unique, interesting, and creative undergraduate institution. With that in mind, we offer the following six goals of transformative change –the first two of which we elaborate as they are implementable in the near term.

Goal 1: Reforming General Education: (see also http://www.reinventioncenter.miami.edu/Spotlights/GE_Spotlight.htm)

General education requirements at the research university are designed to introduce students to topics that are broader than their own interests. While this goal is laudable, the implementation mechanism is exclusively a mass lecture in Subject Area 101 (hereafter X101). The X101 structure is far removed from the ideal of a meaningful education. The current world of research and scholarship is no longer so easily divided into distinct disciplinary areas, and it is becoming increasingly complex as the problems under study become more intertwined. At the same time, the mass lecture approach suffers from a number of well known pedagogical problems, including, but not limited to a) encouraging passivity in students, b) encouraging wholesale student memorization as the lecture content is mostly static in nature, c) vesting the instructor as the primary information source, and d) largely eliminating cooperative or peer learning possibilities. To do better I propose the development of general education courses that are interdisciplinary in nature, based on some interdisciplinary thread (e.g. energy and society; the moment of discovery; media, literacy and science) that are taught by a faculty

The New UO Degree in Pacific Rim Management:

Required elements:

- **Language Proficiency in Chinese, Japanese, or Korean**
- **Background in Asian history and political structures**
- **Advanced courses in international economics and global supply chain methods**
- **Advanced courses in International Law**

team, and emphasize collaborative inquiry and presentation on the part of the students. Such a structure will better allow for students to connect with the **scholarship of ideas** rather than simple memorizing the content of X101 for their general education requirement. Paradoxically, one of the outcomes of the Process for Change was the introduction of the “Pathways” concept for general education. While the concept was fine, the implementation consisted only of existing courses being tied together with a marketing label slapped on them (e.g. Science, Law and Order) – that is, no new courses were created to enhance and center the pathway concept on real world threads. After this 4 year experiment, the Pathways program was cancelled at the UO. However, UCLA (<http://www.college.ucla.edu/ge/>) has embraced this concept and shown that it can be scaled to include a substantial fraction of undergraduates. Key to their scalability is the use of advanced graduate students as teachers in various capstone and integrative seminars. The use of advanced graduate students as part of the instructional faculty is also an element in the Boyer report and the UO could do a lot more in this regard. In turn, this is a valuable addition to the resume of the individual graduate student.

Goal 2: Instructional Technology as a Tool to Facilitate Collaboration

Our students are now facile with various forms of social networking products and are comfortable with using them as a basic means of communication, making new connections, and publishing their interests and their creative work. The best example of this is **facebook.com**, now just three years old, and studies show that undergraduates spend as many or more hours on Facebook than they do engaged with course material. This then begs a simple question: **Why not develop an IT product like Facebook but with an academic focus?** The associative nature of Facebook allows students to discovered additional people (i.e. additional resources) with like interests thus allowing their social network to grow. Clearly, a product like Facebook which had an academic focus would be widely used by students and would help them find additional resources/knowledge associated with a particular course or curriculum. More specifically we propose to **create an indexed database of academic interests and academic course work** in order for student to create “channels” that will enable them to find other students with similar interests and body of works. The goal of this interface (which we have expertise to develop) is for scholars to find each other, to form productive collaborative relationships and to provide a technical platform for collaboration that goes well beyond document building by shared e-mail. We give three illustrative examples:

- **The Shakespeare Channel:** Here Shakespearean scholars on campus would have an opportunity to compare work (e.g. interpretations of various plays and sonnets) and to collaborate on various assignments, should the professor choose to leverage this new tool. In turn, this collaboration would likely promote deeper and more critical thinking and increase overall Shakespearean scholarship.
- **The Microsoft Excel Channel:** This channel would serve as a robust forum for students to learn about various aspects of using Excel. They would be able to view other student work done in excel and likely be exposed to new techniques that they would have never discovered for themselves. In this way, students can

be trained in Excel which might free up valuable class time that otherwise would be devoted to such training. Moreover, faculty wishing to hire students with Excel expertise, now would have a portfolio to inspect the quality of their work.

- **The Global Climate Change Channel:** This is an example interdisciplinary channel. This topic is now pervasive in many different kinds of classes and often times the science is misrepresented but the student's have no way of knowing this due to lack of ready access to other expert sources. By aggregating together the various ways in which students have been exposed to this complicated topic, students can begin to sort out the known from the unknown and begin to appreciate the overall complexity. Thus this system can also serve as an expert knowledge forum which can serve to extend (or correct) what the student has learned in the classroom. Moreover, it can extend the range of academic input into a particular issue by including knowledge from other disciplines. Indeed, this is the very foundation of the Academy which can sometimes get diffused amongst the silos of individual departments and programs.

In sum, we propose to create an innovative IT tool, with an interface similar to Facebook, whose purpose is to unite scholars with common academic interests, to facilitate collaboration between such scholars, to identify expert resources within a scholarly area and to serve as a training platform in the use of various software tools. This kind of capability is not found at all in conventional course manage systems (e.g. Blackboard) nor is it planned in any future ones (e.g. Sakai) and it would truly revolutionize the manner in which students work together in an academic setting.

Goal 3: Broadening the Credit Portfolio

Student credit portfolios need to be significantly broadened beyond merely taking courses. Significant research, internship, service and other kinds of experiential learning/activities should be come a standard part of any undergraduate UO degree, with perhaps 1/3 of the total credits toward degree being earned this way. Indeed, using the IT tool discussed above, much research could be done through collaborative teams which might serve to greatly extend the research capabilities of our faculty and their ability to obtain external research funding thus resulting in increased revenue to the UO.

Goal 4: Two Professors are better than one

We should move away from the standard one instructor model whose bias shapes the subject and move more towards a true team teaching method where individual discipline biases are brought to bear on a particular subject. The real world is complex and ambiguous - as soon as students are able to deal effectively with ambiguity, uncertainty and multiple view points which can be equally well supported by data, the better citizens they will become. The highly success example of PHYS 361: Modern Science and Culture, taught simultaneously by a Historian (John Nicols) and a Physicist (Bothun) have revealed the power of this approach.

Goal 5: Classroom Redesign: The implementation of learning spaces

We should adopt a goal that no class is larger than 75-80 students so as to promote better student engagement, more in class discussion, and orient the curriculum away from memorization and towards thinking and problem solving. We need to improve the furniture and flexibility in our classroom spaces so that the student feels more like an engaged learner in the space rather than a trapped prisoner that can't wait to escape.

Goal 6: The Withering Away of Academic Departments.

Admittedly this is a very unlikely occurrence and is the most controversial element of this Big Idea. Academic departments should wither away to be replaced by interdisciplinary learning and research centers. Academic departments were necessary in the discipline specific world of the 20th century - but the world has changed and so the UO needs to change (slowly) to reflect that. Other campuses (e.g. the Princeton Carbon Initiative, the Center for Science Education at Kansas, the Environmental Economics program at UCSB) are building such structures and programs. While the UO clearly has had interdisciplinary research centers, those structures have never percolated down to undergraduate education. **Indeed, our course catalog and distributions of majors has seen little change over the last 40 years and this is a reflection of stagnation and does not externally distinguish us.** Now is an opportunity to more aggressively look toward the future and design and offer better integrated degree programs.

Alignment of this Big Idea with the Listed Criteria:

Criteria 1: This entire Big Idea is devoted to the fundamental concept that the undergraduate experience needs to strongly evolve away from one dominated by knowledge transfer to one that produces a more engaged student population, collaborating and doing research on real world problems. Indeed, it is this very statement in the Academic Plan that serves as the foundation and purpose of this proposed Big Idea.

The University recognizes that the mere maintenance and transfer of current knowledge will not successfully prepare our students for the inevitable and unpredictable changes in the economy and in our society

Criteria 2: We have explicitly outlined a significant redesign in general education – specifically a move away from the mass X101 lecture. The X101 lecture represents a single approach to teaching and assessment that could lead to failure for many students who would be better served by a more diversified approach to learning. Moreover, within the X101 structure prior conceptual frameworks are rarely challenged, and these preconceptions in turn prevent students from assimilating new concepts let alone being engaged with the subject material. X101 should be replaced by a much more interdisciplinary, research based approach to studying a significant real world problem (e.g. economic impacts of global climate change)

Criteria 3, 4, 5: All of the individual elements needed to produce the hypothetical degree in Pacific Rim Management exist but are currently spread apart in different departments and in different buildings. Sufficient faculty resources exist to create many new kinds of degree programs (e.g. physics and chemistry could create a nano/material science undergraduate degree which is far more valuable than a degree in 19th century physics). However, there are two common problems associated with the creation of interdisciplinary programs:

- Departmental structures get in the way because they complicate how the beans are counted. For instance in PHYS 361, physics gets the SCH one year and History the next year. At a fundamental level, this is silly.
- As stated earlier, true interdisciplinary programs require instructional teams so that various discipline biases are exposed. This is crucial. For instance the “interdisciplinary” ENVIS program is really a “multi-disciplinary” program in that students just take a Chinese menu of different courses in different departments. There is no interdisciplinary fiber that weaves its way through these courses.

Creating real interdisciplinary degree programs is quite challenging but the reward is large that, in the end, one really has transformed the undergraduate learning experience out of the silos of legacy departments and into the arena of real world problems. Furthermore, there is no reason that the individual schools and colleges could not partner together to create new degree programs. Some examples include: K12 science teacher training; science reporting and journalism; global climate change and law; technical entrepreneurship; music and multimedia expression; energy science and human justice. Indeed, such innovative and imaginative partnership should serve to strengthen existing disciplines by adding new intellectual dimensions that didn't previously exist within the “department” which in turn will promote new forms of scholarship.

Criteria 6: Students with degrees in Pacific Rim Management would likely immediately get jobs since well trained workers in this area are highly needed (as are well trained K12 science teachers). The point is clear: **re-orient your degree programs around real world problems and you will produce highly skilled individuals that immediately impact and benefit society.**

Criteria 7,8: This Big Idea has advocated a complete shift away from BAU in the undergraduate experience and towards an experience founded on research, collaboration, interdisciplinarity, and multi-faceted investigations into real world problems. Gone would be degrees in Political Science, Physics and Economics, for instance, to be replaced by degrees in Pacific Rim Management, Nano/Material Science, Global Change Dynamics, etc, etc. Just like the Post WWII ramp up of engineering schools enhanced the viability and survivability of those institutions, the metamorphosis away from the Post WWII world and into the current one will guarantee the viability of those institutions with the courage and vision to take the necessary steps, to embrace and consistently practice innovation, and to produce the next generation of engaged and well rounded students that are responsible, contributing citizens of the planet. There is no excusable reason why the University of Oregon can not be one of these leading institutions.