Overview. After reading and studying J. Hattie and H. Marsh’s 2004 paper I feel that it is a bit presumptuous of me to suggest that there may be a way forward that could improve teaching via the integration of research and teaching (Hattie & Marsh, One Journey to Unravel the Relationship Between Research and Teaching, presented at the International Colloquium, Research and Teaching: Closing the Divide, Winchester, Hampshire, UK, 18-19 March 2002, available at http://www.education.auckland.ac.nz/ua/home/about/staff/j.hattie/hattie-papers-download/research-and-teaching ). This excellent paper reviews the meta-analysis results of published studies, examines critiques of these analyses, and discusses roadblocks to the implementation and success of widespread pedagogical change in universities. However when the carefully considered comments in Hattie and March’s paper are combined with the thoughts and ideas in a lengthy report by M Healey and Al Jenkins I believe that a credible roadmap is possible (Healey and Jenkins, Developing Undergraduate Research and Inquiry, The Higher Education Academy, UK, 2009, available at http://www.heacademy.ac.uk/assets/documents/resources/publications/developingundergraduate_final.pdf ).

The president wishes there were evidence of a relationship between excellence in research and excellence in teaching, but has to admit in her report that the accumulated data and research findings show that there is no relationship, at least for this combination of a large body of data collected from many western universities, which overall have similar environments. However, the data is not inconsistent with there being a positive relationship between effective teaching and effective research if appropriate changes are made to the working environment in our university. There is a large body of research that shows that changes to environmental factors (policies, procedures, values, power structures) can have a significant effect on the values and actions of people.

I believe that with the President’s involvement and support there is a way forward. A way forward that could make the U of S a leader in the integration of research and teaching in ways that enhance student abilities and their overall university experience.

Before I present my personal views on what might be done I would like to note that the discussion undertaken by the TLCC pertains to all of the U of S, which in reality is a collection of diverse disciplines with a wide range of values, standards, and accepted practices. Consequently our words must be defined and/or chosen carefully. I would like to comment on two of the more common terms we use in this discussion and often read in reports; ‘research’ and ‘teaching’. In many published papers these two terms are used with little or no clarity.

First Research: In chemistry there are significant differences between the sub-disciplines of chemistry in the values they use to define a ‘good research problem’, the intended goals/applications of their research results, and how they conduct the research. When you compare chemistry with physics and biology you find some similarities but there are also significant differences. But then compare these sciences with english or sociology and you will find huge differences. In the traditional sciences almost all the research is controlled by the uniform acceptance of a single paradigm. In the arts and humanities there will usually be multiple paradigms and not universal agreement on which is the most important or most useful. Thus how research may be able to inform teaching and how it may be integrated into undergraduate teaching will vary greatly across disciplines.

Second Teaching: Teaching is almost a meaningless word unless it is defined in a manner that connects it to student learning. Learning informs teaching, not the other way around. Good teachers will first consider the learning goals and then choose teaching approaches/environments that are most likely to
facilitate student learning. Effective teachers often see themselves as facilitators and observers, with the real work, the ‘learning’ as the activity of the students. Perhaps the word ‘teaching’ should never be used without the word ‘learning’, and stated as ‘learning and teaching’ to emphasize the important role of learning. There is an immense amount of literature on different teaching methods and their connection to student motivation, interest and deep learning. One of the most consistent messages from these studies is that the most ineffective method for promoting learning is lecturing (at least when this is the major approach used for classroom teaching). It is ironic that this is the dominant approach used by researchers in their teaching, but they seldom if ever use this approach when enabling graduate students to do research which they likely also call teaching.

**With Some Help Excellent Researchers can be Excellent Teachers.** Well that is my belief (hypothesis?). What is this based upon? First consider some of the features of the beliefs held and activities undertaken by effective researchers:

1. Effective research supervisors are almost without exception, excellent problem solvers in their discipline, reflective thinkers about activities in their field, and automatically check to see if what looks like an answer is consistent with all the known facts related to the problem.
2. They engage the students in a wide range of problem solving exercises.
3. They will frequently work closely over extended time periods with students and continually provide feedback.
4. Research projects are disconnected from frequent grading via marks that many studies have shown to decrease interest and creativity.
5. Often research groups meet together and engage in group discussions of problems and problem solving.
6. Students are engaged in writing about their results which indirectly teaches them about the connection between writing and thinking.
7. Students are exposed to public dissemination of their results which leads to wider discussions, more contacts, plus reflection and deep learning.

In my view these are excellent teaching attributes, a student centered approach that with some modification could be transferred to traditional classroom settings so as to facilitate deep student learning.

I believe we can tell our President that there is an excellent chance that the U of S can demonstrate that excellent research can lead to excellent teaching. However, it must be remembered that the research results on this are clear – a focus on excellence in research does not automatically lead to excellence in teaching. If we want to promote a strong linkage between research and teaching, carefully considered institutional changes will be required (see Hattie and Marsh, 2004). Before the U of S can hope to succeed we would need the following:

1. In order to produce widespread pedagogical change this project will need a Champion. I believe that this Champion must be our President or there will be almost no chance of success.
2. We need to establish a pilot project and/or research project guided by principles of the Scholarship of Teaching and Learning. This project would identify a number of researchers from across campus who would be willing to engage in a study that helps them transfer their research teaching attributes and activities to the classroom setting. How this is done will depend greatly on the discipline involved. For some disciplines it may be possible to directly transfer some of their research techniques whereas for others it may be necessary to rely
mostly on inquiry-based learning techniques, which have been identified by M. Healey and A. Jenkins in their as being a useful approach to introduce research principles into the classroom. This pilot project/research project also needs a definite time line and a substantive and arm’s length evaluation of outcomes. The appropriate policies and procedures, with teeth, must be put in place or why would a researcher be willing to invest the necessary time? These teeth will also be a sign that this program is of real value to the institution and not something backed only by well-meaning but ineffective words.

3. Appropriate support must be put in place to assist the researchers. This might consist of workshops and peer consultation, but other types of support may also have to be considered. Find the opinion leaders among them and get them on side.

For this to succeed there are at least three major roadblocks that have to be considered.

1. There is an immense body or research on how to change traditional classroom environments so it will promote interest, motivation, and deep learning. To minimize time commitments from the researcher, workshops must be offered that will give the researcher some ideas and options to start with. Some personal consulting services might also be very useful. This instruction should also emphasize a need for the researcher to think about both the process and content of the class. Pedagogy in a word.

2. The President and other senior administrators must ensure that appropriate and effective policies and procedures are established to ensure that someone who is innovative in his or her teaching (obviously ‘innovative’ needs to be defined/judged) and measures outcomes will be able to use this innovation for promotion. If this is not put in place then this whole exercise will be a waste of time.

3. We have to recognize that the researcher has developed a specific paradigm about what teaching is and how it should be done. This could indeed be the most difficult roadblock to overcome. Mindset. We are asking researchers to change their paradigm or mindset. Paradigm shifts take place slowly and require effort. People fully engaged in one paradigm will have no trouble finding reasons why the new paradigm will not work. Two huge roadblocks can be a sense that they will not be able to cover content, and a lack of trust in their students to begin to take control of their learning. Consequently the conversion of excellent researchers into excellent teachers must be seen as a process that takes time, and not be something that can be done in one or two workshops.