

Beyond Just Getting Our Word Out: Creating Pipelines From Learning Sciences Research to Educational Practices

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Abstract: This session convenes a symposium to discuss issues related to the gap between current learning sciences (LS) research and the majority of prevalent formal and informal educational practices internationally. Presenters will discuss their international experiences with building bridges between research and practice, such as such as commercialization, non-profits, and organizational and government supported programs. The session concludes with the presenters and the audience considering strategies and options for members of the LS communities to both “get the word out” as well as for future efforts to create pipelines for getting LS research into everyday educational practices.

Introduction

There is a serious gap between the important new insights into how students learn best and how best teachers can teach informed by research in learning sciences (LS) communities and the daily formal learning experiences for the vast majority of students at all levels and around the world. There have been important distillations of key research perspectives about how people learn that have been written for policy makers and educational professionals (e.g., Bransford, Brown, Cocking, & Donovan, 2000), and this research has contributed to national policy documents that reflect the latest research in the learning sciences, such as the NETP (e.g., U.S. Department of Education, 2010), learning and technology initiatives internationally, recommendations for STEM standards in the United States (National Research Council, 2012) and internationally, and so on. However, the reality “on the ground” in most K-12 schools and in universities is the majority of the commercially available educational products and services that are available do *not* align with research informed from the sciences of learning (e.g., see discussion in the final chapter of (Bransford et al., 2000)).

Compare the impact of research in other professional fields to the situation in education. In the medical and engineering fields, for example, important research based perspectives, products, approaches, and so on routinely move from the lab into the arsenal of products and resources that professionals in those areas are able to use. Put another way, there are *pipelines* for getting research from universities and labs to professional practitioners and thus to the general populations they serve.

A goal of this session is to convene a panel to discuss issues such as the nature of this gap between research and practice in education, and, more important, to consider approaches for members of the LS communities to both “get the word out” as well as perspectives for creating appropriate pipelines in our field. Examples of pipeline approaches that could be considered include “top down” ones such as large scale national initiatives that could fund centers bring CSCL LS researchers and industry partners together to create innovative educational products and services in different subject areas and grade levels. Other approaches include “bottom up” ones, such as formation of non-profit and for profit companies for bringing cutting edge research into formal and informal learning environments.

The session will start with opening comments for five minutes by the session Chair, Professor Peter Reimann. Each of the presenters will then speak for 10 minutes about their perspectives on the themes of this panel. We then take 15 minutes to have the audience members break into small groups to consider these perspectives as well as five minutes for each group to share with the entire group. We then have the presenters and the audience to discuss issues and perspectives and to spend the final 15 minutes to distill possible directions for future efforts to create pipelines for LS research to educational practices.

Starting a company in France: The personalization of multimedia content for different audiences

Kristine Lund

This presentation will first describe how the French government supports innovative technology projects that combine expertise from both the private and academic sectors. Second, I will present the company CogniK (cognik.net) that I co-founded in 2009, for which I am Chief Science Officer. Third, I will show how this pipeline, originally established for personalizing on-line educational games and videos for small children, permitted a number of different research topics in the learning sciences to emerge. Finally, I will present a set of tensions I have experienced while navigating between academia and the private sector. These tensions include reconciling research objectives with perceived market needs, aligning differently paced time-scales, and being encouraged to branch out from initial expertise, this latter leading to new research questions.

Beyond STEM and L2 in K-12: Opportunities and challenges for learning sciences research and practice at a business school

Ravi Vatrappu

This presentation will focus on an institutional initiative that involved translating and extending learning sciences research and practice from primarily STEM and L2 domains in primary and secondary school settings to business domains at the tertiary level at the Copenhagen Business School, Denmark. In particular, I outline and discuss some of the opportunities found, synergies created, and challenges faced between emergent research findings of EU integrating project of NEXT-TELL (www.next-tell.eu) and service initiatives at the institutional and national levels such as CBS Teach (<http://teach.cbs.dk>) and ICT in Higher Education. Finally, I include observations and reflections on the systemic differences in assessment regimes (Anglo-Saxon versus Danish/Nordic), the barriers to adoption and innovation due to the “not invented here” syndrome, and some possible solutions.

A professor meets the elevator pitch: Edtech startup lessons being learned in Australia

Michael J. Jacobson

Late 2013, the Research Office at the University of Sydney encouraged me to consider “spinning off” aspects of my research that had been funded by two grants from the Australian Research Council. Initially I was not inclined to do so as I lacked any business experience. However, I decided the research-based and theoretically-informed approaches for learning STEM subjects—such as the intelligent virtual worlds and computer modeling and visualization technologies my team developed—would likely never be used in regular classrooms in Australia or internationally unless affordable and supported products and services were commercialized by a company with a mission to enable transformative education. My company, *Pallas Advanced Learning Systems* (<http://www.pallasals.com>), joined the largest incubator in Australia in 2014 and is now getting traction with schools in the Sydney area and internationally. In my presentation, I discuss my lessons learned and being learned going from university research to founding an “edtech” startup company with the “lean startup methodology” being employed by many in the startup community in the US and internationally.

Research practice partnerships: R&D in and with informal learning organizations

Chris Hoadley

This presentation looks at the general scheme of design-based implementation research, and contrasts it with a different form of research-practice partnership as exemplified by two projects: the Hive Research Lab, a project commissioned by HiveNYC, a network of after school and out-of-school education providers, and the Mountain Project, a partnership between NGOs in Nepal and India and US-based researchers. In both cases, I describe how emergent capacities for thinking about reflection, inquiry, and research both support and sometimes conflict with traditional research stances, and discuss some of the ways in which research can be informed by the attempt to produce “usable knowledge” from the beginning. In both cases, research questions were partially driven by practitioner agendas, but were neither as practitioner-driven as participatory action research or classroom-based teacher research undertaken for data-driven decision making. I also consider the role of relationships as both a medium for and a limiting factor of scale, and highlight some of the advantages of partnerships that combine design and research.

Challenges bringing research-based products to market

Janet L. Kolodner

In 2009, the three-year comprehensive middle-school curriculum called Project-Based Inquiry Science (PBIS) was brought to market. Creation of the curriculum was the joint effort of many academics (Joe Krajcik, Brian Reiser, Danny Edelson, Mary Starr, and myself), our graduate students, post-docs, and research scientists, teachers we worked with, and a publisher known for publishing the best in “reform curricula” — It’s About Time, Inc. The intellectual work of creating the curriculum was funded for a decade by the US National Science Foundation, and the research-based pedagogical approach focused on keeping learners excitedly engaged in sustained inquiry and reflection activities to foster learning from the project activities. Also, the curriculum aligned with the Next Generation Science Standards (NGSS). The curriculum has been adopted by many schools and school districts around the US, but not by enough to raise sufficient funds to keep it up to date with new technologies and new content standards. My lessons learned? I have identified a variety of challenges we faced in bringing research-based products to market in the US (and probably in other countries as well). The list is long: the need to market to each of thousands of school systems separately, shifting standards that make school systems fearful of new adoptions, and the lack of allocated funding for science education, especially in elementary and middle school. There is also a reticence towards adopting a curriculum that requires extensive professional development and learning of new teacher practices, and an enormous lack of understanding of what it takes to put together a coherent curriculum that really fosters understanding, knowledge integration, and cognitive flexibility, and inflexibility with respect to testing. Perhaps even more important is a lack of imagination about what schooling and learning could be. As part of addressing the challenge of bringing research-based learning products to real schools and real students, I propose that our community make a concerted effort to help the public better understand what learning entails and what education really could be.

References

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