

VANDERBILT  UNIVERSITY

Patricia Beeson, Provost and Senior Vice Chancellor
Office of the Chancellor
University of Pittsburgh
4200 Fifth Avenue
Pittsburgh, PA 15260

Dear Provost Beeson,

Enclosed is the report from the most recent visit of the LRDC Board of Advisors. We very much appreciate the effort devoted to ensuring that our visit was both informative and pleasant. We were delighted to have opportunities to continue our conversations with Vice Provost for Research Alberta M. Sbragia. As is always the case, Director Perfetti and the faculty, staff, and students of LRDC were thoughtful about the future of the Center and open to our feedback.

Please let us know if there are any questions about our report or any other points on which the Board can provide assistance. I would like to add my personal thanks to you and to Professor Perfetti for ensuring that my term as a Board member was an enjoyable responsibility and an exceptional learning experience.

Sincerely,



LRC Board of Advisors
Leona Schauble (Chair)

Cc: Professor Alberta M. Sbragia, Vice Provost for Graduate Studies
Professor Charles A. Perfetti, Director, LRDC
Professor Mary Kay Stein, Associate Director, LRDC

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To: Provost Patricia Beeson
Vice Provost for Graduate Studies Alberta Sbragia
Charles Perfetti, Director, LRDC
Mary Kay Stein, Associate Director, LRDC

From: LRDC Board of Visitors (Gautam Biswas, Hilda Borko, Jill Burstein, Thomas Carr, Arthur Graesser, Judith Harackiewicz, Carol Lee, Leona Schauble [Chair], Timothy Shanahan, and Reed Stevens (Guinivere Eden, Nonie Lesaux, Kenneth Pugh, and Brian Reiser were unable to attend the 2016 meeting but reviewed and responded to this report)).

Re: LRDC Board of Visitors Meeting, October 20-22, 2016

During our October 20-22 meeting in Pittsburgh, the LRDC Board of Visitors met with Vice Provost for Graduate Studies Alberta Sbragia, and with LRDC faculty, staff, students, research associates, and postdoctoral fellows. Prior to traveling to the meeting, we reviewed a website that posted papers and presentations by LRDC faculty. On the afternoon of October 20th, Vice Provost Sbragia welcomed us and Director Charles Perfetti updated the Board about recent LRDC news. Director of Administration Patsy Guzzi, Jr. reviewed the Center's current financial picture. The sessions on October 21st were devoted to interactive presentations of illustrative LRDC research, including a poster and follow-up discussion session led by graduate and undergraduate students. During the afternoon we met independently with research associates and postdoctoral fellows and, in a separate meeting, with pre-tenure faculty members. On Saturday October 22nd Liz Rangel provided an overview of LRDC's communications strategy and the Board then participated in a discussion led by Colleen Briner, Executive Director of the Institute for Learning (IFL), Chris Schunn, and Lauren Resnick about a proposed plan for the future direction of the IFL. As our meeting came to a close on Saturday, we previewed our impressions with Vice Provost Alberta Sbragia.

This report summarizes our observations about LRDC's current and potential research directions and comments on the overall state of the Center. We conclude with some thoughts about the future of the Institute for Learning.

Research Directions

Interdisciplinary research. LRDC has made significant progress in supporting collaborative, cross-disciplinary research under the flexible organization of nine unifying conceptual themes or clusters. The Board was impressed with the quality of both the work and the collaborative teams that are conducting it. Three of these clusters were highlighted at the meeting. LRDC researchers outlined current efforts on learning and neuroscience, summarizing studies of the neural bases of word learning and intuitive number sense. At the opposite scale, team members reviewed current policy research and development that was oriented toward improving mathematics teaching and learning via a coaching intervention implemented across

the entire State of Tennessee. A third research team described studies that are extending LRDC's research at the postsecondary level, with particular focus on improving the recruitment and retention of under-represented and at-risk students enrolled in university programs. These three areas of investigation are rapidly growing both within and beyond LRDC, and in each, Center researchers are making contributions that are widely recognized as high quality.

Crosscutting research. Interest clusters like these are dynamic centers of research activity and serve as magnets for attracting researchers who hold related interests but reside in different disciplinary homes. The clusters have been strategically supported by LRDC's administration through the award of collaborative internal grants. These internal grants have stimulated interdisciplinary projects that have frequently evolved to being funded by external sources. Another successful approach to encouraging crosscutting research has been to assign office locations that are considered likely to enhance social interaction among potential collaborators.

Influence across the clusters is emerging, although it is more advanced in some areas than in others. For example, questions about motivation and engagement are now being pursued within studies of learning that previously might have been investigated from a solely cognitive perspective. Examples include Binning's work on self-affirmation interventions to enhance academic performance of at-risk youth, Galla's research on self-control and persistence, Schunn's investigations of the development of interest in science, M. Wang's research on relations between school engagement and educational success in adolescents, and Nokes-Malach's investigations of how students' beliefs about the nature of intelligence affect their ability to profit from instruction. We trust that research on motivation, engagement, and self-regulation will continue to grow at LRDC and to challenge traditional boundaries between emotion and cognition.

Motivation and self-directed learning take on particular salience in informal learning contexts like those studied in the Up-Close Center, led by Crowley. Research increasingly focuses on the range of informal learning contexts that cover the entire life span and exist alongside more formal schooling. In these contexts, the importance of motivation and self-regulated learning is amplified because the individual chooses whether or not to participate. The Board perceives opportunities to study motivation, engagement, metacognition, and cognition within a more comprehensive and integrated theory of self-regulated learning (SRL) as individuals move across learning niches and different levels of learning (K-16). Since the 1980s, Lauren Resnick and other Center researchers have been comparing the profiles of affordances offered by formal and apprenticeship learning contexts and advising how schools might experiment with more flexible models of learning that incorporate features from informal settings. These connections between school and out-of-school learning are worthy of increased attention, as there is little empirical research, either at LRDC or more broadly, about how the wider ensemble of learning resources contributes to the long-term development of individuals'

academic identity, interests, and knowledge as they move through time and across spaces.

In addition to research that cuts across topics of study, we continue to notice opportunities to connect micro, meso, and macro levels of analysis. As we have noted in the past, LRDC is especially well situated to play a leading role in furthering the prospects for neuroscience to become a productive avenue for enhancing understanding of learning at the psychosocial and instructional levels. These links between the neural and behavioral levels are currently most advanced in reading, where the field has produced well-articulated models and hypotheses at the behavioral level that can in some cases be subjected to further investigation at the neural level. As we explain next, LRDC is uniquely positioned to explore these links between analytic levels of learning.

Centeredness of the Center. Over the past 20 or so years, the scope of education research has widened dramatically. It now encompasses physiological studies of the brain. At the other extreme, it includes studies of changes in learning that follow from long-term historical and cultural shifts. New technologies are radically transforming learning experiences across the life span. This broadening brings new research opportunities, but also invites fragmentation as researchers feel the pull of making headway within new and increasingly dispersive fields of study.

In LRDC's early years, a Center-wide grant provided a platform for common planning and shared vision. Now research agendas are more likely to emerge by bubbling up within small groups of collaborators. This structure, which has been a successful one, could be supplemented by some level of commitment to a more encompassing Center mission. Whether and the extent to which LRDC seeks to pursue an agenda that spans research programs is, of course, ultimately a matter for internal decision. But as a Center, LRDC has within its reach the capacity to make headway on the problem of achieving synthesis across analytic levels of learning. Increasingly, human thinking and learning are understood to require a complex systems approach, one that attends simultaneously to the physiological underpinnings of learning, learning processes at the individual level, and sociocultural perspectives on learning, including the varied ecologies within which people live their daily lives. As yet, education research has made little progress toward articulating how learning recruits processes across these levels in a system-wide manner. Some LRDC research is edging into these questions, but this is happening in an emergent way as individual research programs begin to push across levels of analysis. If the Center as an institution decides at some point to explicitly address this agenda, it would be helpful to put further emphasis on research at the meso level (i.e., individual learning experiences and group learning), which seems to be receiving somewhat less attention in LRDC in recent years.

Studies of learners and learning. In the past, LRDC was especially known for research on classroom learning processes. This research focused on students and

teachers and addressed topics such as the nature of expertise; disciplinary learning in mathematics, science, and writing; and teacher explanations. Although related strands of work continue within the “high level cognition” research theme, they no longer seem to occupy the same central prominence as the more highly conspicuous agendas at the neuroscience and policy levels. In general, there is less visibility at the scale that focuses on learning processes of individuals and groups, which lies between the micro and the macro levels of analytic scale. The Board encourages LRDC to consider more systematically revitalizing learning research in classrooms and other contexts, perhaps by collaborating with the School of Education on openings that emerge within the mathematics and science education or other areas. We recommend that this research include, but also expand beyond the classroom walls. Increasingly, people direct their own learning as they pursue goals like workplace retraining, medical information finding, and financial decision-making. Recent research is blurring the boundaries between learning in and out of school and is explaining how interests, goals, and identities develop across and are forged within the multiple contextual boundaries within which people conduct their everyday lives. As personal and career mobility expands, learning how to learn is taking on enhanced importance.

Technology and data science. Much of this lifespan learning is conducted with learning technologies and within virtual contexts. At the university level, Massive Open Online Courses (MOOCs) are being used to support more traditional formats, and technology supported learning environments are enhancing complex reasoning performances. LRDC continues its tradition of research in this area via Ashley’s studies of technological support for argumentation and Schunn’s studies of peer review in writing. However, even before schooling begins, children use digital toys, applications, and devices. Children’s expertise with these devices often outclasses that of adults, leading to an inversion in the usual roles of learner and teacher. Accordingly, LRDC’s agenda in technology is extending further into the digital world inhabited by young people, for example, via J. Wang’s studies of mobile device use. We encourage the continued development of initiatives for studying learning with mobile technologies, social networks, and virtual environments.

State of the Center

Leadership and community. Conversations with Center personnel suggest that Center personnel in all roles are feeling well supported and appropriately included in institutional decision-making. Positive comments were made about the value of regular faculty meetings, scheduled social events, and feedback from personnel reviews. Increased and more systematic attention to social events and community building have apparently been paying off. Faculty described the ways that Center leaders have encouraged collaborative work through the internal grants program (which is highly valued) and through informal means, such as office placement. The Board noted the extensive new outreach and communication efforts, led by Liz Rangel, that are being made to publicize LRDC and its work.

Many LRDC faculty members are becoming more senior, and sometime soon the Center should begin to think about a process for identifying the next Center leaders. That process can be initiated whenever participants think is best, but having a process in place, preferably informed by a series of stakeholder discussions, may alleviate any potential anxiety about making a smooth transition to the future when the time is right.

The one continuing but mild concern that our conversations raised is that research associates, who in general seem to be well satisfied with their roles, still occasionally struggle to feel connected beyond their own research teams to wider Center missions and opportunities, and also how they may integrate with relevant units in the University, such as the School of Education, and perhaps, other schools. It is clear that the roles of the research associates vary greatly. Several have been at LRDC for many years and are very satisfied with their level of involvement in Center work. Some who have joined the Center more recently expressed an interest in having more opportunities to share their work internally and to receive assignments to advance the Center's broader missions.

Diversity. The Board urges LRDC to upgrade its efforts to increase the diversity of its faculty, research associates, postdoctoral fellows, and students. Attempts to diversify the graduate student population are underway via participation in the Hot Metal Bridge program. Although LRDC has made several excellent new hires, progress has been slow in increasing the diversity of the faculty. It will be difficult to make headway on this crucial objective without commitment across participating units to a comprehensive plan. Such a plan might include one or more strategic cluster hires and/or efforts to identify new and previously untapped sources for recruitment. Professor Rich Milner, Director of the Center for Urban Education, is a knowledgeable local contact and may be able to assist. We also recommend contacting other senior scholars from diverse backgrounds in fields related to the Center's targets of interest. More diverse scholars are also likely to bring more diverse methodologies, which may complement the current dominance of cognitive psychology and neuroscience by contributing new methodological and theoretical points of view, such as ethnography, interaction analysis, sociological and historical analysis, and/or phenomenological approaches.

Center infrastructure, The Center has been developing leadership within its technological infrastructure staff, as suggested during the Board's last visit. This should provide needed stability and planning for flexibly meeting the Center's evolving IT needs, but these efforts continue to need dedicated support to generate the continuity required to plan effectively for the future. The Board was informed about the new neuroimaging center to be located on the first floor of the LRDC building. This is an exciting venture that will supply additional capability to LRDC's research efforts. Administration and scheduling for this facility should be included in its planning so that logistical and expense issues do not intrude unduly on the time and attention of the faculty. Moreover, given the points noted earlier about the diminished prominence of studies of learners and the continued need to integrate

motivational work, the Board believes that it is important to ensure that this new capability does not distract from addressing these other needs central to the mission of LRDC.

Institute For Learning

The Institute for Learning was originally conceived as a relatively modest experimental extension of LRDC research into practice settings. By now it has grown into a consulting group with national reach. IFL foregrounds LRDC research within national policy discussions about education. Moreover, it brings research into direct contact with practical problems of education. It serves as a hub for providing research-based solutions and services, on the one hand, and ensuring that research, in turn, is continually informed by practice. Finally, IFL is a crucible for studying education improvement, which is itself conceived as a learning process. Over the past three years LRDC and IFL have cultivated closer intellectual and administrative ties. These include LRDC/IFL funded research projects, co-authorships on professional presentations, and a more regular flow of information between leaders of both organizations.

In recent years the IFL has been struggling with fiscal deficits, partly because the requirements of its consulting model do not always align with the roles and functions defined within the University. There is general agreement that at this point, some changes are required to ensure the IFL's ongoing financial stability. The direction discussed during our meeting involves a four-tiered action plan. The first tier involves negotiations with school districts and the Council of Chief State School Officers to widen the IFL's technical assistance relationship base. At the same time IFL is submitting proposals to NSF and private foundations to support and study a rural online coaching network based on the work in Tennessee. In the second tier, IFL is requesting temporary supplemental financial support from LRDC and the University over a period of two or three years in the interim before the third and fourth tiers of the solution can be fully implemented. The third tier involves contracting with Darwin Global, a developer/provider of learning materials and tools, to make IFL coaching and professional development models and tools widely available online. This strategy potentially addresses critical needs. It will help expand IFL's client base, especially into smaller, rural districts, where one-on-one coaching and professional development interactions are financially and logistically challenging to sustain. There also is the expectation that a licensing agreement will generate financial support for further development and downstream revenue from fees and/or sales. The fourth and final tier for stabilizing IFL involves negotiating a more formal arrangement for sharing the teaching and coaching capacity of IFL fellows with the School of Education in part-time adjunct instructional roles that can fill in the "down time" when fellows are not directly engaged with clients.

The Board has had limited time to understand the fact-finding that has informed these proposals. Thus, our recommendations are limited to the rather obvious advice to exercise caution and weigh the possible effects of worst-case

outcomes before making a decision about whether and how to proceed. Of course, the financial and legal aspects of the arrangement with Darwin Global need to be carefully scrutinized, including deciding who bears what portion of responsibility for the development effort and costs; how the product development process is to be accomplished, overseen, and finalized; how sales, dissemination, and customer support will be achieved; and what exit procedures will be put in place to guide the separation process if either partner needs to end the relationship. It is important to be realistic about the amount of effort and oversight involved in generating web-based products, even if (or sometimes especially if) the developers are not in-house staff. A review and approval process that both partners agree to will be important for the success of the arrangement and the maintenance of product quality.

Representatives from LRDC, the IFL, and the University have no doubt considered these and other issues, in addition to weighing the pros and cons of alternative potential solutions. These might include, for example, the possibility that IFL would spin off to become an independent consulting entity, or alternatively, that it might come under the wing of some form of University innovation incubator that can implement financial, legal, and personnel procedures that better fit IFL's needs. For example, in some universities, entities like the IFL may be reincorporated within a University Foundation or some other external entity that would support contractual possibilities. We endorse the plan to constitute an advisory committee that can help the IFL leadership team weigh these alternatives.

Conclusion

As we look over Board reports from our last several visits, we are pleased to note that LRDC has made impressive progress on many of issues that were previously considered problematic. These include leadership, communication, physical infrastructure, and personnel review and support procedures. Other concerns, such as increasing faculty diversity, continue to be difficult to resolve. Nevertheless, as LRDC has sought to address these challenges, the flow of innovative research has remained steady and has had continuing impact on both education scholarship and education practice.

Among the more and less pressing issues that this report mentions, the Board observes four top-level challenges that LRDC now faces, each with a somewhat different level of urgency. (1) The first, which we evaluate at the "immediately urgent" level, is protecting the Institute for Learning's mission by following through on plans to achieve a relationship among LRDC, the IFL, and the School of Education that is intellectually and administratively closer and financially more stable. (2) The second urgent challenge is to develop and follow through on a plan to increase the diversity of LRDC faculty and staff. (3) The third challenge, at a somewhat lower level of urgency, is to begin planning for a process that can guide an eventual transition in Center leadership. (4) Fourth, but still with high importance for LRDC's overall impact, is to think further about the "centeredness" of the Center, an issue that Board members keep coming back to. Is it worthwhile to

pursue some level of common agenda to enhance the overall impact of diverse programs of research while still preserving scholarly entrepreneurship and creative independence? As mentioned, doing so may require enhancing research at the meso level of scale—research on the processes and strategies that guide the learning of individuals, either alone or in various group contexts.

The Board is confident that these challenges and others will be met with thoughtfulness and foresight. We appreciate the privilege to advise and support LRDC in its unbroken line of impressive achievements and international impact.