



THE LEGACY OF  
**R.L. MOORE**

# Newsletter

January 2011

## Assessment and Evaluation: Preliminary Report

The next **Legacy of R.L. Moore Conference**, being held in Washington DC, 2-4 June 2011, will be the occasion for the public unveiling of the final report of a three-year project to assess student outcomes of the inquiry-based learning classes at four major research universities. The conference is co-hosted by the Mathematical Association of America.

As far as we know, Professor R.L. Moore, in his years of teaching from 1905 to 1969, never had a class of his participate in any evaluation beyond the usual exams and student presentations. There are also many teachers who have successfully adapted features of his style of IBL to the advantage of their own classrooms.

It is expected, however, that methods of teaching - at least those regarded as "new" - be backed by **research based evidence** of their advantages before being widely adopted. To this end, the Educational Advancement Foundation has supported this

Please see *Assessment*, p. 2.

## National Growth of IBL Continues

Ever get the feeling that you are all alone? Ever get the feeling that you joined the party after it peaked? This is not the case for those involved in inquiry-based learning. What began to take root a century ago (if we do not want to include Socrates) now manifests itself from coast to coast and border to border.

IBL instructors, classes, mentors and researchers can be found in small independent colleges and major research universities in practically every state. At the 2010 Legacy of R. L. Moore Conference over 200 academicians from all but a handful of states shared their experiences. They form part of a network of support for the new user and a sounding board for the experienced. Participating in workshops and seminars or sharing experiences in

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Derek Bok



Cathy Seeley

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assessment project involving the IBL centers within the mathematics departments of the institutions featured in the previous (June 2010) newsletter:

University of California, Santa Barbara,  
University of Chicago,  
University of Michigan,  
University of Texas at Austin.

The raw data has now been gathered and, in this last stage of the project, it is being compiled and analyzed. Several preliminary results have been announced suggesting that the full report will provide both statistical and qualitative evidence showing benefits resulting from using IBL methods.

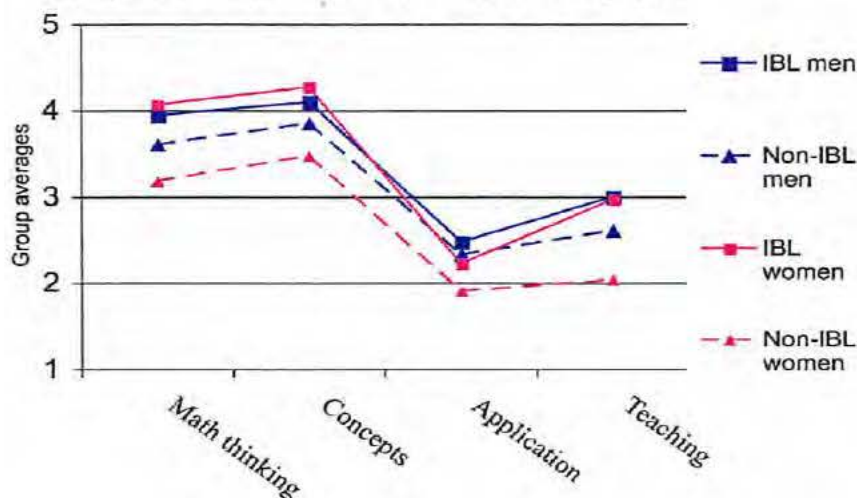
The director of the assessment and evaluation project team is Dr. Sandra Laursen of the

University of Colorado at Boulder Ethnography & Evaluation Research unit. More data sets have yet to be analyzed, but one of the most intriguing preliminary results Laursen and coauthor Marja-Liisa Hassi have described appears to indicate a substantial “gender gap”: in IBL courses for mathematics majors, women report higher learning gains than do men, but in non-IBL courses women report lower gains than their male peers. Both men and women in IBL courses report higher gains overall than do their peers in non-IBL comparison classes.

In addition to surveys of students’ experiences, attitudes, and learning outcomes before and after their IBL class or a non-IBL counterpart, the project draws on data from classroom observation, tests and academic records, and interviews with students and instructors.

*Women make greater cognitive gains in IBL classes - IBL and non-IBL math track students*

IBL men: N=347-353; Non-IBL men: N=230-231. IBL women: N=181-182;  
Non-IBL women: N=90-91. Scale from 1 = no gain to 5 = great gain.



The final report is expected in March 2011.

A preliminary report was presented at the Legacy of R.L. Moore Conference in Austin, June 2010, and may be viewed on the web at:

[LegacyRLMoore.org/Reports/201006\\_video/laursen.html](http://LegacyRLMoore.org/Reports/201006_video/laursen.html)

On the assessment project, see:

[www.colorado.edu/eer/research/steminquiry.html](http://www.colorado.edu/eer/research/steminquiry.html)

*Growth* continued from p 1.

short five minute presentations, the IBL practitioners continually reach out to find new ways to improve their teaching. Now with the national Academy of Inquiry-Based Learning growing and on-line, the ability to exchange ideas, find support and develop new materials is truly nationwide and easy:

[www.InquiryBasedLearning.org](http://www.InquiryBasedLearning.org)

## IBL at JMM

As mathematicians, faculty and students from around the nation gather in New Orleans, LA for the 2011 Joint Mathematics Meetings (January 6-9), they have the opportunity to attend numerous sessions with inquiry-based learning components, meet Project NExT fellows and Moore students, learn about IBL instruction through a mentor, join the Academy of Inquiry-Based Learning (AIBL) and visit the Legacy of RL Moore exhibitor's booth. There free literature (in print and on CD) on the Moore Method and on IBL will be available. Presentations by experienced IBL practitioners occur each day.

The MAA Poster Session on Friday, 7 Jan., 2-4pm, in particular draws attention to the work supported by the NSF and the Educational Advancement Foundation through the presentation entitled

*Research, Dissemination, and Faculty Development of Inquiry-Based Learning (IBL) Methods in the Teaching and Learning of Mathematics.*

This highlights findings from the Universities of Texas, Chicago, Michigan, California - Santa Barbara and Colorado.

In another session, Sunday, 9 Jan., 2pm, Philip Hotchkiss presents some IBL resources developed with fellow EAF grant recipients at Westfield State University:

*Student Inquiry into the Limits of Knowledge - Removing Barriers in Mathematics for Liberal Arts*



Nathaniel Dean



Daniel Finkel, Lynne Ipina



David Bressoud, Mike Starbird

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*Photos are from the 13<sup>th</sup> Annual Legacy of R.L. Moore Conference, Austin, TX, 17-19 June 2010. Videos of presentations may be viewed at [LegacyRLMoore.org](http://LegacyRLMoore.org).*

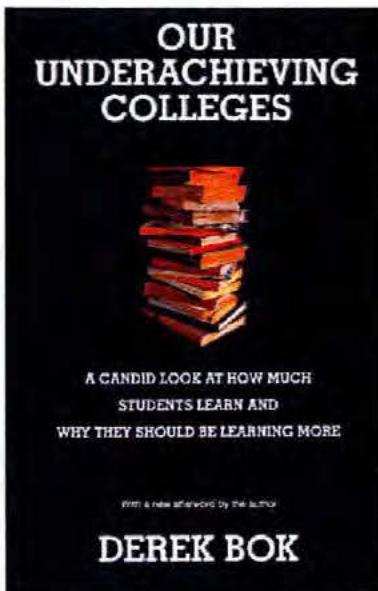
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## Featured Book

*The most striking aspect of the treatment of cognitive skills in college is the gap between the behavior of instructors, on the one hand, and the findings of educational researchers, on the other....*

*Researchers ... find that the arrangement of courses per se has little effect on the development of critical thinking. What matters more is the way in which courses are taught and the effort students and faculty devote to the educational process. (Ch. 5, Learning to Think, p. 144)*



*Quietly but steadily, the ground is being prepared for an eventual shift in American colleges away from a teacher-oriented system featuring lectures delivered to passive audiences to a more learner-centered process in which students become more actively involved in their own education and professors adapt their teaching in accordance with more complex understandings of human learning.*

*(Ch. 12, Improving the Quality of Undergraduate Education, p. 342)*

***Our Underachieving Colleges: A Candid Look at How Much Students Learn and Why They Should Be Learning More*** (New Edition)

Princeton University Press (2007)

This is the most recent book on education by Derek Bok, President Emeritus and Research Professor at Harvard University.

As in his earlier works, he critically examines the changes modern American universities have undergone and offers solutions to help them achieve their educational purpose.

### A Gift to the Future

If you are interested in providing financial support for the continuing use of Inquiry-Based Learning and the Moore Method in meeting the challenges that face education, one effective means is through a gift to the Educational Advancement Foundation.

During the year 2011 all gifts will be matched one-to-one by EAF up to a total match of \$100,000.

For information on how to implement this and how to incorporate your support as part of an estate plan please contact the EAF or visit:

[EduAdvance.org/bequest.html](http://EduAdvance.org/bequest.html)