Assessment of the Impacts of Bio Sci D140: How to Read a Science Paper on Student Attitudes towards Biological Research

Rebekah Le, Anne Phan, Cristian Aguilar, Vaishali Jayashankar, Seong Min Kim, Michelle Mattson, Charles Yi, Justin Shaffer, David Gardiner, and Debra Mauzy-Melitz

Developmental and Cell Biology, University of California- Irvine, 4410 Natural Sciences II, Irvine CA 92697 USA
(rebekah.c.le@uci.edu)

Students that major in the biological sciences aspire to go on to careers in a variety of different fields – including health sciences and biological research – and success in these fields require both a comprehensive knowledge of biology and training in scientific inquiry. To complement their classroom training, many undergraduates conduct original research in a laboratory. Unfortunately, student researchers often struggle to grasp the broader scope of their research project, a major reason for which is the challenging nature of reading the primary literature necessary to place their work into context. Students report that this can lead to a lack of confidence in their ability to understand and perform biological research, and in the long run, this might cause students to come away with a negative attitude towards the value of biological research. To satisfy the need to train students in the critical analysis of primary literature, the Developmental and Cell Biology department at UC Irvine has designed a new course, Bio Sci D140: How to Read a Science Paper, taught by two senior graduate students. This small, discussion-based course integrated seminars and journal clubs to provide guided instruction on the critical analysis of primary scientific literature and give students the opportunity to interact with investigators from the relevant research laboratories.

In this study, we sought to evaluate whether participation in Bio Sci D140 altered student perceptions of the value of scientific research and self-efficacy in biological research. At the beginning of the course, students were asked to self-report their attitudes towards biological research, its relevance to their career goals, and their confidence in learning, performing, and communicating biological research. At the end of the course, students were asked similar questions, and changes in attitude were measured. Here, we present the structure of this new course, student assessments of the course components, and our current analysis of the effects of this course on student attitudes towards biological research. The results of this study will be instrumental in improving scientific training for biological sciences majors at a large research university.

Link to Original Poster
http://www.ableweb.org/volumes/vol-36/poster?art=62

© 2015 by University of California- Irvine
Mission, Review Process & Disclaimer

The Association for Biology Laboratory Education (ABLE) was founded in 1979 to promote information exchange among university and college educators actively concerned with teaching biology in a laboratory setting. The focus of ABLE is to improve the undergraduate biology laboratory experience by promoting the development and dissemination of interesting, innovative, and reliable laboratory exercises. For more information about ABLE, please visit http://www.ableweb.org/

Papers published in Tested Studies for Laboratory Teaching: Peer-Reviewed Proceedings of the Conference of the Association for Biology Laboratory Education are evaluated and selected by a committee prior to presentation at the conference, peer-reviewed by participants at the conference, and edited by members of the ABLE Editorial Board.

Citing This Article


Compilation © 2015 by the Association for Biology Laboratory Education, ISBN 1-890444-18-9. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the copyright owner.

ABLE strongly encourages individuals to use the exercises in this proceedings volume in their teaching program. If this exercise is used solely at one’s own institution with no intent for profit, it is excluded from the preceding copyright restriction, unless otherwise noted on the copyright notice of the individual chapter in this volume. Proper credit to this publication