The effect of self-efficacy and pair programming collaboration in learning results of elementary programming course

Yifan Mei
Department of Statistics,
UW-Madison
Madison, USA
ymei8@wisc.edu

Heng Ping
iSchool,
UW-Madison
Madison, USA
hping2@wisc.edu

Mingren Shen
Biophysics,
UW-Madison
Madison, USA
mshen32@wisc.edu

ABSTRACT

UPDATED—December 12, 2017. The purpose of this study was to explore the interactive effect of pair programming and self-efficacy to the final learning results in introductory programming courses. The instrument of measuring self-efficacy was imported from International Personality Item Pool http://ipip.ori.org/newindexofscalelabels.htm. Data was collected by distributing questionnaires to students taking elementary computer science courses at UW-Madison(CS 302 or CS 367). Students were asked questions to evaluate their self-efficacy and pair programming levels based on their personal study experience. After that, they were asked to complete a quiz of 11 Java programming problems to examine their learning results. Results indicate that students with a high self-efficacy level tended to act well in pair programming practices and earned a higher score in the Java programming quiz. However, pair-programming shows no significant effects on learning results.Our findings suggest that high self-efficacy level has a positive impact on students programming study, and finally influences their learning results.

ACM Classification Keywords

H.5.m. [Information Interfaces and Presentation (e.g. HCI)]: Miscellaneous; K.3.2. [Computer and Education]: Computer and Information Science Education

Author Keywords

Human-Computer Interaction; Self-efficacy; Pair Programming; Collaborative Learning

INTRODUCTION

This format is to be used for submissions that are published in the conference proceedings. We wish to give this volume a consistent, high-quality appearance. We therefore ask that authors follow some simple guidelines. You should format your paper exactly like this document. The easiest way to do

Figure 1. Insert a caption below each figure. Do not alter the Caption style. One-line captions should be centered; multi-line should be justified.

Name	First	Test Conditions		
		Second		*Final*
Marsden	223.0	44		432,321
Nass	22.2	16		234,333
Borriello	22.9	11		93,123
Karat	34.9	2200		103,322

Table 1. Table captions should be placed below the table. We recommend table lines be 1 point, 25% black. Minimize use of table grid lines.

this is to replace the content with your own material. This document describes how to prepare your submissions using LaTeX.

RELATED WORK

METHODOLOGY

MEASUREMENT

RESULTS AND DISCUSSION

Longer quotes, when placed in their own paragraph, need not be italicized or in quotation marks when indented (Ramon, 39M).

CONCLUSION

It is important that you write for the SIGCHI audience. Please read previous years' proceedings to understand the writing style and conventions that successful authors have used. It is particularly important that you state clearly what you have done, not merely what you plan to do, and explain how your work is different from previously published work, i.e., the unique contribution that your work makes to the field. Please consider what the reader will learn from your submission, and how they will find your work useful. If you write with these
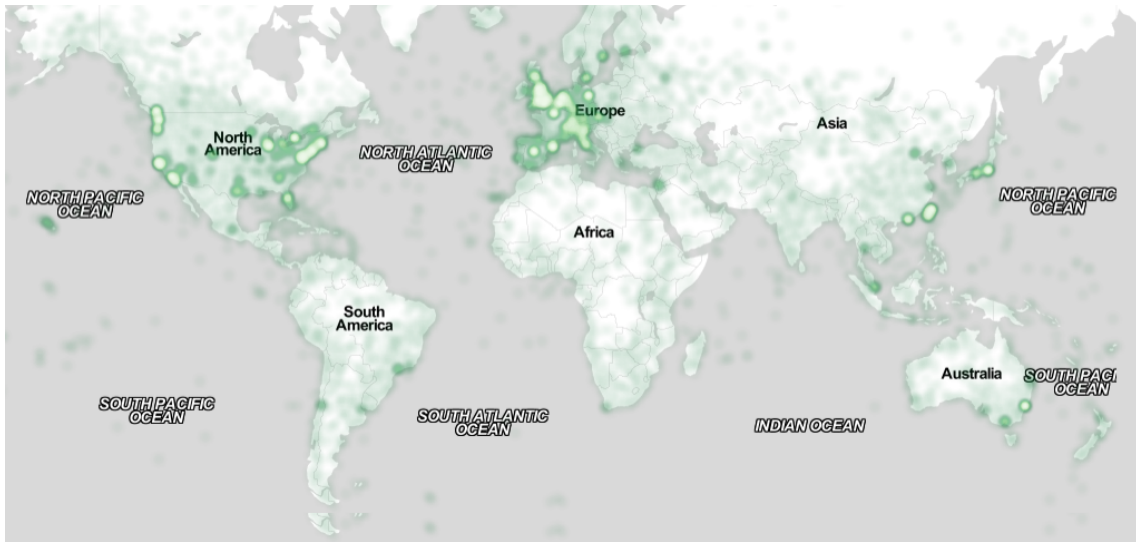
Figure 2. In this image, the map maximizes use of space. You can make figures as wide as you need, up to a maximum of the full width of both columns. Note that LATEX tends to render large figures on a dedicated page. Image: ⓒⓘ⊝ ayman on Flickr.

questions in mind, your work is more likely to be successful, both in being accepted into the conference, and in influencing the work of our field.

ACKNOWLEDGMENTS