

First Steps Towards Exporting Education: Software Engineering Education Delivered Online to Professionals

Kevin D. Wendt*, Ken Reily, Mats P. E. Heimdahl

University of Minnesota

Apr. 6, 2016

Key Takeaways

- We know more must be done
- Graduate degrees aren't the (whole) answer
- Bringing education out to professionals may be the answer

Outline

- 1 Background
- 2 What we did
- 3 Results
- 4 Next Steps
- 5 Conclusion

More must be done

The need for something more is well-documented

- Barker and Inoue, 2009

More must be done

The need for something more is well-documented

- Barker and Inoue, 2009
- Skandan and Sidhardhan, 2009

More must be done

The need for something more is well-documented

- Barker and Inoue, 2009
- Skandan and Sidhardhan, 2009
- Skevoulis, 2009

More must be done

The need for something more is well-documented

- Barker and Inoue, 2009
- Skandan and Sidhardhan, 2009
- Skevoulis, 2009
- Alef and Poirier, 2010

More must be done

The need for something more is well-documented

- Barker and Inoue, 2009
- Skandan and Sidhardhan, 2009
- Skevoulis, 2009
- Alef and Poirier, 2010
- Daun et al., 2014

More must be done

The need for something more is well-documented

- Barker and Inoue, 2009
- Skandan and Sidhardhan, 2009
- Skevoulis, 2009
- Alef and Poirier, 2010
- Daun et al., 2014

Graduate programs will not be enough

- Padmini and Shakila, 2009
- Bareiss and Mercier, 2010

Dilbert (well, Wally) says...



Figure: Dilbert Dec. 21, 1997 (abridged)

Outline

- 1 Background
- 2 What we did**
- 3 Results
- 4 Next Steps
- 5 Conclusion

Small, Synchronous “MOOC”

Small, private, online course (SPOC)

8-week distillation of graduate software design course

Synchronous webinar every week

Research Questions

- R1. How might delivery by universities compare to delivery by other organizations (i.e., private training consultancy firms, MOOCs, etc.)
- R2. Should we provide that education directly to professionals?
- R3. Can we provide software engineering education online successfully?

Outline

- 1 Background
- 2 What we did
- 3 Results**
- 4 Next Steps
- 5 Conclusion

Educational Background

What is your formal educational background in Computer Science and Software Engineering?

Master's 24%

Bachelor's 54%

Less/None 22%

Exported Education vs. Master's Program

What is your level of interest in...

	Exported Education	Master's Degree
No Interest	12%	29%
Intend to enroll	53%	6%
<i>Interested, but impractical</i>	35%	65%

Outline

- 1 Background
- 2 What we did
- 3 Results
- 4 Next Steps**
- 5 Conclusion

What should we do next?

- Larger scale survey of interest
- Extension to direct supervisor and co-workers
- Pre-/Post-surveys

Outline

- 1 Background
- 2 What we did
- 3 Results
- 4 Next Steps
- 5 Conclusion**

We need more...RESEARCH!

Early success could mean significant benefits

Must compare to traditional corporate training-style delivery

Fin



MOOC

Tend to be fully asynchronous; may not be effective approach to this type of education

Much more difficult to justify its cost of creation if the topic is not general enough

Overall Rating of Course

Classifier	Respondents %
Outstanding	6%
Very good	65%
Good	29 %
Average	5.76

Valuable to Personal Development

Classifier	Respondents %
Strongly Agree	47%
Agree	53%

Valuable to Business

Classifier	Respondents %
Strongly Agree	35%
Agree	59%
Disagree	6%

This course compared favorably with other training opportunities at my company

Classifier	Respondents %
Strongly Agree	29%
Agree	71%