2012

Interdisciplinary undergraduate learning modules in gerontechnology

H.I. Yang
Iowa State University

P. Martin
Iowa State University

D. Satterfield
Iowa State University

Mack C. Shelley
Iowa State University, mshelley@iastate.edu

J. Wong
Iowa State University

See next page for additional authors

Interdisciplinary undergraduate learning modules in gerontechnology

Abstract
As the older population grows rapidly worldwide, gerontechnology can play an increasingly crucial role in improving older people's quality of life in an affordable and sustainable way. However, even with growing interests, gerontechnology has yet to be established as a widely available educational or research program. One root cause is the lack of a well-established curriculum to train new gerontechnologists and to help professionals in relevant fields to develop gerontechnological specialties. This paper summarizes our experience and insights gained from designing, instructing, and evaluating learning modules for gerontechnology in the past 2½ years, and outlines the learning materials and effective pedagogies for gerontechnology that can be adopted and further developed.

Disciplines
Curriculum and Instruction | Educational Assessment, Evaluation, and Research | Other Education | Political Science

Comments
This is an article from *Gerontechnology* 11 (2012): 209. Posted with permission.

Authors
H.I. Yang, P. Martin, D. Satterfield, Mack C. Shelley, J. Wong, and C.K. Chang

Presentation: Learning modules in gerontechnology

H-I. YANG, P. MARTIN, D. SATTERFIELD, M. SHELLEY, J. WONG, C.K. CHANG. ***Interdisciplinary undergraduate learning modules in gerontechnology.*** *Gerontechnology 2012;11(2):209;* doi:10.4017/gt.2012.11.02.487.00 **Purpose** As the older population grows rapidly worldwide, gerontechnology can play an increasingly crucial role in improving older people's quality of life in an affordable and sustainable way. However, even with growing interests, gerontechnology has yet to be established as a widely available educational or research program. One root cause is the lack of a well-established curriculum to train new gerontechnologists and to help professionals in relevant fields to develop gerontechnological specialties. This paper summarizes our experience and insights gained from designing, instructing, and evaluating learning modules for gerontechnology in the past 2½ years, and outlines the learning materials and effective pedagogies for gerontechnology that can be adopted and further developed. **Method** Faculty members from three colleges at Iowa State University joined forces to design learning modules for gerontechnology[1]. A five-stage process was employed to identify the modules, topics, pedagogy, and learning. The result is a total of six learning modules and three cross-cutting themes at the core of learning module design. These modules have since been incorporated into an interdisciplinary undergraduate course, as well as adopted into existing gerontology, computer science, and design courses. By identifying, designing, and publicizing these flexible learning modules, we aim to establish and improve the core competency of gerontechnologists[2], as well as raising the awareness of and capabilities on gerontechnology in students majoring in engineering, science, humanity, and design. To evaluate the effectiveness of the learning modules and pedagogy, a 37-question questionnaire on four-point Likert-scale was administered both at the beginning and at the end of these courses, and paired statistical analysis was performed. In addition, qualitative data was collected via separate focus groups of students and instructors. Combined with students' in-class performances, they paint a comprehensive picture on the effectiveness of these gerontechnology learning modules in developing students' core competency as gerontechnologists. **Results & Discussion** Data collected during the pilot show that when delivered as a gerontechnology course with semester-long project requirements, students show significant improvements in understanding older adults' issues, engaging in interdisciplinary communication (such as 'technology domain experts', and 'non-technical personnel'), as well as developing their skills of systematic problem-solving, such as 'applying computational thinking (CT) to analyze problems' and 'comfort level with CT'). When adopted as a module in an existing course, e.g. a three-week introductory gerontology course, it was still able to generate significant improvements in students' understanding of aging issues, assistive technology and smart homes, while introducing moderate improvements in interdisciplinary communication skills. The result shows that these learning modules can be adopted in different courses and effectively deliver student's skill development aligned with the focus of each course, whilst developing an understanding and awareness of gerontechnology. Students also reported on how these modules encourage them to constantly consider how technology can be applied to improve older adults' lives, and how much they enjoyed the "very interesting discussion and collaboration because of the interdisciplinary team", and learned "various ways to analyze and solve problems".

References

1. Yang H, Martin P, Satterfield D, Babbitt R, Wong J, Shelley M, Chang CK. A Novel Interdisciplinary Course in Gerontechnology for Disseminating Computational Thinking. Proceedings of FIE 2011, Rapid City; 2011; pp T3H-1 - T3H-6
2. Grabinski J. 101 Careers in Gerontology. New York: Springer; 2007; pp 122-123

Keywords: communication & governance, education, interdiscipline, core competence
Affiliation: Iowa State University, Ames, IA, USA; *E:* hiyang@iastate.edu
Full paper: No