COMP101: Design and Evaluation of a Team-based Course for Freshmen Computing Majors

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Course Learning Goals

1. Increase understanding of the discipline, in terms of different majors and careers.
2. Clarify students' personal interests and motivations about their choice of major and career.
3. Increase confidence, self-efficacy, and community.
4. Expose students to, and let them practice, design and development skills.
5. Strengthen writing, presentation, and teaming skills.
6. Teach skills in problem solving, algorithmic analysis, and computational thinking.
7. Help students learn how to study effectively and how to access campus resources.

Participants & Research Methods:

- Fall 12 and Fall 13 – 3 sections of course; 65 experimental subjects completed the assessments; one section Fall 14.
- 34 control group volunteers from other courses (IS101, IS101Y, CMSC104, CMSC201).
- Pre and post-course surveys; focus groups; interviews.
- Analysis of major switching, GPA, grades in subsequent computing courses.
- Themes from focus groups, interviews, journal entries.

Preliminary Findings based on Fall 12 participants:

1. Less major switching outside of computing among COMP101 students. Switching happening sooner with less impact on time to graduation.
2. COMP101 students had higher GPAs in the following two semesters: 3.05 vs. 2.68.
3. COMP101 students exhibiting deeper thinking and reflection about computing majors and careers.
4. COMP101 students reported knowing less at the end of the semester than beginning about effective project groups. Perhaps gained appreciation about complexity of group dynamics.
5. COMP101 students expressed concerns about programming and their fears that they were not getting it but that others were.
6. Peer-to-peer interactions have positive impact on freshmen and Peers.

Next Steps:

- Continue analysis and tracking of long-term outcomes with all participants (Fall 12, 13, 14).
- Decisions about whether and how to scale up and institutionalize.

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