8-15-2017

Game Design & Development Curriculum: History & Future Directions

Elizabeth L. Lawley
Rochester Institute of Technology

Roger Altizer
Univerity of Utah

Tracy Fullerton
University of Southern California

Andrew Phelps
Rochester Institute of Technology

Constance Steinkuehler
University of California, Irvine

Game Design & Development Curriculum: History and Future Directions

Elizabeth Lawley
Rochester Institute of Technology
Rochester, NY
elizabeth.lawley@rit.edu

Roger Altizer
University of Utah
Salt Lake City, UT
roger.altizer@utah.edu

Tracy Fullerton
University of Southern California
Los Angeles, CA
tfullerton@cinema.usc.edu

Andrew Phelps
Rochester Institute of Technology
Rochester, NY
andy@mail.rit.edu

Constance Steinkuehler
University of California, Irvine
Irvine, CA
const@uci.edu

ABSTRACT

It has been nearly twenty years since the first undergraduate degree program in computer game development was established in 1998. Since that time, the number and size of programs in game design and development have grown at a rapid pace. While there were early efforts to establish curricular guidelines for the field, these face a number of challenges given the diverse range of academic homes for game-related programs. This panel will address the history of curricular development in the field, both in individual programs and across institutions. It will also explore the potential risks and rewards of developing curricular and/or accreditation guidelines for the field.

CCS CONCEPTS

• **Social and professional topics~Model curricula**

• **Social and professional topics~Computing education programs**

• *Social and professional topics~Accreditation*

• Applied computing~Computer games

KEYWORDS

Panel, Game Design, Game Development, Higher Education, Curriculum

1 INTRODUCTION

The discipline of game design and development education is still quite young in the context of academia, with the first undergraduate computer gaming degree having been established at Abertay University in Scotland in 1998. [1] That program was followed quickly by others in the early 2000s—some growing out of computing programs, others from art schools, and still others from media studies.

In his introduction to the first issue of the journal *Game Studies,* Espen Arseth argued that "2001 can be seen as the Year One of Computer Game Studies as an emerging, viable, international, academic field." [2] Also in 2001, Kurt Squire wrote a two-part series for the blog Joystiq, in which he surveyed the options for studying game development in higher education. Squire found only a handful of programs, ranging from full degrees offered by for-profit universities like DigiPen and Full Sail to individual courses and concentrations being offered within existing computing and media/arts academic programs [11,12]

Over the sixteen years since those articles were written, the number of academic programs in game design and development has expanded rapidly. While there is no official count of these programs, the Higher Education Video Games Association (HEVGA) 2015 report on the state of the discipline identified 328 schools offering game-related degrees or certificates [7].

The relative youth of the field of game design and development has resulted in most schools developing their curricula independently, without an agreed-upon set of curricular principles. The International Game Developers Association (IGDA), through its Education Special Interest Group, made early efforts to produce and disseminate suggested curricular frameworks for undergraduate programs in the field. The most recent of these—which is already nearly ten years old—identified the following core topics [8,10]:

1. Critical Game Studies
2. Games and Society
3. Game Design
4. Game Programming
5. Visual Design
6. Audio Design
7. Interactive Storytelling
8. Game Production
9. Business of Gaming

In this framework, the first two items—critical game studies and games and society—focus on underlying context and skills for students, including the history of games and play, the critical assessment of games and how they are played, and the impact of games on a broad scale. Game design, game programming, and game production all deal with the functional development of games, from concept to delivery. Visual design, audio design, and

interactive storytelling focus on the development of game components. Finally, the business of gaming addresses the organizational, financial, and legal contexts that game developers work within.

While game design and development is often thought of as a primarily technical field, only one of the components of the IGDA framework—game programming—focused exclusively on computer science skills (although visual and audio design typically include instruction on current software tools and methods as well as design concepts). And, in fact, many game design and development programs are housed not in computing programs, but rather in art and/or media programs..

As the field has matured, and become even more diverse in its academic homes and focus, it has become increasingly difficult to come to agreement on a single curricular framework for guidance It is therefore unsurprising that neither the IGDA nor any other organization have been able to produce a more recent set of curricular guidelines.

In a recent essay looking back at the development of the game studies field, Ian Bogost wrote "Not quite fifteen years after Espen Aarseth declared Computer Game Studies, Year One (the title to which this post alludes), ours is an improbable, fledgling discipline whose future is hardly secure. […] Perhaps the worst hegemony is the hegemony of simplistic, linear progress, the hegemony of thinking that we all really do have something in common, that there is some clear and certain ruleset for intellectual discourse online- and off that maximizes progress or justice or what have you—and that we ought to reconcile and resolve that commonality, boil it down to the average of its various components, and sip this decoction together, the delightful broth of games." [3]

In that context, this panel will seek to examine both the history and the potential future of efforts to document and/or standardize curriculum in the discipline.

2 PANEL PARTICIPANTS

The members of this panel bring a wealth of experience in the development and delivery of game design and development curriculum.

Tracy Fullerton is an experimental game designer, professor and chair of the Interactive Media & Games Division of the School of Cinematic Arts, as well as director of the interdisciplinary USC Games program, a collaboration with the Viterbi School of Engineering. She was instrumental in developing USC's "play-centric" game design program [6], and was actively involved in the early IGDA efforts to develop curricular frameworks.

Roger Altizer, Jr.. is the co-founder of the Entertainment Arts and Engineering, the Director of Digital Medicine for the Center for Medical Innovation, the founding Director of The GApp lab (Therapeutic Games and Apps) and former director of the Center for Interdisciplinary Art and Technology at the University of Utah, who has written about the challenges of creating an interdisciplinary program in entertainment arts and engineering [9].

Andrew Phelps is the founder and Director of the RIT Center for Media, Arts, Games, Interaction and Creativity (MAGIC). He is also the founder and former Director of the School of Interactive Games & Media at the Rochester Institute of Technology in Rochester, New York, which offered some of the first Bachelor's and Master's degrees in Game Design & Development in the United States [4,5].

Constance Steinkuehler is a Professor of Informatics at the University of California, Irvine. She serves as president of the Higher Education Video Game Alliance and has worked with the White House to advise federal agencies and private foundations on ways to develop games that have positive social impact.

Elizabeth Lawley, the panel moderator, is a Professor in RIT's School of Interactive Games & Media, and a faculty associate in the Center for Media, Arts, Games, Interact, and Creativity (MAGIC)..

3 PANEL ORGANIZATION

The panel will be organized into three rounds of questions posed by the moderator.

In the first round, participants will be asked to reflect on the development of game design and development curricula and degree programs in their institutions, including both conceptual and organizational challenges.

In the second round, participants will discuss efforts to date in documenting existing programs and curriculum, including work done by both the IGDA and the HEVGA.

In the final round, participants will be asked to speculate on the future of curricular and/or accreditation guidelines for the discipline, and to respond to Bogost's speculation that any attempts to determine commonality are not just difficult, but even dangerous.

REFERENCES

[1] Susan Adams. 2015. The Top Colleges and Grad Schools To Study Game Design. Forbes. Retrieved August 12, 2016 from http://www.forbes.com/sites/susanadams/2015/03/25/the-top-colleges-and-grad-schools-to-study-game-design/
[2] Espen Arseth. 2001. Computer Game Studies, Year One. Game Studies 1, 1. Retrieved April 30, 2017 from http://www.gamestudies.org/0101/editorial.html
[3] Ian Bogost. 2015. Game Studies, Year Fifteen. Ian Bogost Blog. Retrieved April 30, 2017 from http://bogost.com/writing/blog/game-studies-year-fifteen/
[4] Adrienne Decker, Andrew Phelps, and Christopher A. Egert. 2017. Trial by a Many-Colored Flame: A Multi-disciplinary, Community-Centric Approach to Digital Media and Computing Education. In New Directions for Computing Education, Samuel B. Fee, Amanda M. Holland-Minkley and Thomas E. Lombardi (eds.). Springer International Publishing, 237–257. Retrieved May 1, 2017 from http://link.springer.com/chapter/10.1007/978-3-319-54226-3_14
[5] Christopher Egert, Stephen Jacobs, and Andrew Phelps. 2007. Bridging the Gap: Balancing Faculty Expectations and Student Realities in Computer Gaming Courses. In Proceedings of the 2007 Conference on Future Play (Future Play '07), 201–204. https://doi.org/10.1145/1328202.1328239
[6] Tracy Fullerton. 2006. Play-centric games education. Computer 39, 6: 36–42.
[7] Higher Education Video Game Alliance. 2015. Our State of Play: Higher Education Video Game Alliance Survey 2014-15. Higher Education Video Game Alliance, Madison, WI. Retrieved August 9, 2016 from http://higheredgames.org/wp-content/themes/hevga_theme/assets/2015_HEVGA_Survey_Results.pdf
[8] IGDA Education Special Interest Group. 2008. IGDA Curriculum Framework: The Study of Games and Game Development. Retrieved from https://c.ymcdn.com/sites/www.igda.org/resource/collection/0DBC56DC-B7CB-4140-BF3A-22A9E92EC63A/igda_curriculum_framework_2008.pdf

[9] Robert Kessler, Mark Van Langeveld, and Roger Altizer. 2009. Entertainment arts and engineering (or how to fast track a new interdisciplinary program). In ACM SIGCSE Bulletin, 539–543. Retrieved August 9, 2016 from http://dl.acm.org/citation.cfm?id=1509049

[10] Monica M. McGill. 2010. Collaborative design of cross-disciplinary game minors based on the IGDA curriculum framework. In Proceedings of the fifteenth annual conference on Innovation and technology in computer science education, 259–263. Retrieved August 9, 2016 from http://dl.acm.org/citation.cfm?id=1822163

[11] Kurt Squire. 2001. Gaming in Higher Education, Part I. Joystiq 101. Retrieved April 30, 2017 from https://web.archive.org/web/20020427133125/http://www.joystick101.org/?op=displaystory&sid=2001/2/18/111322/124

[12] Kurt Squire. 2001. Gaming Opportunities in Higher Education, Part II. Joystiq 101. Retrieved April 30, 2017 from https://web.archive.org/web/20030702031314/http://www.joystick101.org:80/story/2001/3/10/122220/188