Bachelors of Science in Computer Game Design

The College of Computing and the College of Arts and Sciences

Dakota State University

Onsite Visit Date: Friday, Dec. 9, 2016

External Reviewer: Mr. Geoffrey Long, USC, World Building Media Lab

Executive Summary of Findings

The Computer Game Design program at Dakota State is accomplishing remarkable things and it clearly has the potential to develop into an industry-leading, worldclass program bringing new students and prestige to the university. Games are the fastest-growing entertainment media industry in the United States, and as global sales of digitally-downloaded games continue to boom and high-speed Internet connectivity becomes increasingly ubiquitous, South Dakota's low cost of living makes it a compelling place for game studio startups. This stands to have a significant impact on the state's economy - especially if DSU continues to generate skilled game developers.

That said, the program is clearly straining to achieve its full potential, and has clear areas for improvement. The number of its graduates actually working in the games industry is in the single digits. The number of female students in its current junior and senior classes is zerou It is in dire need of additional core Computer Game Design program faculty, especially women from the industry. The program is currently not giving its students access to the latest technology, or the ability to lobby for funds for experimental resources. Students and faculty should be traveling more to leading industry conferences, to engage in and inform the ongoing industrial conversation, and for networking opportunities. The program should fund more visitors from the industry to the program to serve as advisors and judges for projects.

In short, during my visit I identified 43 things the program should work to improve:

Increase Industry Awareness of the Program

1. Establish a colloquium lecture series to bring in outside speakers from the industry.
2. Turn the colloquium lecture series into a podcast.
3. Establish a travel fund to send faculty and students to conferences.
4. Support the DSU e-sports teams.
5. Publish your games publicly.
6. Improve your website.

Increose Student Placement

7. Establish exchange programs with other schools.
8. Again, establish a travel fund to send students to conferences.
9. Finish drafting an advisory board, particularly from companies who can hire students.
10. Doggedly pursue internship programs.
11. Increase attention to entrepreneurialism and help students start up their own studios to create future jobs for future students.

Increase Focus on the Business of Video Game Design and Entrepreneurialism

12. Establish a business and production area of focus. 13. Provide a lawyer.
14. Go to the state and local governments for support.
15. Establish relationships with local entrepreneurs.

Increase Faculty Support

16. Hire more core game design faculty, especially from industry (terminal degrees not required).
17. Release core game design faculty from non-game design teaching requirements,
18. Hire a part[w] time, dedicated administrative assistant for the program (not part of an existing assistant's time)
19. Make Professor Graham the official coordinator/head of the program.

Improve Gender Imbalance

20. Hire female faculty as dedicated game program professors.
21. Offer scholarships to female students, and recruit heavily.

Improve Racial Imbalance

22. Hire minority faculty as game design professors.
23. Offer scholarships to minority students, and recruit heavily.

Increase Mobile and Emerging Platforms Support

24. Invest in mobile and emerging platform development, including establishing a "slush fund" for students to apply for truly experimental materials.
25. Set aside space for room-scale VR testing.

Increase Entrepreneurial or Business Modeling Support

26, Incorporate business modeling and entrepreneurialism into the curriculum.
27. Hook students up to a larger entrepreneurial support system.
28. Connect to local or state governments for financial development support.

Develop Lonetern[n]: Stretch Goals

29. Develop a five-year plan.
30. Establish a makerspace.
31, Establish a game library.
32. Foster a wider understanding of the potential of games among the local faculty
33. Build on that to become even more widely-known for serious games. Launch a dedicated initiative to developing games with the local Dakota tribes.

Improve Program Curriculum

34. swap out ARTD 431 for GAME 375. Add GAME 360. Review ART 121.
35. Add more core game design faculty, especially more women and minorities from the industry.
36. Make the implicit lessons taught through project-based learning explicit through repeated overt reinforcement in year-end projects
37. Add more support for mobile and emerging platforms, and a focus area on business and entrepreneurialism.

Improve Program Assessment

38. Every year's final projects should be judged not only by the professors, but by an external group of industry professionals,
39. Faculty assessment should be measured by impact and influence on the industry and the overall conversation of the industry as a whole, with expectations tempered given available time and resources.
40. Don't worry about faculty accreditation.

Improve Program Enrollments

41. Again, attract more women and minorities.
42. Halt the attrition of what female students the program does attract.
43. Think bigger.

How these 43 recommendations were reached is covered in detail in the "Program Evaluation" section of this document, with a summary of findings and more explicit recommendations for next actions (mirroring this list, but with much more detail) to be found in the "Specific Recommendations" and "Specific Recommendations for University-Identified Issues" sections at the end.

Accompanying this document is an in-progress sketch of the program's curriculum, reflecting its ongoing revision by Professors Graham and Howard, and the suggestions of this reviewer.

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Schedule of On-Säte Visit

8:45 AM	Dr, Richard Hanson, Provost and Academic Vice President, Heston Hall 315 (820 North Washington Avenue)
9:00 AM	Ben Jones, Dean of Arts and Sciences, President's Conf Room
9:30 AM	Dr. Jay Kahl, Director of Assessment, President's Conf Room
10:00 AM	
10:30 - 12:00 PM	Computer Game Design Faculty, SC 133
12:00 - 1:00 PM	Lunch, Marketplace (CGD faculty)
1:00 - 2:00 PM	Computer Game Students, EH 204
2:00 - 3:00 PM	Steve Graham, Tour facilities
3:00 - 4:00 PM	Open time - prep for exit interview - Oyate Room
4:00 - 5:00 PM	Exit Interview with Richard Hanson, Ben Jones, Steve Graham, Jeff Howard, Oyate Room
Pick up at Motel (Steve Graham)	

6:00-9:00 PM Student final presentation/demo of the projects, Science Center Auditorium

Program Evaluation

1. Program Goals and Strategic Planning

1.1 Appropriateness of Goals and Whether or Not Goals are Being Met The DSU Computer Game Design program promises its students:

> If you're a gamer or a designer interested in 3D design and simulation, DSU will teach you how to do it. You'll learn the fundamental skills for video game design, development, and production. Come build a better game at DSU,
>
> This degree combines a number of different disciplines. Your core courses are diverse. They'll include writing, design, software development, calculus, physics, and more. With your electives, you can focus on a topic of your choice such as narrative design, software design, and technical art.
>
> Video games are a major industry that continues to expand. But you don't have to work on games. You'll also develop skills for interactive software and digital media. With your degree, you'll be prepared to work in related fields like interaction design and software development. With this degree, you can be flexible. [1]

This last paragraph is key. It not only helps reassure parents skeptical of their child "majoring in video games", but it also reflects the breadth of the skills offered by the program. While students in this program are learning to produce video games, they are also learning critical skills in project management, user experience design, and programming.

However, this also has a downside. This last paragraph can also function as an escape clause, giving the program a reasonable "out" if their students do not actually enter the video game industry. This is a problem, because the number of graduates actually employed in theirfield, in actual video game production, is in the single digits. This is a major problem with the program that needs to be addressed by increasing the awareness of the program by the industry, improved student placement, and a greatly increased focus on the business of video game design and entrepreneurialism, with a direct intent to foster a video game industry startup community in South Dakota. Luckily, the experience of Computer Game Design program core faculty Steve Graham in multiple startups makes this not only possible, but an excellent possible area for excellence.

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12, Program Goals Relative to Institutional Mission

Computer Game Design is not only an excellent match for DSU's mission of training students for innovative, high-tech careers with innovative, high-tech tools, but it is clearly a growth program for the university and stands to be a major attractor for students from both inside and outside of the state for the foreseeable future. (See section 1.3 below.)

However, the Computer Game Design program does not deliver on the bold promise at the top of the "Why DSU?" page on the school's website: "Work with the latest technology." While the program has recently enjoyed a refresh of its lab computers, it does not offer hardware or training support for emerging, highly employable areas of computer game design such as virtual reality and augmented reality, or provide opportunities for curious, driven students to obtain funds for experimental projects. For the program to deliver on the institutional mission of enabling students to "work with the latest technology" and produce students with industry-leading technical expertise, the program needs a significant upgrade in its tools, number of faculty, discretionary funds and institutional support.

1.3* Program Goals Relative to Current Notional Trends and Forecasts for the Discipline

According to the Entertainment Software Association's 2016 "Essential Facts About the Computer and Video Game -Industry" survey (the primary annual source of key data in the game development industry):

- Consumers spent more than $23.5 billion on game content, hardware and accessories in 2015, compared to $22.4 billion in 2014
- 63% of American households are home to at least one person who plays video games regularly (three or more hours a week) [1]

Further, according to a recent report from PriceWaterhouseCoopers, the games industry is the fastest-growing entertainment media industry in the United States 3.7% compound annual growth as opposed to TV and video (0.5%), music (3.2%), cinema (1.2%) and books (2.9%) - and the global game industry is also booming, predicted by PwC to grow from $71.3B in 2015 to $90.1B in 2020. [2]

Perhaps of greatest relevance to DSU graduates, the growth rate for digital sales that is, sales of games that bypass physical production and the retail channel and

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[1] http://essentialfacts.theesa.com

[2] http://venturebeat.com/2016/06/08/the-u-s-and-global-game-industries-willrow-a-health -amount-b -2020- wc-forecasts

go straight to digital-download channels like Steam and the iTunes store - are outpacing that 3.7% CAGR by a wide margin:

grow-a-healthy-amount-by-2020-pwc-forecasts/

> Services such as Steam and Origin are thriving on the PC. On the PC, U.S. online microtransaction PC games are expected to grow at a 7.1 percent CAGR, from $2.7 billion in 2015 to $3.9 billion in 2020.
>
> In the U.S., digital console game revenue is growing rapidly, from $2.0 billion in 2015 to $3.6 billion in 2020, a CAGR of 12.4 percent* Digital games will be a third of console game revenue by 2020. [3]

This means that graduates of DSU's Computer Game Design program interested in staying in South Dakota can start up their own studios locally at a fraction of the cost of bigger games industry hubs like Silicon Valley, Los Angeles, Seattle, Austin, Boston, Montreal or Vancouver, while still releasing their products at competitive prices in the same digital channels and reaching a robust global market. This stands to not only contribute meaningfully to the local economy, but to continue to elevate the profile of DSU as well.

II. Program Resources

21. Effective Use of Resources to Meet Program Goals

The program is currently making remarkable use of what resources it has, with a concern that it might be spreading its core faculty too thin. The program's investment in bringing members of industry to campus to meet and advise the students is an excellent use of resources and should be increased, as it supports both raising industry awareness of the program and its graduates and potentially increases the degree of emotional investment these visitors have in the program's long-term success.

22 Faculty Staffing Levels and Credentials

The program needs more faculty. Professors Graham, Berman, and Howard offer deep knowledge in how games work, how games (and other software) are made, and best practices for educating students in these areas. That said, additional faculty should be drawn from the industry - as opposed to more theoretical game studies programs - to continue to provide students with practical, contemporary

[3] http://venturebeat.com/2016/06/08/the-u-s-and-global-game-industries-will-row-a-health -amount-b -2020- wc-forecasts

industry experience and direct connections to game development companies who may currently be looking to hire, thus improving the students' preparation for, and chances of, employment in the games industry.

The program is also well aware it would benefit greatly from the addition of female faculty, especially drawn from industry positions of power to help with female student attrition (there were zero female students in the senior project presentations I observed, an area of deep concern) and to combat the "boys' club" mentality that is all too often prevalent in the games industry (see the recent Gamergate debacle). Of secondary concern is the program's need for a more racially diverse faculty, to better expose the students to the range of cultures they will experience in the industry and to better attract a more racially diverse student body. Old white dudes attract young white dudes. We must do better.

That said, it is imperative that the school recognize that filling this key faculty role will require thinking differently about viable candidates for the position. The number of industry professionals with terminal degrees is staggeringly low, which means that they are in high demand from games programs around the world, Further (as much as it pains me personally to write this) such higher degrees are not a guarantee of a candidate's success in the industry so much as it is a testament to their potential as a researcher or professional teacher. For a program like DSU's that is focused more on production than theory, the school should strongly consider candidates without terminal degrees as "professors of practice", as is used with great success at USC, or a permanent open, rotating position for "game designers in residence" who will serve as visiting professors, as is used with great success at MIT and Kenyon College (the latter of which leverages its isolated location in a small, rural Ohio village as an opportunity for the visitor to work on their projects for a year free from distractions - an excellent possible marketing tactic for DSU and Madison),

2.30 Classroom Facilities

The classroom facilities I observed were acceptable, with the understanding that a new classroom for the program is currently being built and will be accessible in the fall of 2017. This area of the review should be revisited once the new facilities are finished, and reality measured against projections.

2.4 Laboratory Facilities and Equipment

A project-based program like Computer Game Design requires a space for the students to assemble, collaborate and develop their projects. The program's current laboratory space is a start, but it could be greatly improved. It's a single big, open room with a moderate amount of whiteboard space around the perimeter, which I'd imagine means that multiple teams working in the shared space simultaneously are cramped, and the din would be cacophonous. The room also appeared to have

inadequate security, requiring students to stow away their work whenever they needed to break for the day - an inefficiency that will hopefully be addressed by the new building's project team rooms. Granting the students 24/7 access to distinct team spaces in which their projects can be left standing should be a massive improvement.

There is a concern that the new facilities will certainly not be a cure-all for the program's challenges - I observed multiple conversations about the program faculty potentially not having offices near the students' laboratory space, which may well exacerbate a student concern about the availability of the professors. Having the professors' offices scattered across the campus requires extra effort on the part of the students to track them down, which can lead to an unconscious perception on the students' part that the professors are simply unavailable. Having their offices be nearer the student laboratory space should help alleviate this concern.

However, there's also a concern that the space currently described in the new building will be woefully inadequate for a program that is identified as a potential major growth area for the university. Special attention should be paid to the predicted growth rate of the program and the available space for growth in the new building, or else the program runs the risk of bumping up against the same limitations within the next 24-36 months.

2n5e Financjo/ Support

The program seems to be making excellent use of what resources it has, but for it to continue to flourish and deliver superior value to the school, it needs more. Aside from the need for more faculty and hardware, five areas the school should strongly consider for further investment are:

1. a travel budget to send students and faculty to the annual Game Developers Conference in San Francisco (hands down the single greatest investment in its students made by MIT's Singapore-MIT GAMBIT Game Lab, as the networking opportunities this delivered alone paid off in spades)
2. a travel and honorarium budget to bring speakers from the industry to present to the students as a weekly colloquium series (a regular fixture at both MIT and USC, and a crucial opportunity for students to network with industry professionals)
3. a Computer Game Design faculty-overseen experimental technology "slush fund" that students should be invited to pitch projects for, which will train them to make budgets, justifications and sharply-honed pitches for realworld funding
4. an increased marketing and publishing budget to both produce a free podcast of the colloquium speakers (an excellent tool at MIT to increase its

public perception as a thought leader and participant in the industry conversation) and to publicly distribute the games the students produce (another excellent tool from the Singapore-MIT GAMBIT Game Lab, which released student games for free on its website and thus demonstrated publicly its students knew how to make games).

5. a dedicated university support system for entrepreneurial development, teaching students how to make a living booting up their own studios, fostering a local game studio industry, creating local jobs, increasing potential for future graduate employment and supporting the local economy (requires, among other things, access to a lawyer)

III. Program Curricukum

The curriculum in the Computer Game Design program is both one of its greatest strengths, and one of its greatest areas for improvement.

The high-level mission of the program to teach students a wide array of skills required for game development, from narrative design to visual arts to programming, is bang-on. Its insistence on its students taking physics as their required science course is brilliant, as (of course) physics plays a huge role in modeling virtual worlds and game mechanics - and the "math of games" course taught by Professor Palmer or Professor Berman is an excellent move for the same reasons. Professor Howard's narrative design and worldbuilding classes are also brilliant inclusions in the curriculum, as these are crucial skills for developing highly-engaging intellectual properties as well as crafting real-world applications for scenario planning, strategy development, user scenario design fictions, and so on in industrial, governmental, and educational capacities outside of the entertainment industry (as demonstrated by the USC World Building Media Lab). And, of course, Professor Graham's graphics programming and Al courses are of key importance, as attempting to make games without knowing how to code such things effectively constrains the student to pen, paper and dice.

That said, the program needs a greater degree of influence over the other courses that are included in its curriculum, in order to best ensure that the content of those courses furthers the students' progress through the program instead of hindering it. Multiple students reported that some of the fine arts courses as they are currently taught do not address, or even lay the foundational skills for, game development. Students specifically cited Professor Jones' Art 431: Computer Graphics Effects class as being taught with radically outdated software (Adobe Director) versus industrystandard software like HTML5, Adobe Flash/Animator or Unity, and Professor Montgomery's Art 121 as being irrelevant and suffering from a misalignment of requirements to tools (a required textbook on the use of color but no colors in the required $180 art kit). This is not to say that the students' opinion of the Arts courses were universally negative - students expressed an appreciation

for Professor Timms, Professor English's 3D art course, and Professor Behrends' version of the Art 121 course - but overall there was a sense of student dissatisfaction with the Digital Arts courses, including one pointed student testimonial: "Originally, I had planned on attending the college for Digital Arts and Design, but I was quickly disenchanted by the lack of passion and process to be passed on by many of its key professors:,

Multiple sources also suggested that the attitude of some Digital Arts professors towards those of the Computer Game Design program is borderline, if not overtly, antagonistic. Judging by the students' comments, this in-fighting seems to be threatening the value of their educations, not to mention undermining the quality of the Computer Game Design program and the authority of its faculty. These conflicts must be resolved in a way that the courses are more deliberately architected towards a smoother overall learning experience for the students with clear value to the students' chosen fields, while still delivering sufficient autonomy to the professors in how those skills are taught. If additional game design faculty members are added, strong consideration should be given to adding faculty with games industry experience and skills in technical art, studio animation or graphic design over comparable experience and skills in fine art.

At the same time, some classes that are clearly key to this progress are not included in the required course list, such as Professor Howard's Game 360: Narrative Design course and Game 375: Level Design course, Multiple students expressed dismay that the Level Design course, which is so clearly a core component of Computer Game Design, was not a required course. It is possible that, if the number of required courses in the curriculum is already at its maximum, careful consideration should be given for replacing Art 121 and ArtD 431 on the required courses list with Game 360 and Game 375.

Again, a glaring omission from the program is an emphasis on the business of video games and the leadership and organizational skills specifically required of a producer or project manager, These skills are currently taught implicitly through the students' projects, but multiple students expressed dissatisfaction with not being explicitly taught leadership and management models. The students also need more training in the financial aspects of the video game industry, doing competitive analysis, budgeting, estimation, and resource management, and how to use new, emerging financial tools like Patreon and Kickstarter. These areas are crucial to the students' long-term economic success, especially if a goal of the program is to foster a games industry in South Dakota and have its graduates boot up their own studios and employ future graduates. The program should invest a good deal of attention moving forward to establishing partnerships inside and outside of the school to incorporate these elements, perhaps going so far as creating a new "production and management" emphasis area.

IVE Technology Integration

See sections 1.2, 2.4 and 2.5 above. The program needs additional hardware in emerging platforms like augmented reality and virtual reality, and a slush fund to enable students to pitch ideas requiring more unique hardware. The students also need to be made more aware of what resources the school offers outside of the department; one student was grousing about the lack of a recording studio, and another student politely informed him that yes, the school actually has one, and they are welcomed to use it at any time.

V. Program Assessment

510 Appropriateness ofAssessrnent L//easures/Activities for the Discipline .The Computer Game Design program needs a set of assessment measures/activities appropriate to designing computer games. The program's current project-based learning model is an excellent choice, and is in line with other leading game design programs like MIT and USC. Students should be assessed by industry professionals for how well their developing skills are preparing them for professional employment in the industry, with the very real possibility of sharp critique and "reality checks" if the student is underperforming. Hearing from industry professionals that their current level of effort is insufficient to gain them gainful employment should be a terrific motivator for improvement

Similarly, assessment measures for the faculty of this program should be bound to their ability to impact and influence the overall industry conversation. This means placing greater emphasis on presentations at industry-centric conferences like the Game Developer Conference in San Francisco, or publishing books and articles aimed at "crossover audiences" (both academic and industrial) as opposed to more strictly academic peer-reviewed journals, which are frequently inaccessible to industry professionals. [4]

52 Major-field Assessment Activities, Relative to the Program Goals To this end, I suggest that the program's project-based learning model be foregrounded even further by adding explicit project review sessions with an advisory board at the end of the fall semester and a board of external invited judges from the industry at the

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[4] Shameless plug: one example of a publication venue targeting crossover markets is the Playful Thinking series I co-edit with William Uricchio and Jesper Juul for MIT Press: short books on industry-relevant topics written to be valuable and accessible to scholars, game designers, and curious mainstream audiences. Another is Carnegie-Mellon University's publishing initiative, with Drew Davidson's Well Played anthologies making great contributions to both academia and industry.

end of the spring semester, every year of each student's progress. The program already focuses heavily on group-based final projects modeled after industry practices, so this even more practical approach would be a terrific way for the students to see how what they're learning has real-world uses

To do this, the program must:

- Complete the establishment of an advisory board
- Double down on project-based learning, developing a team game development project for evaluation in each of the student's academic years
- More explicitly architect the contents of the courses in its curriculum to build up to these projects
- Work with the professors for each class in the curriculum to ensure that the contents of each class deliver both fundamental lessons and clear ways those learnings will be applied in the overall projects
- Bring in the advisory board every November for a mid-year review of every year's student group projects, not just the junior/senior projects
- Bring in an ever-changing panel of outside experts to provide final judging of these projects in May (done coincidentally with some event to increase the likeliness of attendance; this may require IDIG to be moved to May, or a second similar event to be added at the end of the year)

53, Program Accreditation

There is no industry standard accreditation for game development programs, To the best of my knowledge, none of the faculty in the Singapore-MIT GAMBIT Game Lab or USC's Interactive Media and Games Division held any industry-specific accreditation. Instead, we held varying combinations of degrees and industry experience, Many of the best professors at USC only have bachelor's degrees, but extensive industry experience - for example, Professor Richard Lemarchand only has a bachelor's degree in physics and philosophy, but has over 25 years' worth of experience in the games industry - including serving as the lead game designer for Naughty Dog, the company behind the mega-blockbuster series Uncharted [5]

As for student accreditation, the Computer Game Design program should continue to focus on its project-based, "learning by practice" assessment system, wherein every year each core class builds up to a central game-design project, which is then evaluated by faculty, external industry evaluators, and by their peers, as described above.

If the model that emerges is for students to pitch possible games for further development into working prototypes or shippable games in the following year,

[5] htt s: www.linkedin.com in richardlemarchand

the majority of the slots for team-developed games might be filled by the selections of the faculty and the jurors, but the students themselves may be encouraged to select one game purely on the merits of what they want to see, thus incorporating an opportunity for peer review.

VIS Student Support/Student Enrollments

6L Student Recruitment Efforts

The student recruitment numbers for the program seem to be impressively high, based on the statistic provided that the Computer Game Design program currently represents 8-9% of the total on-campus undergraduate student body. That said, the program is overwhelmingly imbalanced in both gender and race, two areas that should be given additional focus in future recruitment efforts.

Upon reviewing the website for the program, it seems that the program would also benefit greatly from a review of its marketing materials. As it currently stands, the primary value proposition seems to be that this is the only school in South Dakota where students can pursue a game design degree, That's great, but it doesn't present much of an argument for why students outside of South Dakota would want to come here - or why faculty, guest speakers or exchange students would either.

This is unfortunate, as the program really does have a significant number of unique selling points to offer, which I'll revisit in section VII. Greater effort should be put into how the program represents itself to potential students and members of the industry, perhaps through such media components as a podcast of a lecture series or broader marketing of on-campus events like IDIG.

6.2 Student Enrollment Numbers

Again, the student numbers for the program are impressive, based on the same statistic that the program currently represents 8-9% of the total on-campus undergraduate student body, but also again, the program is overwhelmingly homogenous. The students would benefit greatly from a student body more representative of the diversity in the industry, so they develop a more realistic understanding of the cultures they will experience post-graduation,

Further, should the program recruit too many more students, there is a concern that Professors Graham and Howard would be seriously stretched too thin. The program stands to be a major attractor of students to the university, but it will require additional faculty to support any significant increase in the number of enrolled students.

63. Student Graduation Rates and Student Placement

As mentioned in section 1.1, it is concerning that of the 43 graduates of the program to date, less than 10 are currently working in the games industry. While it is good that the program teaches skills that are equally employable in other forms of software development, such a low percentage of successful placement in the students' chosen field will eventually reflect badly on the program. Steps must be taken to help students find employment in game design studios around the world, or to provide the students the skills and resources required to start up game design companies of their own. Eventually, the metrics for success should not simply be how many students are working in their chosen field, but how many of those students prove successful enough to hire future graduates of the program.

Equally concerning is the apparently current 100% attrition rate of female students in the program. I've been assured that 5 of the program's 43 graduates are women, and there are female students in the freshman and sophomore courses, but the allmale teams of juniors and seniors I saw at the game demo presentations was a deeply disturbing visual, suggesting greater care and attention should be paid to ensuring female students are receiving the support (and welcome) they need to stick with, and complete, the program.

6.4 Student Support Services See section 6.5 below.

65 Academic Advising

That the program currently represents 8-9% of the total on-campus undergraduate student body with only two core professors and a handful of affiliated faculty endangers the long-term viability of the program, as it risks burnout of its core faculty. Berman has an estimated 25 advisees, Howard has 35, and Graham has 80. A greater degree of hands-on counseling and guidance would be greatly beneficial to the students in the program.

A caveat: some degree of general student advising can be done with a generic fulltime counselor, but the games industry has such a specific set of constantlychanging requirements and characteristics that career advisement really must be provided by someone specific to the Computer Game Design program, and preferably by someone with industry experience.

Adding core game design faculty will help alleviate the risk of burnout to the existing core faculty while maintaining a high level of industry-specific guidance to the students.

Vll,, Program Strengths and Areas for Improvement

Program Strengths

A Breadth of Knowledge. Professors Graham, Berman and Howard offer deep knowledge in how games work, how games (and other software) are made, and best practices for educating students in these areas. Further, the program instills in its students a terrific breadth of professional skills not specific to the games industry that the students learn while they're making games, such as critical skills in project management, user experience design, and programming. All of these skills increase the students' employability in the wider job market.

Excellent Embodiment of the DSU Mission, The Computer Game Design program is a clear match for the mission of Dakota State University, as it is a rapidly-evolving, technology-centric form of media and entertainment. This makes it an excellent candidate for showcasing as a primary center of excellence (and value) for the university. Further, the program presents a differentiated offering for artists in the game industry, given DSU's unique technology mission. Other schools in South Dakota may lead in the fine arts, but DSU's unique offering in game design and technology is an embraceable selling point that should be built upon.

Participating in the Larger Conversation. Professors Howard and Graham are to be commended for their ongoing participation in the larger conversation in the game studies and game development communities. They are excellent ambassadors to the larger community, regularly presenting guest lectures at much larger universities like MIT and premiere conferences like the Game Developers Conference (GDC) in San Francisco. Students in the program are also regular ambassadors to the rest of the games community, and are regularly recognized with platinum or gold awards in the prestigious Game Narrative Review competition at GDC, with 3 of the 21 awards going to DSU students in 2016 [6], 3 of 18 in 2015 [7], and 5 of 21 in 2014 - more than any other school in the country that year, including MIT, USC, NYU, CMU and DigiPen. [8]

Bringing the Industry to South Dakota. The geographic location of DSU is both one of its greatest strengths and greatest weaknesses. Universities like the University of Southern California have no problem getting industry professionals to drop in for guest lectures and networking with their students, but getting those

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[6] http://www.gdconf.com/news/here are your gdc 2016 narrati/

[7] http://www.gdconf.com/news/these are your gdc 2015 game n/

[8] htt : www. dconf.com news dc 2014 announces winners for

same professionals to visit South Dakota takes some doing. Professors Howard and Graham do an excellent job of this, both through the aforementioned constant participation in the games community and through inviting industry professionals to DSU for events like Nanocon. Efforts to recruit additional faculty members or visiting scholars/designers should play up the affordability of South Dakota and the opportunity to do focused work on creative projects in relative tranquility.

Interdisciplinarity at its Core. Video games are an inherently interdisciplinary medium, combining the visual and narrative arts with computer science and interaction design. This is reflected well in the program, particularly in courses that explicitly present math and physics in a game context.

Local Cultures. Returning to the topic of racial diversity, DSU has a unique opportunity to attract members of local Native American tribes. This is an area of great interest to the games industry, the game studies field in academia, and government groups like the National Endowment for the Humanities. Using recent projects like E-Line Media's Never Alone, the program could undertake a new initiative to create games for and by Native Americans that capture and communicate their culture to a broader audience, provide a way to train local Native American youths in the art of game making, and dive deeper into opportunities to discover games from Native American history and culture.

Mythology and Narrative Design. DSU also has a unique value offering in the strength of its Narrative Design area of emphasis, paired with the deep knowledge of both Native American lore and world mythology. Professor Howard is widely renowned as a leading subject matter expert on magic, mythology and ritual, and how those elements are explored through, and utilized in, games,

Games Club. This may seem frivolous, but the games club that Professor Berman started on campus 15-16 years ago is a terrific resource for the students, as a place to keep their passion alive for games, learn more about games from their professors and peers (especially tabletop games they might not otherwise know about), and

http://www.gdconf.com/news/gdc_2014_announces_winners_for/

even play with their professors. That it's the largest and most active student group on campus is a great testimonial to the potential of the program.

Areas for Improvement

Insufficient Faculty Support. The program clearly needs more core faculty and faculty support, as both Graham and Howard are in danger of burnout.

Low Student Placement in Chosen Field. Of the 43 graduates of the program to date, less than 10 of them are now working in professional Computer Game Design. This is a major problem with the program that needs to be addressed by increasing the awareness of the program by the industry, improved student placement, and a greatly increased focus on the business of video game design and entrepreneurialism, with a direct intent to foster a video game industry startup community in South Dakota.

Gender Imbalance. During the midyear student presentations on the evening of

December 9 th, none of the students were women. The games industry famously suffers from a "boy's club" mentality and is frequently hostile to women, which will only change if more women successfully perform critical roles on development teams and more men perceive those women as friends, peers and superiors, which requires more women students in academic programs like this one. Further, this lack of women in the program also shortchanges the importance of women as a key sector of the market; according to the ESA survey, 41% of game players are women, [9] and "women age 18 or older represent a significantly greater portion of the game-playing population (31%) than boys age 18 or younger (17%)" [10] A 100% male student body is strongly in danger of ignoring nearly half of the total potential audience for the products they are learning to make.

Racial Imbalance. During the same midyear student presentations, the students were also overwhelmingly white. This is clearly representative of the local demographics, but is an area that should also be addressed. The makeup of the classes in the program should arguably have a racial balance more in line with national games industry ratios, providing students a more accurate idea of what to expect in the professional workforce and experience working alongside members of other cultures. A 2015 International Game Developers Association survey found that 63% of respondents self-identified as white/Caucasian/European, 9% as East Asian,
7.3% as Hispanic/Latino, and 3% as black/African/African-American.

Does Not Offer the Latest Technology as Promised, All of the games the students demonstrated were for consoles or PCs. This was shocking, as over a third of gamers surveyed by the ESA are frequent smartphone-game players, [12] and "social and casual" mobile game revenue growth is predicted by PriceWaterhouseCoopers to enjoy a 4.2% compound annual growth rate in the

[9] http://essentialfacts.theesa.com/Essential-Facts-2016.pdf

[10] htt essentialfacts.theesa.com

United States between 2015 and 2020. [11] It's also concerning to not see any apparent support for, on development on, virtual reality (VR), augmented reality (AR) or other emerging platforms. According to the same 2016 ESA survey, "more than half of the most frequent video game players are familiar with virtual reality; among those, 40 percent say they will likely purchase VR within the next year. "14 Virtual reality and augmented reality development are two of the most in-demand areas of study at USC, as these skills are hotly in demand in the industry; the program needs to include these areas to maintain parity with other game studies programs and to make its students as attractive as possible. Professor Howard told me that Dean Jones did buy an Oculus Rift developers' kit for the program in 2015, and that there was a VR experiment back in 2013, but I didn't see any evidence of this during my visit. When I asked one of the students about VR, he was visibly excited by the idea, which makes me wonder why there wasn't anything VR-related in the senior projects or any VR hardware currently set up for use in the lab. It is this reviewer's opinion that the university should invest in an ongoing, annually-renewing experimental fund to constantly bring in new hardware, software and technology in order to encourage student experimentation not just in VR but in whatever the new, emerging technologies are that will yield new job opportunities - thus achieving "parity plus". Also, the addition of Macs to the lab would be greatly welcomed by the students.

No Entrepreneurial or Business Modeling Support. The students interviewed expressed an overwhelming interest in greater training in the business of video game development. When asked, 100% of the students in the room expressed a desire for entrepreneurial training, to better understand not just how to make games, but how to make a living making games, This is a crucial area of focus that is currently being underserved.

Some Courses Outdated or Irrelevant. During the student interviews, there was an overwhelmingly negative response to several of the program's required courses. Students specifically cited Professor Jones' Computer Graphics Effects class (ART D 431) as being taught with radically outdated software (Adobe Director) versus industry-standard software like HTML5, Adobe Flash/Animator, or Unity, and Professor Montgomery's Art 121 as being irrelevant and suffering from a misalignment of requirements to tools (a required textbook on the use of color but no colors in the required $180 art kit). The students clearly need art courses for the Computer Game Design major - such as a character and concept design module as well as an animation and game asset module - but the art courses that

[11] http://venturebeat.com/2016/06/08/the-u-s-and-global-game-industries-willgrow-a-healthy-amount-by-2020-pwc-forecasts/ 14 essentialfacts.theesmcom

are currently being offered, according to the students' testimonials, do not seem to be fitting that

12 htt essentialfacts.theesa.com

bill. The flip side of this was an overwhelmingly positive response to other courses that are currently offered but not considered part of the core game design curriculum, Students praised the Level Design course as a crucial, highly-valuable component of the major, but lamented its not being a required course. Revisions to the curriculum should be strongly considered.

High Faculty Attrition. I was struck by the high level of faculty attrition from the Digital Arts program that emerged during my conversations with Graham and Howard. Repeatedly conversations followed a line similar to, "This particular class by this particular professor was amazing... But then they left." I'm not sure how this challenge would be best addressed, but it's clearly a serious challenge to the school.

Suboptimal Marketing Materials. Upon reviewing the website for the program, it seems that the program would also benefit greatly from a review of its marketing materials. As it currently stands, the primary value proposition seems to be that this is the only school in South Dakota where students can pursue a game design degree. That's great, but it doesn't present much of an argument for why students outside of South Dakota would want to come here - or why faculty, guest speakers or exchange students would either. For the program to really grow, it needs to be favorably competitive not just with other South Dakota schools, but with other schools offering Game Design programs across the country.

Recommendations for Change

General Comments

Overall, the program in its current form is doing fantastic work, and it clearly has the potential to develop into an industry-leading, world-class program bringing new students and prestige to the university. As I noted at the beginning of this document, key ways to do this include:

- increasing industry awareness of the program, • increasing student job placement in the career of their choice (game design),

and

• greatly increasing the amount of focus in the program on the business of video game design and entrepreneurialism, with a direct intent to foster a video game industry startup community in South Dakota.

Other key areas for improvement include:

- Insufficient faculty support
- Gender imbalance
- Racial imbalance
- Mobile and emerging platform support
- Entrepreneurial or business modeling support
- Long-term stretch goals

Specific Recommendations

Increase Industry Awareness of the Program

- Establish a colloquium lecture series to bring in outside speakers from the industry. The school faces inherent challenges by being located in South Dakota, but this can be overcome by bringing guest speakers in from the outside to meet students and share reports of what is happening now in the industry. Skype calls are possible, but they are far inferior to actual physical visits because they lack the opportunity for the students to network with the visitorsu At MIT, we had a weekly public colloquium lecture series with a private reception for the speakers afterwards at the program head's house. This was brilliant, because it gave the students an opportunity to hear what the speaker had to say first, and then gave them a more intimate venue for asking questions and establishing more personal relationships afterwards. Many professional connections - and jobs - have come out of that approach.
- Turn the colloquium lecture series into a podcast. Another key value of the MIT colloquium series was that they were recorded and released publicly as a podcast. This was a brilliant marketing tool, as it offered a glimpse into the quality of the education (and networking opportunities) offered by the program, and established a level of prestige associated with being one of our colloquium speakers. It also served as a way for our program to publicly engage with the ongoing dialogue around particular key topics of interest, particularly when those colloquium lectures were accompanied by a directed Q&A session from one of our faculty or students. Imagine a lecture, followed by a short 1:1 conversation with someone local with relevant work, followed by open Q&A, followed by the reception (which isn't recorded and broadcast, of course).
- Establish a travel fund to send faculty and students to conferences. The goal is to provide students with exposure to, and the opportunity to network with, as many games industry professionals as possible at professional

events such as the Game Developers Conference in San Francisco or the East Coast Game Conference in Raleigh.

- Support the DSU e-sports teams, E-sports are predicted to be an area of intense growth in the games industry. According to the ESA's 2016 survey, "half of the most frequent gamers surveyed say they are familiar with professional video game competitions" and "of the study's respondents, 45% follow e-sports on social media, 40% follow coverage on cable TV, and 28% stream coverage live. "15
- Publish your games. One of the greatest things the Singapore-MIT GAMBIT

. Game Lab did for its students was release the games they produced publicly,

htt | | essentialfacts.theesa.com

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for anyone to download and try out. This "prototype in public" philosophy, a variant of the MIT Media Lab's "demo or die" approach, was a brilliant way to get students to take their projects seriously and expose curious would-be employers or fans to the students' work. Even better than a really spectacular portfolio of ideas, working code speaks volumes Back in GAMBIT's heyday, we published these on our own website; now, I'd advise against that and instead urge you to get the student games up on public game marketplaces like Steam or the iTunes Store.

- Improve your website, At the moment, the program's website is fairly staid "brochureware". This should be revisited to capture the vibrancy of the program.

Increose Student Placement

- Establish exchange programs with other schools. It is imperative for DSU students to have the opportunity to network with the larger games industry outside of South Dakota (in other words, the games industry). Arranging an exchange program with schools in more well-established video game development hubs like Los Angeles, Seattle, New York, Austin, Boston, Montreal or Vancouver would be a terrific help with this.
- Again, establish a travel fund to send students to conferences. Professional conferences like GDC and ECGC are where students meet people who help them break into the industry. Not attending these conferences means they're not meeting those people. It's like any kind of relationship the secret to meeting "the right someone" is to meet more people, which means going to where the people are.

- Finish drafting an advisory board, particularly from companies who can hire students. Progress is being made towards establishing the advisory board, but special attention should be paid to the potential here for jobs and internships. The advisory board should be brought to campus every year to meet and counsel the students, providing feedback on their year-to-year professional development and emotionally investing these individuals in the students' success.
- Doggedly pursue internship programs, The program may need someone to aggressively pursue internship opportunities for the students. It is true that the students critically need to exhibit their own initiative and drive to make such things happen (the local legend about a student named Bacon who applied to every job Epic posted until they finally relented and let him in springs to mind), but some students may not know where to begin, and may need help getting started if these students are to be well-served by the university.
- Increase attention to entrepreneurialism and help students start up their own studios to create future jobs for future students, For those who are more entrepreneurial, they should be encouraged and accelerated in every way possible to start their own studios - especially local ones. In many ways, what you're trying to do is jumpstart an engine: if you can jumpstart a local games industry by providing students the skills and resources they need to start up their own companies, as those companies succeed they will provide opportunities for more jobs for future students.

Increase Focus on the Business of Video Game Design and Entrepreneurialism

- Establish a business and production area of focus. These classes could be done in conjunction with a business school at DSU, but students should not be expected to take a great number of prerequisite courses to get to the relevant information they need, Instead, a Computer Game Design-specific course should be considered as an addition to the curriculum, which would educate students on how to perform business modeling, competitive analysis, budgeting for games, marketing budgets, the role of a business person on a team, how to communicate with a business person, how to secure outside investment, when to secure outside investment, contract negotiations, intellectual property rights, and so on.
- Provide a lawyer, Those last few elements in the previous bullet point are great things for the students to be aware of, but they should not be expected to navigate intellectual property law, startup paperwork, or other such things on their own. The university should provide access to a lawyer to make such things easier for the students, to encourage startups,

- Go to the state and local governments for support. Video games as an industry do not require the studios to be in big cities - in fact, as high-speed Internet access becomes more ubiquitous (as in the possible 5G pilot program in Madison), software companies like video game studios may be ideal candidates for being launched in low-overhead locations like South Dakota. State and local governments should recognize the potential for improving local economies from such studios, and as such may be willing to support such an initiative through incentives or other resources.
- Establish relationships with local entrepreneurs, There are co-working startup spaces emerging in South Dakota, which may be willing to offer discounted spaces to student startups. Similarly, successful entrepreneurs in the area may be willing to serve as advisors or mentors to student startups,

Improve Foculty Support

- Hire more core game design faculty. Professors Graham and Howard offer deep knowledge in how games work, how games (and other software) are made, and best practices for educating students in these areas. That said, additional faculty should be drawn from the industry - as opposed to more theoretical game studies programs - to continue to provide students with practical, contemporary industry experience and direct connections to game development companies who may currently be looking to hire. • Release core game design faculty from non-game design teaching requirements. A significant portion of the core game design faculty s time is spent in administrative duties, curriculum design, and other non-teaching commitments inherent in running a program. Granting course releases from non-game program teaching requirements would acknowledge these extra demands and facilitate further program growth.
- Hire an administrative assistant for the program. Even a part-time dedicated administrative assistant (not a portion of the time of an existing administrative assistant, as field-specific knowledge is key) would relieve a significant amount of the time burden on the core game design faculty, freeing them up to focus on their students and growing the program, • Make Professor Graham the official coordinator/head of the programE Professor Graham currently spends a great deal of time and effort on administrative tasks associated with being the head of the program, with no official recognition or empowerment in return. In order to do his job effectively, Professor Graham needs to be recognized in an official leadership capacity. This would grant him the right to attend meetings in the school of Arts and Sciences, and allow him to be recognized as the official point of contact for the program. Professor Graham also needs the ability to engage with the provost of the school

without it being seen as a breach of protocol by the dean of either of the program's parent schools. (Precedent exists at other schools for a "provost's professor" who reports directly to the provost of the school, which is helpful for heads of interdisciplinary programs like this one; see Henry Jenkins' position at USCJ Professor Graham's experience at multiple startups may also make him an ideal candidate for overseeing the program as it increases its focus on student entrepreneurship.

Improve Gender Imbalance

- Hire female faculty as dedicated game program professors. Make them peers with Graham and Howard as quickly as possible. Look first for professionals from the games industry, to give them unassailable street cred to skeptical male students and demonstrate to female students that careers in the industry are available and attainable, while also giving them proper expectations about the state of the industry.
- Offer scholarships to female students, and recruit heavily. This must be done with some care, so as not to breed resentment among the male students, but may be necessary to attract the desired candidates.

fmprove Racial Imbalance

- Hire minority faculty as game design professors, Peter and Joe are a good start, but you need to have non-Asian representation as well. Do not simply hire a single non-white female faculty member, as this will be perceived as overt tokenism and will breed disrespect among the students.
- Offer scholarships to minority students, and recruit heavily. This must be done with some care, so as not to breed resentment among the majority students, but may be necessary to attract the desired candidates.

Increase Mobile and Emerging Platforms Support

- Invest in mobile and emerging platform development. Investing in virtual reality and augmented reality development is expensive, but it's getting cheaper quickly. A rough, back-of-the-envelope budget (shipping, taxes and data plans not included):
  - $2000 - renewable annual slush fund for experimental development, for students to apply for through project proposals and the Computer Game Design faculty to award (predictable hardware like 3D printers and more outlandish materials like toasters or silly string are all perfectly valid for consideration)
  - $6000 - two Microsoft HoloLens dev kits [12] for AR development
  - $7200 - three HTC Vive and Alienware PC bundles for VR development
  - $900 - PlayStation Pro and PlayStation VR bundle for consumer VR
  - $750 - Google Pixel plus Daydream bundle for mobile VR
- Set aside space for room-scale VR testing. A space about the size of a small living room or bedroom is perfect for room-scale VR testing, as used in popular platforms like the H TC Vive. The space outside the developer team offices in the new building will likely suffice, so long as the furniture in it can be rolled out of the way.

Increase Entrepreneurial or Business Modeling Support

- Incorporate business modeling into the curriculum. At MIT, a longtimefavorite course on the business of video games is taught by Chris Weaver, a cofounder of Bethesda Software. At USC, multiple courses are offered on the business and management of games - including a course taught by former IGDA chair and business and product developer for EA, T HQ and Tencent Gordon Bellamy on "Interactive Media Startup," which covers "pitching, production planning, forming a company and seeking funding for your creative media idea" - including building brand awareness for each student using

[12] htt s: www.microsoft.com microsoft-hololens en„us develo ment-edition

social media channels like Twitch. USC also offers Incubate USC a dedicated entrepreneurial support ecosystem for USC students, and the CRUNCH Student Entrepreneur Challenge through the Annenberg Innovation Lab, a six-week intense "startup bootcamp" that takes students through business modeling, product differentiation, prototyping, pitch development, and marketing plan development Any and all of these types of courses or programs would be hugely useful to Computer Game Design students with an eye towards booting up their own studios in South Dakota or elsewhere. • Hook students up to a larger entrepreneurial support system. Mention was made of an accelerator/co-working space nearby, which suggests the existence of local entrepreneurs who might be available to coach students on starting up their own companies.

- Connect to local or state governments for financial development support. There is a strong argument to be made for nurturing young game companies in South Dakota, where the product can be delivered digitally to a global market and produced locally at a fraction of the price as in more established "game industry" cities like Los Angeles or Seattle. Such a case should be made to the local or state governments in pursuit of development funds or other support.

Develop Lonrterrn Stretch Goals

- Develop a five-year plan, The core Computer Game Design faculty should work with the deans to develop a five-year plan for how the program should evolve, perhaps with clear metrics and measurement along the way tied to unlocking further resources.
- Establish a makerspace„ Makerspaces are exploding in popularity around the country. DSU students should have access to one, complete with 3D printers, laser cutters, and so on.
- Establish a game library. Students need to be able to reference games from the past 30 years across multiple platforms, to be able to understand the history of the industry and the

medium, to develop a better understanding of what has come before so as not to reinvent the wheel (or at least to have a better-informed opinion of which wheels are worth reinventing) and to be able to converse with other industry professionals about which games serve as inspirations for new projects. This library should be located in the program's common room in the new building, for quick reference (and social mental health breaks) during development sprints,

- Foster a wider understanding of the potential of games among the local faculty. Games are not just for entertainment. Serious games can help with education; game mechanics and worldbuilding exercises can help craft design fictions and scenario plans for industry, government and education; understanding the mechanics of play and player motivation can radically improve experiences of all kinds. The Computer Game Design faculty can, with sufficient support, help faculty members across the rest of the school come to realize the broader uses of games and play and help incorporate those learnings into their own projects.
- Build on that to become even more widely-known for serious games. Those same uses of games for non-entertainment purposes can be a terrific way to broaden the offerings of the program and bolster its brand. At the USC World Building Media Lab, a number of our external partners come to us not from the media and entertainment industries but from government, transportation, education, and science industries, looking for ways to apply our expertise in world building to creating future scenarios for their own projects and initiatives. A similar offering can be installed here quite easily, leveraging Professor Howard's skills in world building and Professor Graham's skills in developing serious games. [13]

[13] For more on how the World Building Media Lab has used game mechanics in world building scenarios, see our

- Launch a dedicated initiative to developing games with the local Dakota tribes. This is a terrific opportunity to both help preserve their culture, provide new job opportunities there, attract developers and scholars from outside the region, potentially receive NEA or NEH funding, and do some serious good. See E-Line media's work with Never Alone for a model.

Specific Recommendations for University4dentified Issues

Program Curriculum

The program's curriculum does a terrific job of teaching students skills they will need to develop games, but are also broadly applicable in other industries, thus improving their chances of employment after graduation. That said, greater effort must be put towards increasing student employment in their chosen field, as described above. The makeup of the curriculum is one area where this can be addressed.

- swap out ARTD 431 for GAME 375. Add GAME 360, Review ART 121.As described in section Ill, multiple students expressed keen dissatisfaction with ART 121 and ART D 431 courses, citing their content as irrelevant and/or using outdated technology, and praised the GAME 360 and GAME 375 courses, which are not currently required courses in the curriculum.
- Add more core game design faculty, especially more women and minorities from the industry, This will encourage additional female and minority students. Be aware that terminal degrees in the industry are few and far between, and industry experience is much more valuable. (See section 2.2 above, and USC and MIT for examples of Professors of Practice.)
- Make the implicit lessons taught through project-based learning explicit through repeated overt reinforcement in year-end projects. The program's courses are strong, but students complain that they feel somewhat disjointed. ("Remember what we did last year? This is how what we're

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chapter in Mark J.P. Wolfs upcoming book Revisitin Ima inar Worlds.

doing this year builds on that, and how it will be implemented in your projects.") Professors Graham and Howard are working on just such a sketch, at my suggestion.

- Add more support for mobile and emerging platforms, and a focus area on business and entrepreneurialism. See above.

Program Assessment

The program's project-based learning is to be commended, and amplified.

- Every year's final projects should be judged not only by the professors, but by an external group of industry professionals. This could be a

visiting advisory board at the end of every fall semester (so they can see how the students progress year-over-year) and a visiting group of different industry professionals at the end of every spring semester. This assessment will evaluate how employable the students are in the games industry, and, by exposing them to actual professionals, may increase their chances of being hired by those professionals' companies. An additional form of "peer review" grading of these projects would also add insight into how attractive their projects are to other members of their same demographic. As someone with a foot in both camps, the games I saw displayed an overall high quality, but a significant range within that quality. They were all very good projects, especially from such a small program, but some of them felt like viable candidates for public release (the Loot Crew and Warrenbound games in particular) while others needed a much stronger dollop of creativity and a strong reality check about what a game needs to be commercially viable (the giant tank game in particular). In other words, they felt like the same kinds of games produced by our students at the Singapore-MIT GAMBIT Game Lab, which is a good thing - and we had industry pros come in to give critiques and feedback to our students as often as humanly possible to help advance those students and their projects as much as possible.

- Faculty assessment should be measured by impact and influence on the industry and the overall

conversation of the industry as a whole. Greater value should be placed on the publication of books (especially books with crossover audiences) and articles in industry publications than on articles in scholarly journals, and greater emphasis should be placed on presenting at industry conferences like the Game Developers Conference in San Francisco or the East Coast Games Conference in Raleigh than on presenting to pure academic conferences.

- Don't worry about faculty accreditation. There is no industry standard accreditation for game development programs. To the best of my knowledge, none of the faculty in the Singapore-MIT GAMBIT Game Lab or USC's Interactive Media and Games Division held any industry-specific accreditation. Instead, we held varying combinations of degrees and industry experience.

Program Enrollments

The student recruitment numbers for the program seem to be impressively high, based on the statistic provided that the Computer Game Design program currently represents 8-9% of the total on-campus undergraduate student body. This - as well as overall industry trends - suggests that this program should be identified as a key growth area for the university moving forward, and given appropriate support, faculty, and resources to match.

- Attract more women and minorities. The program desperately needs a greater number of women students, which will be helped by adding at least one female member of the core Computer Game Design faculty. Attention should also be paid to attracting more minority students, and it would be worth investigating the possibility of attracting more game design students from local tribes.

- Halt the attrition of what female students the program does attract. 0% women in your junior and senior courses is a serious problem, and risks breeding untenable behavior in future members of the games industry. • Think bigger. The university currently offers the best game design program in South Dakota, but greater effort must be put into delivering a program attractive to students outside of South Dakota as well. This will be facilitated by increasing awareness of the program through better marketing materials and

sending the faculty students to more conferences and other schools for potential exchange programs* As noted at the beginning of this list, the program in its current form is doing fantastic work, and it clearly has the potential to develop into an industry-leading, world-class program bringing new students and prestige to the university.