Bachelor of Science in Computer Game Design

The Beacom College of Computer and Cyber Sciences and the College of Arts and Sciences

Dakota State University

Onsite Visit Dates: Monday, Sept. 9, 2024 - Tuesday, Sept. 10, 2024

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Games & Simulation program

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Table of Contents

Part 1: Executive Summary of Findings

The program is doing terrific work given its constraints, and Profs. Britton and Petersen have done an exemplary job of revitalizing/rebooting the program, but it's clearly in a moment of transition following stabilization. Some strategic decisions need to be made to determine whether this program grows into a point of focus and attraction for DSU or if it's relegated to being a fallback major for the cybersecurity program.

Key recommended action points, broken down by section are as follows.

Program goals and strategic planning

- Pivot from rebuild to five-year plan, for both the program growth and the faculty tenure process.
- Establish a clear understanding of what the school's targets are for this program, and what resources are available to get there. Have clear communication between faculty and administration on what's expected and what's available.
- Establish a clear understanding of what is expected from Profs. Petersen and Britton for their tenure reviews. What is considered peer reviewed? What is considered worthy research? How is impact and influence measured? Clarity is required but is currently lacking.
- Leverage the school's unique strengths in cybersecurity and AI to further refine your differentiation as a games program, potentially leaning into AI even further. Keep the undergrad education focused on establishing indie developers but weave in a 4+1 master's degree in games and AI.
- Invest further in the identified goals for the program as listed in the Self-Review to ensure they can be done and done well.

Program resources

- Hire another faculty member. Profs. Britton and Pedersen are operating “at the edge of being able to function,” which is unsustainable. You need to hire another faculty member (ideally female to make the program more comfortable and appealing to female students) to give Profs. Pedersen and Britton more room for administrative stuff and teaching. Aim to have this faculty member specialize in AI, to bolster the program’s existing strengths.
- Re-examine the demands on Profs. Britton and Pedersen’s time. Despite being assured that this is the standard load for DSU professors, and that it is standard operating procedure for faculty to regularly commit to overloads because they want the extra money, the inevitable result is faculty members being set up to fail because they simply don’t have enough hours in the day to do everything well – *especially* when these two faculty members are *de facto* directors for your games major *and* are being expected to conduct sufficient research to achieve tenure on the same tenure clock. This is a ticking time bomb.
- Having all the DAD programming and computer science courses in one building is working well. Keep them together if humanly possible, to continue their cross-pollination.
- Be mindful of space constraints.The classroom facilities are sufficient for what you’re doing now, but insufficient if the program grows. The current classrooms aren’t big enough to support two concurrent major classes. If you want the program to grow, you’re going to need even more space.
- Update the laboratory equipment. The lack of dedicated graphics cards in the current hardware constrains visual asset development and work in AI.
- Dedicate more resources to travel to and from South Dakota for faculty, students, guest speakers and recruiters. For a rural program, bringing people to campus and sending students off campus for company visits and interviews is key.

- Re-educate the grants personnel on the needs of the games program and be mindful to not rely on external grant funding for core program needs. External grants are an appealing option to secure additional funding but requires a significant amount of faculty time and energy and is frequently unreliable for ongoing expenses.

Program curriculum

- Add more on how to balance critical + creative thinking and combine theory + practice to the curriculum. Students need a better understanding of the history and cultural role of games to more broadly and creatively imagine what games can and will do in the future.
- Provide more flexibility in the major. The current curriculum is designed to create well-rounded game designers, but students are struggling to perform well outside of their core skills. A more flexible curriculum that allows students a greater degree of control over their individual majors will assuage fears of art-centric students having their GPAs torpedoed by programming classes and vice versa.
- Re-examine the front-loading of the programming requirements in the major. The current order of the courses taken (programming-heavy in the first two years and art-heavy in the second two years) is dissuading women from pursuing the major, as the programming side tends to be more popular among men and the art side tends to be more popular among women.
- Add more individual projects. Some students are afraid they're not getting enough individual projects for their portfolios and are uncomfortable with the number of group projects they're being asked to do.

Technology integration

- Beef up the student laptops. Much like the aforementioned lab hardware, the laptops issued to students also need dedicated graphics cards to do modern game development.
- Add more specialized hardware. If the university is dedicated to delivering an affordable educational experience, it needs to also provide more specialized game development hardware like virtual reality headsets and drawing tablets. The cost for such hardware may require increased tech fees to be rolled into tuition so they can be covered by student loans.

Program assessment

- Student work should be judged by industry professionals as often as possible to provide realistic assessment of their viability as employees.
- Faculty assessment (tenure) should also be judged by their impact upon industry professionals, not just fellow academics. This will require funded travel to the Game Developers Conference in San Francisco every year to stay abreast of the current state of the industry.

Student support / student enrollments

- Broaden your potential student base by appealing more to women and a broader, more diverse range of students. Offer more scholarships. Building on your core brand will help bring in international students. Get clarity on exactly how big DSU as an institution wants to be, and what your ideal targets are, to make sure your targets are realistic and sustainable.
- Market your program more broadly locally. Consider building up awareness of the games program on the reservations to provide the Dakota tribes with the awareness of the opportunity you provide. (See indigenous game projects like *Never Alone* and *Kun'tewiktuk: a Mi'kmaw Adventure.)*

Student graduation rates and student placement

- Your graduation rates are *atrocious*, especially the paltry number of students that graduate in the advertised four years. You need to do a better job of advising your students so they graduate on time and on budget. Profs. Petersen and Britton should participate in the advising of first-year students. More communication should be happening between the games faculty and faculty of other required courses to prevent students from having to spend an extra year completing (or retaking) some general education required course(s).
- Your job placement claims are also highly dubious and problematic. You're basing your job placement percentages purely on those alumni who respond to the survey and counting jobs as being related to the major that are only very, very loosely associated at best.
- Acknowledging that securing employment in the games industry is already hard and finding such employment in South Dakota is almost impossible, you should continue to build up your entrepreneurial training and make resources available to help students start their own companies. The lack of game companies in South Dakota to hire your graduates is a problem that you yourself can tackle (long-term) by developing a not-for-profit incubator/accelerator.
- Act as publisher for student games. Getting games out on Steam and Itch.io will establish awareness in the industry (and among prospective students) of the quality of work DSU students can do. (See USC's work with *Journey.)*
- Work harder to secure internships and entry-level jobs for your students. This may require a more dedicated career development office. Right or wrong, students (and their parents) feel entitled to more of that labor being done by the university instead of themselves.

Part 2: Schedule of On-Site Visit

Reviewer Agenda for 9 September 2024

8:00 AM	Arrival at DSU
8:00-9:00	Observe Game Project Course, Beacom Institute of Technology Rooms 131 and 135
9:00-10:00	Student Interviews, Beacom Institute of Technology, Room 135
10:00-11:00	Game Development Facilities Tour
11:00-12:30	Lunch with Erik Pedersen and Peter Britton
12:30-2:00	Faculty Breakout, Program Overview with Game Development Faculty
2:00-3:00	Observe Game Tools Class, Beacom Institute of Technology, Room 135
3:00-4:00	Dr. Rebecca Hoey, Dr. Mary Bell, and Dr. Stacey Berry, Beacom Institute of Technology, Room 202
4:00-5:00	Summary Time, Beacom Institute of Technology, Room 202

Reviewer Agenda for 10 September 2024

8:00 AM	Arrival at DSU
8:00-11:00	Overflow Summary, The Beacom Institute of Technology, Room 235
11:00-12:30	Lunch with Dr. Mary Bell and Dr. Tom Halverson at the Trojan Center. Passes will be provided. (Erik and Peter are optional)
12:30-1:00	Exit interview Prep, The Beacom Institute of Technology, Room 235
1:00-2:00	Exit Interview with Dr. Rebecca Hoey, Dr. Mary Bell, Dr. Erik Pederson, and Dr. Peter Britton. The Beacom Institute of Technology, Room 235.
2:00	Game Design Review Complete

Part 3: Program Evaluation and Recommendations

I'm in a pleasantly unique position to write this report, as former Computer Game Design program professors Steve Graham and Jeff Howard invited me to evaluate the program in 2016. I've included a copy of that previous report here in Appendix I. Much of the following is an update of those initial findings, focusing on what's changed, what's been improved, and what may still need attention, with a number of new observations and suggestions resulting from this year's assessment.[1] **The 43 recommendations I made in 2016 that are here being used as a check-in for progress are each marked in their section heads with an asterisk.**

3.1. Program goals and strategic planning

The program I found at DSU in 2024 is very different from the one I visited in 2016. The passing of Prof. Graham and the departure of Prof. Howard, combined with the COVID-19 epidemic, forced the program to reboot.

I'm happy to report that Professors Erik Pedersen and Peter Britton have done a terrific job restabilizing the program. They are applying a rapid prototyping/iterative design

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[1] A great deal of the following has been reordered from the 2016 report to fit the 2024-provided template. That said, please note that I have deliberately combined sections 3. Program Evaluation and 4. Recommendations for Change from that template, as my recommendations flow directly out of the observed findings. In doing so I have also removed sections 3.7. Program Strengths and Areas for Improvement, 3.8. Specific Issues Identified by the University, 3.8.1. Program Curriculum, 3.8.2. Program Assessment, and 3.8.3. Program Enrollments, as they are all directly redundant to the matching topics addressed earlier in section 3. Similarly, a new section 4, Conclusion, is virtually identical to the Executive Summary covered in section 1, excepting a new closing paragraph. Despite the redundancy, the document felt incomplete without it.

process to the program itself, experimenting and refining the program's approach to group projects, class content, and so on.

The challenge I'm seeing now is that there is no clear agreement what "moving forward" for the program *means.* Based on multiple conversations I had with Profs. Britton and Pedersen, Provost Rebecca Hoey, and Deans Mary Bell and Stacey Berry, there does not seem to be a clear set of agreed-upon goals outlined for the program and thus no clear strategy for how to get there. The program appears to have been successfully restabilized, but what's next? Is the goal to increase the number of students? To reduce the (honestly shocking) attrition rate? To rise in the *Princeton Review* rankings? To increase job placement numbers? Without clear goals and target numbers, it's impossible to know if the program has sufficient resources, facilities, marketing support, and so on to succeed.

3.1.1. Appropriateness of goals and if goals are being met

As I described above, Profs. Pedersen and Britton have done a remarkable job restabilizing the program. Regarding their initial goal upon being hired, they've succeeded quite admirably. The challenge now is figuring out what their goals are moving forward, which – again – are currently vague and undefined.

*3.1.1.1. Develop a five-year plan**

It is my *strongest* recommendation that a lengthy conversation be held between Professor Pedersen, Professor Britton, Provost Hoey, Dean Bell and Dean Berry to use this program review as an opportunity to envision what success for the program looks like, and then to form a five-year plan for how to get there.

The specific topics I would prescribe, if I were writing the agenda for that meeting, would be:

- **Target number of majors.** "Grow the program" is a hazy, unspecific goal and it ignores the pragmatic reality of budgetary, spatial and personnel constraints.

What *is* the ideal number of majors? 100, divided evenly across four classes of 25 students each? 150? 200? Is the university willing to increase the allocated resources required to support those numbers? If not, is it willing to accept a lower target number aligned with what resources are currently allocated to the program? Rightsizing a program is a dark art, but absolutely necessary to maintain high quality levels and preventing student disappointment and employee burnout.

At Miami University we have ~200 majors (plus minors and students from other programs) and we have six full-time faculty plus one visiting assistant professor, several 1- or 2-class adjuncts, and a handful of courses outsourced to Computer Science and Art. We still struggle with aligning resources to demands, but our graduation rate is very, very high.

- **Target number of graduates.** Your current graduation rate is abysmal, and directly at odds with claims that you have a 100% retention rate. *Strong* consideration should be given as to why that's the case. If you have a massive number of students dropping out of the program, is that because the program is too hard, the departing students received insufficient support, or the quality of admitted student is too low? Is it because DSU is a "starter school" where students go until they transfer to a different one, or, as was suggested for students in the cybersecurity program, because DSU students are so in-demand that they are hired away before they complete their degree? (I can imagine this might be the case for cybersecurity students, but I didn't see any evidence suggesting the same is true for computer game design students.) A pragmatic, realistic assessment must be made as to what's happening and how that should, or *can,* change.

- ***Princeton Review* rankings.** If the goal is to be in the top 10 game programs in the *Princeton Review* rankings, that's going to require a much heavier

investment in the form of staff, travel budget, space, and so on. By their own admission, Profs. Britton and Pedersen are operating "just at the edge of being able to function," which is unsustainable. Failure to invest more in the program will result not in the program's quality ranking staying where it is, but will soon lead to its decline as a result of burnout. If it's *not,* then a more realistic target ranking should be agreed upon by all parties.

I would caution that the computer game design program's current ranking of 36 may be artificially inflated by the fairly, uh, *liberal* way DSU is treating its job placement numbers. Basing your placement percentage purely on the number of students who self-report and playing somewhat fast and loose with what you consider a job "in their field" may boost your ranking, but if you successfully graduate a full cohort of 25 students as opposed to your currently questionable cohort of 6 out of 25 admitted in the class, and then all 25 report back and their job placement ratio isn't as good as those of the tiny graduated class of 6, that *Princeton Review* rating is likely to plummet. This is not to say that DSU doesn't belong in the top 50 – it's a very robust program, especially given its size – but you should have realistic expectations for exactly where in that top 50 it belongs. I would highly suggest performing a more rigorous bit of research into your peer institutions, gleaning as much information as possible on how many faculty other programs have, how many students they graduate, etc. etc. Given your physical location and small numbers of both faculty and students, I'd argue that being in the top 50 is a major win and being ranked anything under #40 is terrific.

3.1.2. Program goals relative to institutional mission

When last I visited, DSU was considering multiple options for how to differentiate itself and what its area of focus should be. The solidifying of DSU's identity around cybersecurity seems to have worked well, but the computer game design program appears to have shifted from a strength to a fallback plan for cybersecurity. One of the

students I spoke to[2] said that they had originally come to DSU for the cybersecurity program, found they didn't like it, and then transferred over to computer game design. "I got into Cyber Ops because of *Watch Dogs,"* she said, "but I discovered I liked the games part more." (She's now doing game art, which she didn't do much of before, but really fell in love with 3D art once she got here.) I suppose having the computer game design program serve as a safety net to catch students abandoning cybersecurity is *a* strategy, but it's a defeatist one.

Similarly, it's disappointing to see 50% of the reported 2023 Computer Game Design graduates whom DSU claims found "employment in their field" are doing web development and what appears to be universal tech support, neither of which are actually in games. If DSU's mission is to train its graduates for employment in *a* job, then I suppose that's in alignment, but it's hard to imagine that's what students who came to major in computer game design had in mind.

As part of the same conversation between the games faculty, the deans and the provost that I prescribed in the last section, I would strongly consider you come to a clear agreement on what DSU's mission actually *is,* and the role the games program plays in that. As above, the specific questions I would include on the agenda for that meeting are as follows:

- **Is it to find South Dakota students jobs in South Dakota?** At Miami, part of our mission is to find jobs for our graduates *in Ohio,* which requires some degree of terraforming to work. As in South Dakota, there simply aren't that many video game companies in Ohio, so we either have to help our students fight tooth and claw for what game company jobs *do* exist in Ohio; help them find jobs in video game development outside of Ohio, mandate be damned; help

[2] Note that time constraints meant that I was only able to interview a small percentage of the game majors, and those interviewees were volunteers instead of a random sample.

them find Ohio jobs that are loosely connected to video game development, if at all; or train them how to launch their own indie studios in Ohio, thus A) providing them employment by being self-employed and B) once they (hopefully) achieve some degree of success, will turn around and employ future Miami graduates. This last option requires both a student body who is capable of and interested in being entrepreneurial *and* a degree of terraforming, working with resources across the state to find resources and support for startups.

I spent a solid amount of time last year working up a model for an incubator for new grads so they can spend a year or so bringing their games to market post-graduation. While we're still working securing the funding we need to get that launched, one of my collaborators on the project is now working with Shawnee State University – another Ohio school with a very good games program – on the launch of their own incubator following their securing a massive federal career development grant. Two of Miami's recent graduate projects – one a solo project and the other a multi-person team – have been accepted into Shawnee's first round, so I'm watching with great interest to see how that goes.

I would strongly suggest DSU follow suit. Prof. Pedersen is already working with the students on a business of games class, drawing heavily from his own experience running an indie game studio, and I would heavily recommend that DSU provide him with as much support and resources it can provide to turn those efforts into a full-blown student startup incubator.

- **Is it to maximize revenue?** I'm unclear as to whether DSU is considered a for-profit university or not. Your website indicates that, much like Miami, in-state tuition is significantly lower than out-of-state tuition. If that's the case, and the goal is to maximize revenue generated per student, then you should focus on broadening awareness of the university beyond South Dakota. That could mean a mix of a broadened advertising push out of state and a concerted effort to

showcase DSU games in places where potential students are to be found. (One interviewed student explicitly stated, “If we advertised the games program we’d have more students.”) For this, you should consider targeting player-centered events like PAX and IndieCade (when and if IndieCade gets its physical festival back up and running). Same goes for attracting international students. South Dakota inherently does not have the same draw as Los Angeles, but – just like how Ohio’s very rural Kenyon College plays up its “diamond amidst the corn fields” identity as ideal for doing creative writing in relative tranquility – the trick is to turn that perceived shortcoming into a sales point. (On a related note, you should investigate any possible partnerships with local utility companies to provide super high-speed wireless internet over the cellular network or gigabit internet along power lines. Check out how EPB, the electric company in Chattanooga, Tennessee, somewhat accidentally created the fastest Internet in the United States by working with Volkswagen.[3])

- **Is it to be known as the best school for [X]?** Tying games directly to cybersecurity is a little tricky beyond blockchain/web3 gaming, but if you were to build a major silo of DSU’s identity around AI, hire another faculty member who specializes specifically in game AI, and refocus the computer game design major for the next 5-10 years around how small indie teams can use AI tools in ethical ways to produce small to midsize titles at a fraction of the cost of a major studio, bolstered by being in a part of the country where the cost of living and associated overhead costs are *super affordable,* well, I’d say that would be a very good plan. (As a fellow games program lead in a rural part of the country, I may or may not have similar plans myself.)

[3] https://epb.com/about/who-we-are/

*3.1.2.1. Foster a wider understanding of the potential of games among the local faculty**

There are two events held for everyone to participate in, where faculty are invited to come in and play student-made games. This helps to educate fellow faculty about what the program is doing. It sounds like the relationship here with external programs has become relatively frictionless, which is fantastic.

*3.1.2.2. Build on that to become even more widely known for serious games; launch a dedicated initiative to developing games with the local Dakota tribes**

Did not happen but Profs. Pedersen and Britton agree this is still a good idea. While DSU isn't near a reservation so other schools are better positioned physically, those other schools don't have a games program. Apparently, a student before Profs. Britton and Pedersen's time made a game in Dakota, which sounds *brilliant.* (For a model of what's possible, see other indigenous game projects like *Never Alone* and *Kun'tewiktuk: a Mi'kmaw Adventure.)*

Prof. Britton joined the Change Network to widen connections and has been trying to establish more local connections. More exploration in this area would be brilliant.

3.1.2.3. Identify ways to connect more directly to DSU's main selling points

As noted above, acknowledging that many potential students *will* discover DSU because of its strength in cybersecurity, I'd strongly recommend that you lean into areas that are adjacent to that field. For example, consider how you might increase the strength of your offerings in crypto/web3 gaming, gaming in AI, game development with AI, etc. Brainstorm ways to weave in some of this at the undergrad level, but also develop interdepartmental offerings in these areas at the Master's level to build up DSU's brand.

3.1.3. Program goals relative to current national trends and forecasts for the discipline

The Self-Review cites a 2023 *Forbes* article identifying "The Top 10 Video Game Trends in 2024" as the inspiration for much of its current strategy. Drawing "from the above and other sources," DSU is choosing to focus on:

1. Growth and Expansion of AR/VR (Augmented Reality/Virtual Reality) Applications
2. Use of AI (Artificial Intelligence) in Game Design
3. Retro Gaming and Remakes
4. Collaborative Gaming/Player Engagement
5. Bigger and More Immersive Game Worlds
6. Developing for a New Generation of Portable Gaming Devices and Hardware
7. Alternative Funding and Distribution Channels Turning Game Designers into Entrepreneurs
8. Rise of Independent Game Designers and Studios
9. The Boundaries of Games Will Continue to Blur

Let me touch on each of these in turn.

3.1.3.1. Growth and expansion of AR/VR (augmented reality/virtual reality) applications

The development of *Cauldron Craft* in GAME 334/445 in 2023 is a good first step, but from what I saw there is currently no further development happening in this area. This is a known risk of allowing students to determine what projects they will pursue: if no students are choosing to pursue areas of strategic import, it may be necessary for Profs. Britton and Pedersen to better upsell, or even mandate, those options. In my conversations with the students, one of them remarked on how the games faculty "were trying to encourage us to do [a VR game] this year but no one wanted to do it." Unless students are *strongly* encouraged to be experimental, they will almost certainly fall back into more "comfortable" options by default.

At Miami, we have an externally funded lab dedicated explicitly to AR, VR and XR. That lab is on a frequent, well-funded hardware refresh cycle, investing in most new hardware platforms as they are released; in early 2024 we purchased three Apple Vision Pro headsets purely for research purposes. Students are exposed to that hardware during the PI's classes on 3D modeling and animation, and it is also made available via our VR Club. Even so, while one of our senior capstone group projects this year is a VR experience, I *strongly* suspect that's the result of my assigning each group to at least propose how they would integrate an emerging technology as a key feature. The other six capstone projects duly made the proposal, but quickly abandoned it. Moving forward, I'm more likely to mandate the inclusion of an emerging technology myself. If this is to be a key area of development, Prof. Pedersen and Prof. Britton will need to make a similar decision.

Such a decision is not an easy one. Focusing on such emerging tech can simultaneously broaden and narrow the students' potential jobs, and the administration must decide how much additional funding will be allocated to a regular hardware refresh cycle. Having pictures of students in Apple Vision Pro headsets makes for great marketing, but if after the photo shoot the headsets sit gathering dust, more effort needs to be put into ongoing use of the hardware. If the students are uninterested and the faculty are uninterested, then emerging tech won't be used and this shouldn't be a stated area of focus. If the faculty are curious but not provided enough time or resources to learn how to use the new tech (and, by extension, how to teach it), then this will be frustrating to the faculty as a new tool they're not being sufficiently supported to adopt.

3.1.3.2. Use of AI (artificial intelligence) in game design

AI is not as easy to implement as its proponents would like people to believe. Some elements of AI are easy to incorporate – educating artists on how to ethically and responsibly use AI (a la Adobe Firefly) versus viewing it as an existential threat is a key responsibility for us games faculty – but doing so more meaningfully throughout the entire game development pipeline is a significant undertaking. Truly getting out ahead of AI in games, learning how to use it *well* and in modern, industry-leading ways is a

great way to help students get jobs, but it's also an expensive, rather rare offering in games programs.

Right now it sounds like Profs. Pedersen and Britton fully acknowledge that familiarity with AI is necessary for DSU students, and they are attempting to incorporate it into their classes lightly where possible, but it is outside of their current wheelhouse and there isn't enough time available for either of them to train up on it. This is unfortunate, because AI is identified elsewhere by DSU as a key area for future development and it dovetails perfectly with game development.

If DSU is serious about building more of its future core identity around AI, then serious consideration must be given to whether it will support Profs. Britton and Pedersen in being trained up for the skillset, or if the university will fund another faculty member who has this as a core expertise. (I would strongly suggest a mix of both.)

3.1.3.3. Retro gaming and remakes

When Prof. Pedersen showed me the students' remake project of the FPS *Hexen,* an existing 1980s IP, I was a little taken aback. Yes, retro gaming is a hot trend right now, but to my mind having students work on a remake of an existing property, even a largely forgotten one, is doing the students a disservice. To my mind, students are in college to not only learn required skills but to develop robust portfolios that exhibit not only those skills but their creativity and individual voices. Such portfolios may benefit from having a project or two that reflects how well they can seamlessly implement a creative director's vision and join that director's chorus of talent (the equivalent of a screenwriter writing a spec script for a dead TV show in Hollywood to demonstrate how well they could gel with a writing room), but that's the kind of work they're likely to be doing for the rest of their careers. While they're in college is the perfect time to encourage them to make games that reflect their own sensibility, not that of a game maker from a few decades ago.

Rather than focusing on remakes, I encourage my students to create new games using retro game mechanics and aesthetics. Plenty of easy tools exist for such projects – in my

Writing for Games class, for example, I have students use both Twine to create interactive fiction pieces like *Zork* and GBStudio to produce small Nintendo Game Boy-style games in the vein of *Final Fantasy Legend.* If they like that approach, they are encouraged to further follow that direction in their indie game or senior capstone projects. One such team in the class of 2024 developed a new retro adventure-RPG game called *Goodbye Lorelai* that was accepted into an incubator for full development and release. I know other schools are exploring similar directions; Prof. Chris Totten at Kent State University developed a GBStudio game called *Kudzu* which went on to be published by Mad Cat Studios and is collecting accolades. (Totten has another project staffed partially by his own students that is a throwback-style side scroller based on the classic Winsor McKay comic strips *Nemo in Slumberland,* which is beautiful but showcases my point – it's neat to see a classic comic strip style be revisited, but I'd much rather see a new game be done in an old style that showcases the students' own creativity.)

For students to develop skills that would enable them to work on remakes and retro games after graduation is great, but I'd strongly encourage the students to work on new games using retro mechanics and aesthetics that showcase their own creativity rather than remaking an old IP. "A new game in an old style" gives us *Cuphead,* where "a new game remaking an old IP" gives us a game based on *Steamboat Willie.* We've never seen *Cuphead* before, so it's fresh and interesting, but we've seen countless iterations of Mickey Mouse. (Also, making fully new IP avoids potential legal issues.)

3.1.3.4. Collaborative gaming/player engagement

Multiplayer gaming is nothing new so to see it here on this list of "trends" was a little surprising, but given the explosion of online socializing and remote gaming during COVID it makes sense. Explorations into varying options for how people play together (or against each other) is a worthy pursuit, especially as those forms of co-play aren't always symmetric. Players engaging in a shared virtual world through different interfaces results in some very interesting experiences (see the Wii U, VR + PC multiplayer experiences, AR + PC, etc.).

By extension, research into multimodal and varying types of player engagement is also a very worthy project. The more students can understand different motivations and methods for engagement – understanding *why* people play as well as *how* people play – the better. Further, that user-centered design approach paired with psychology, sociology and anthropology ports *extremely well* over into numerous other industries beyond just games.

3.1.3.5. Bigger and more immersive game worlds

This is my own area of research, so seeing this on your strategic list was encouraging. There has been a noted shift in emphasis in IP design from plot to character to world over the past few decades, and now transmedia-ready storyworlds are the deal targets for development across most of the entertainment industry.

Further, worldbuilding beyond entertainment is also currently a huge area for growth. The combination of 3D modeling, game engines, photogrammetry, and real-world mapping is being used for "digital twinning," duplicating the real world in a virtual environment for simulations or real-time information visualization. Similarly, the same creative "what if, then what, so what" approach used to design storyworlds for entertainment is just as easily applied to real-world challenges for futurecasting and creating strategic development plans.

3.1.3.6. Developing for a new generation of portable gaming devices and hardware

This is always a good goal, but it also requires a consistent ongoing hardware refresh budget. While some of the basics can be learned using out-of-date hardware, relying on hardware that is older than what the students themselves bring to campus weakens the argument that they're getting an experience from the university that they couldn't get on their own. (See 3.1.3.1. above.)

3.1.3.7. Alternative funding and distribution channels turning game designers into entrepreneurs

This is crucial, and the development of GAME 360: Business of Game Design is a very good move – but it may not be enough yet. During COVID the games industry *exploded,* because people could play video games and connect with their friends online when they couldn't see them in person or, for the most part, even go outside. After COVID became endemic and the world returned to a semblance of normality, video game sales predictably re-normalized as well – but that meant that the huge amounts of money being funneled into the games industry by investors suddenly weren't delivering the outlandish ROI those investors were seeking. Video game behemoths across the industry began massive waves of layoffs, which means that a bunch of the entry-level jobs recent college graduates would be ordinarily securing are now being snatched up by out-of-work midcareer industry vets. When those jobs aren't available, students need to be trained to be much more entrepreneurial. This is a *good thing* for would-be game developers outside of major metropolitan areas like New York, Seattle, Austin, Boston, San Francisco and Los Angeles – while those are all major hubs for game development, they are also ungodly expensive, so it becomes much, *much* harder for game designers to make ends meet when living in those areas. Instead, students interested in making games should be trained *rigorously* in how to start up and run their own game companies in a much nimbler and more sustainable fashion, and then given as much fiscal and operational support as possible to set those companies up in South Dakota. This becomes a long game for success – if each graduating class sets up one or more new game studios per year, then as they grow those future alumni-founded studios become possible providers for internships and jobs for other future students. This multigenerational investment cycle can be key to the ongoing success of not just the games industry but the university as part of that ecosystem.

3.1.3.8. Rise of independent game designers and studios

Ditto. Widespread digital distribution and the democratization of development tools means that A) it's much easier to make and sell games now, but B) the market is now

flooded with titles. Therefore, young game designers and developers will need to learn how to make games that stand out in that crowded marketplace, are both developed more affordably, and strategically find and connect with a smaller fanbase. Just as in film, what we see now is a consolidation of huge budgets around blockbuster titles like *Super Mario Bros., Halo, Horizon, Gears of War, God of War, Grand Theft Auto,* etc., etc., but also a long tail of smaller "nichebuster" hits from smaller studios such as *Hollow Knight* and *Dredge* as well as "entertainment as a service" casual games like *Gardenscapes.* Smaller universities specifically need to be both training centers and incubators for these smaller indie studios, as positions in those mega-studios are fiercely competitive and tend to go to the aforementioned out-of-work midcareer industry vets and students from top 5 game schools like USC and NYU. At Miami, we are currently investigating the creation of a full-blown games incubator much like that launched by Shawnee State. (See "3.6.3.5.4. Create a not-for-profit student studio incubator.") DSU may well want to follow suit.

3.1.3.9. The boundaries of games will continue to blur

I wholeheartedly applaud the program's developments in this direction. One of my most recent consulting gigs in the past few years was for Walt Disney Imagineering, where I was brought in to help think through the development of a game layer for *Galactic Starcruiser,* the *"Star Wars* hotel" in Florida. While COVID and executive changeover at Disney killed *Galactic Starcruiser* far too soon, more location-based entertainment, immersive theater, gamified behaviors, and virtual overlays onto real-world environments are very clearly the next wave of blended reality experiences. This is absolutely a growth area that the university should pursue.

3.2. Program resources

3.2.1. Effective use of resources to meet program goals

Programs focused on cutting-edge technology and popular subjects (like video games) are always, *always* going to be hungry for more resources. The challenge is to right-size the program so it is sufficiently resourced to achieve its strategic goals – so without specific goals and success metrics, it's impossible to assess this. A nebulous "get better" will result in an equally nebulous "we need more," but an explicit goal like "place at least 10 students in games industry jobs per year" will translate into specific initiatives like "bring at least 10 company recruiters to campus per year for student interviews" and, by extension, a clear budget for that (e.g., "estimating $1500 in travel expenses per company visit, we need to allocate at least $15,000 for recruiter visits").

Again, based on what I saw during my visit, the program is currently suffering from undefined goals with undefined available funding. This is resulting in predictable levels of stress and confusion among the faculty, which inevitably gets felt by the students as well. In conversation with Provost Hoey and Deans Bell and Berry, Profs. Britton and Pedersen "have more resources than they think," which suggests a failure of communication may be to blame for a significant amount of this stress. "They don't have a programmatic budget [and] there's no concept that they have to afford it on their own. [We] have to drag that out of them." At the same time, the Deans and the Provost "think the world" of the games faculty, and I have the definite feeling that they are happy to help however they can.

The sense I get is that **y'all need to talk more.** And, as I noted in 3.1.1. and 3.1.2. above, **y'all need a *plan.***

3.2.2. Faculty -- staffing levels and credentials

Both Prof. Pedersen and Prof. Britton are *excellent* hires for the university, especially as a pair. Some great quotes from my conversations with them:

- “We innovate really well. Between the two of us we're good and resourceful at finding solutions to issues.”
- “We play off each other a lot. We play well together. Coming from completely different parts of the country and different background really helps. Our students see that.”
- “We keep a united front on how we handle things so students get a good, consistent story.”
- “Coming from two different schools means that we represent the two largest programs in DSU.”

There’s an “Odd Couple” element to these two that also works really well. Prof. Britton thinks he’s not too chummy with students, whereas Prof. Pedersen sees himself as the opposite of that. That difference in personality types means that students are likely to find someone to work with who is closest to their own personality types. (I myself have an approach more like Prof. Pedersen, but I have some students who respond better to more brusque professionalism.)

Watching the two of them work together and riff off each other has been delightful, reminding me of the brilliantly complementary academic partnership and co-leadership of the Comparative Media Studies program at MIT by William Uricchio and Henry Jenkins, or the similar leadership of the games program at USC by Tracy Fullerton and Rich Lemarchand, or my own Emerging Technology in Business and Design program at Miami University by Glenn Platt and Michael Bailey-van Kuren. Complementary skills and personalities are sometimes difficult to secure, but when that balance is achieved it can be extremely powerful, and that partnership should be nurtured and protected.

Their effectiveness and success are also recognized by the administration. In my conversation with Provost Hoey she remarked, “I've come to appreciate Peter and Erik because they foster a sense of belonging. They really care about that. They create their teams in a way that fosters connectedness and belonging among the students. I love how convicted they are in that. I also really appreciate the way Peter and Erik invite the university in and put their students in positions to describe what they're doing to

others." She gets invited into Game Design more than any other program, and she enjoys walking around the room and listening to the students describe what they do well. The students would prefer to be engaged with their art or their computer, but the more they do it, the more comfortable they are.

That level of accessibility and creating a program that's a supportive safe space is also acknowledged by the students. "It's comfy and cozy," one student said during my interviews. "I feel like I can always go to Erik and Peter with any problems." Another remarked, "Erik and Peter do a very good job with what they have." Yet another said that he thinks that the program grows knowledge really well. "Erik is really good with the producer side of things. He has a crazy brain and he lets it come out to the class," they said. "Peter is really goddamn smart. He knows the programs that we use extremely well." Overall, the student added, "They're working hard to change the landscape of the program. They listen to feedback really well."

*3.2.2.1. Hire more core game design faculty, especially from industry (terminal degrees not required)**

"Check! This is Erik, and Conrad was added under a similar model. The faculty you can get for the pay being offered and in South Dakota is inherently limited." The addition of the equivalent of a professor of practice position really helps.

Profs. Pedersen and Britton are doing an exemplary job, but ***they need help.*** As noted in the Self-Review:

> The principal drawback is the difficulty of faculty working with student teams in the classroom setting that require very different skillsets for different projects. This puts stress on the faculty in working with so many projects and technologies at the same time. This is a common theme for the program in general.

Expecting Profs. Britton and Pedersen to be masters of *everything* is a recipe for constant stress and disaster. If the university is planning on doubling down on its focus on AI moving forward, for example, especially if that focus is on research and technical

implementation as opposed to creative implementation, a third faculty member must be added to the program for whom that is their focus.

Further, **the demands already being placed on Profs. Pedersen and Britton are outlandish, bordering on abusive.** After a series of emails with Deans Bell and Berry, as well as Prof. Pedersen, I'm shocked by the workload demanded by DSU. Both Professors Britton and Pedersen are teaching three full 3-credit lecture classes and two shared 3-credit classes apiece, for a total of 24 teaching credits a year, plus 3 "credit hour releases" for research and another 3 for service. This adds up to DSU's prescribed 30 workload credits a year. The problem with this arrangement is that DSU claims to have a 4/4 teaching load but if these additional 6 credits' worth of labor are considered "credit hour releases" for courses, then what DSU is *actually* demanding of its faculty is a 5/5 load. Now, most faculty everywhere are expected to do some degree of service and some degree of research, to be sure. However, at Miami our non-tenure track lecturers are expected to do a 4/3 or 4/4 load with some service but zero research, and that service usually takes the form of being on committees or helping with recruitment or other similar initiatives. Our tenure-track faculty are expected to do more service and more research, and teach a load closer to 3/3 or 3/2:

> The University norm for teaching load for tenured and tenure-track faculty – assuming research productivity, teaching and advising, and service that satisfy expectations – is either three and three or three and two (using the three credit hour course as the unit of account), depending on disciplinary standards and benchmarks and labor-intensive pedagogical practices.[4]

Further, those individuals serving as program directors receive additional course releases:

> Chairs and program directors should receive a reduction in teaching load proportional to their responsibilities and their department's or program's

[4] https://miamioh.edu/academic-affairs/faculty-resources/hiring-transition/faculty-workload-norms.html

> size. The divisional dean must be consulted regarding the chair's course reduction. Faculty fulfilling other administrative responsibilities in a department will normally receive a reduction in teaching load of up to one course per year depending on their responsibilities and the department's size. The divisional dean must be consulted regarding reductions for administrative responsibilities.

Further still, probationary (pre-tenure) faculty are also given releases to do the important research they need to conduct to achieve tenure:

> Departments will provide a reduction in teaching load of one course per year in each of the first and second years of the probationary period. It is the University's intent to award all probationary faculty a research leave or the equivalent in course reduction spread out over multiple semesters during their probationary period.

Profs. Britton and Pedersen are acting as program co-directors for the entire games program, are responsible for keeping the whole major afloat, are responsible for advising all of its 91 students, *and* are expected to do tenure-quality research worthy of an R2 institution on top of *that*. That's a *ludicrous* amount of work on top of an already heavy full 4/4 teaching load. It's no wonder they're struggling. If DSU were to grant Profs. Britton and Pedersen a research leave the way Miami does, I get the sense the students in the program would be in serious trouble because there are no other games faculty to cover their absence.

Despite e-mailed assurances to the contrary, I have a hard time believing their workload is comparable to, say, a rank-and-file professor that's not a program co-director and is teaching in a less popular major. If that *is* the standard at DSU, then the DSU faculty should strongly consider finding employment someplace less abusive. I've been told that it's common practice for DSU faculty to happily request a workload this heavy (or even heavier) because they want overload pay, but that level of demanded labor is not only unsustainable because there aren't enough hours in the day to ensure that they're able to do all that work *well,* but also setting them up to fail and risking their physical and mental health from burnout.

Furthermore, this unrealistic workload may also be a strong deterrent for any potential new hires – a potential employee pool that is already narrowed by having to move to South Dakota – so DSU is kneecapping the program's chances of success moving forward. (I have a very similar problem getting good new faculty to come to Miami, and we're only half an hour outside of Cincinnati. I can only imagine the trouble you must have getting folks to move within driving distance of Madison.)

I would *vehemently* advocate for hiring a third full-time faculty member to enable further growth (and, ideally, further diversity). Strongly consider finding a faculty member who specializes in AI, who could potentially be shared with Computer Science. (I'd recommend reaching out to Michael Mateas and Noah Wardrip-Fruin at UCSC for candidates; they have produced some truly amazing graduates who might fit the bill.)

*3.2.2.2. Release core game design faculty from non-game design teaching requirements**

"Check. All courses being taught by the games faculty are games classes."

*3.2.2.3. Hire a part-time, dedicated administrative assistant for the program (not part of an existing assistant's time)**

This hasn't happened, but it may not need to if sufficient support is provided at the departmental level. A dedicated grant writer and business development, and/or working with admissions to expand coverage to bring in a broader range of students would be very useful.

*3.2.2.4. Don't worry about faculty accreditation**

The creation of Professor of Practice roles and the consideration of Prof. Pedersen's industry experience in his hiring are reflective of this problem being solved.

3.2.3. Classroom facilities

The addition of the Beacom building has done a ton to bring the previously-scattered offices together. Having Profs. Britton and Pedersen be in the same building is ideal for immediate collaboration.

The classroom facilities I saw during my visit are okay, but not spectacular. Profs. Pedersen and Britton can make the current state of the facilities work for the current 100-120 student cohort, but if that increases to 150 or more, the current facilities do not have the capacity to support two concurrent full-size classes.

You have a small suite of multi-purpose rooms, but particular areas of development are likely to require more dedicated spaces. I didn't see any spaces that are full-time standing studios for the students, for example, where project teams can post concept art on the walls for continuous reference. I also didn't see any spaces specifically dedicated to XR or dedicated digital asset making (WACOM tablets, 3D printers and 3D scanners, mocap stages, volumetric scanners, giant printers and flatbed scanners, digital or analog art walls, etc.). Multi-purpose rooms are okay for a program just spinning up, but a mature program should have spaces where students can treat as their own studios and where faculty can have resources available 24/7 for student (or faculty!) usage.

3.2.4. Laboratory facilities and equipment

Some updates need to be made to both the hardware and the procurement process. For example, the lab machines currently don't have dedicated graphics cards, which is both problematic for developing game visual assets and AI projects. As for the process, in conversation with Profs. Britton and Pedersen, it was revealed that it took *three years* to get some requested video game controllers. That's ridiculous. Consider establishing a more regular hardware refresh budget that the games faculty have direct control over.

*3.2.4.1. Establish a makerspace**

The library apparently has something underway. I suggest the faculty patch into these efforts to broaden their experimental games explorations to include alternative controllers and physical-virtual hybrid experiences. (See 3.2.3. above re: asset creation hardware.) In my conversations with the students, one commented that "there are 3D printers on-site that I could play with," but it doesn't seem like the students are pressed to really make great use of those resources yet.

*3.2.4.2. Establish a game library and playroom**

This is something that needs to be stood up, partially to expose students to the vast canon of older games and to games that are assigned to be read but the students may not be able to afford on their own. Apparently there is some conversation underway with the library to do this in conjunction with them, which is a wise move because it can piggyback off the library's existing materials check-in and check-out functions to enable off-site gaming while deterring theft.

3.2.5. Financial support

See 3.2.1. above. Without a plan and clear metrics, it's hard to say if the program is sufficiently funded. Based on what I saw, I suspect the answer is *no,* but my conversation with Provost Hoey, Dean Bell and Dean Berry suggests that there are more resources available to Profs. Pedersen and Britton than they are currently aware of.

3.2.5.1. Provide travel funds to and from South Dakota

Being located in South Dakota is both a blessing and a curse – while it's easier to afford the monthly expenses involved in running a studio with the lower cost of living, there's also a significant investment required to either bring speakers and recruiters to campus or to send students to where those speakers and recruiters otherwise are.

One interviewed student remarked that they enjoyed how the games program "brought in one guest speaker a semester, or thereabouts." Another remarked on how the games program "brought in Gamegos' business manager and president to speak, but it was too basic to be useful. Last year it was the lead level designer for Apex, which was awesome because he shared his story about how he moved through Respawn."

At Miami we try to bring in guest speakers as often as possible, but share the challenge in getting industry pros to come to campus. Last year we brought in Eric Williams, the director of Santa Monica Studios' *God of War: Ragnarok,* but we were only able to get

him here because his friend Jeff Ketcham, a senior producer at Santa Monica Studios, is a Miami alum. Even so we needed to provide travel funds for them to fly to Ohio.

Further, we also have a constant struggle securing the funding required to help send students to the Game Developers Conference in San Francisco every spring, but it's an initiative we're dedicated to pursue because *that's where the students are more likely to find jobs.*

3.2.5.2. Provide research funds

A program dedicated to emerging technology and an ongoing, ever-developing medium needs a constant hardware refresh budget and a budget for an ever-growing reference library of code books, art books, games, movies and other media that students can use as references.

3.2.5.3. Provide ongoing faculty training funds

Profs. Britton and Pedersen should have as much funding (and time!) as they need to stay up to speed on the latest game development hardware and software. This should include certification programs for software suites like Adobe Creative Cloud, game engines like Unreal and Unity, project management systems like Agile, and emerging technology like AI. Faculty cannot be expected to provide up-to-date training for students unless the university is constantly providing up-to-date training for the faculty as well.

3.2.5.4. Weigh the use of external grants carefully

A university's all-too-common response to demands for additional funding is to require the faculty to bring in external funding like alumni donations and grants. Doing so places an enormous time burden on faculty members that are frequently already spread too thin, requiring multiple additional days' worth of work hours to discover, pursue, apply, and even when successful, administer and maintain such grants. Such grants are also never guaranteed to be renewed, meaning that such grants should never be relied

upon for a program's core operating expenses. If such a grant is used to cover an additional faculty member, for example, the university cannot structure the major in such a way that its required courses are no longer covered by full-time faculty at normal course loads with reasonable class sizes should that grant and its funded faculty member be lost.

According to my conversations with Profs. Pedersen and Britton, they need help finding grants in their area of expertise. The folks who are currently in charge of that fundraising aren't sufficiently aligned with the games program to be of much use.

Similarly, grant-funded research should be pursued first in areas that lead directly to student employment. Based on my conversation with Provost Hoey, DSU is aiming to become an R2 school while focusing directly on research that is purely practical.

3.3. Program curriculum

The program curriculum laid out in the Self-Review document seems like a decent foundation, given the limited number of faculty, but there are a few elements that may be missing based on our limited discussions and the provided course titles. I'd suggest integrating more of the following.

3.3.1. Add Game Marketing

This may be incorporated into the Business of Games class, but students should be educated in the various methods and best practices for game marketing, including social media management, transmedia content marketing, entertainment-as-a-service, etc.

3.3.2. Beef up Game Studies

While I'd recommend this be implemented with a keen "applied game studies, make better games by thinking harder about what games can do" format, rather than pure theory – *but* there is a great deal to be learned and gained by looking at how people

have historically considered how games work and what games do. I'd recommend this be incorporated into a first-year course like Intro to Game Design to provide a more robust foundation for future courses, and should cover Huizinga, Callois, Suits, and other canonical game studies texts (see Salen and Zimmerman, *The Game Design Reader: a Rules of Play Anthology* [2005] for a start). I'd also suggest you incorporate Tracy Fullerton's *Game Design Workshop* as the backbone of your Intro to Game Design class, as it's a terrific summary of the best practices Fullerton used to lead USC's games program to the top of the rankings list.

3.3.3. Include Analog Game Design

Again, an excellent first-year element that can be integrated into an "Introduction to Game Design" class focuses on teaching students the history of analog game design and card games before writing a single line of code (see *Parlett's History of Board Games* [2018] and *A History of Card Games* [1991]). I myself have students in my Writing for Games class create TTRPG modules and storytelling board games like *Sleeping Gods* or *Miru* and card games like *Spire's End* before moving into digital prototypes.

3.3.4. Add The Rhetoric of Games

At Miami we have a course that looks specifically about how games convey meaning, and how games are particularly effective in conveying arguments (see Bogost, *Persuasive Games* [2010]). This is particularly useful if students are interested in gamification and the use of games in marketing campaigns.

3.3.5. Add formal Individual Game Development

One interviewed student remarked that the games faculty are "very supportive of students working on their own games, but not a lot of students do that. They are constantly egging you on to pursue your individual projects and will provide independent studies for projects."

This same student was frustrated with how the program was run in the 2023-2024 academic year, in which it combined the project and process junior and senior classes into one giant combo class. According to the student, “last year's projects were not good portfolio pieces, not a good representation of what I’m capable of. I struggled with my teammates.” The student much this year's approach of being on multiple projects so he can have multiple portfolio pieces. (Another student project lead struggled to get his teammates working, but I’ve found this is a universal problem with undergrads.) The student is anxious that they don’t have enough individual projects in their portfolio to represent their work, and would love to have more opportunities for that. The student acknowledges that the program participates in the annual Global Game Jam every year, but wishes there were more opportunities like that.

In our program at Miami we offer individual project development more formally: we have students take two semesters of a class that’s basically a portfolio development class, making small digital games before moving on to the big, ready-for-publication game in the capstone trilogy.

3.3.6. Add Project Management

We have a class at Miami taught by a certified scrummaster on different models of project management (agile, waterfall, etc.). It’s not mandatory but I’m constantly tempted to make it so. Ideally, students would do this class in a sprint culminating in their becoming scrummaster certified themselves, as it’s a highly employable certification.

Profs. Britton and Pedersen are doing a solid job of constantly refining the course makeup to make it as effective as possible, but this is inherently an ongoing process. As they note themselves, “we need meaningful improvement in organization. Some of the courses could be a bit more structured. The consistency [we] don't feel is there.” I’m confident this will be achieved organically through continued additional refinement and coordination across syllabi.

3.3.7. Swap out ARTD 431 for GAME 375, add GAME 360, and review ART 121*

This has been done: 431 is no longer offered. Game 375 is now mandatory. Game 360 has been added. As for Art 121, it is part of gen ed and is state-mandated.

3.3.8. Make the implicit lessons taught through project-based learning explicit through repeated overt reinforcement in year-end projects*

Sounds like this is happening. Except for two classes that are offered concurrently, each class offered in sequence builds upon and reinforces the learning from prior classes, culminating in a total synthesis and reinforcement in the Projects and Process capstone classes.

3.3.9. Increase mobile and emerging platforms support*

3.3.9.1. Invest in mobile and emerging platform development, including establishing a "slush fund" for students to apply for truly experimental materials*

The slush fund does not yet exist, but there are options for students to conduct research via the Student Research Initiative program. The limitation of no software purchases with this money could be a challenge. The 2023-2024 VR research initiative is a good step in this direction as well. Having work done in emerging technology being contingent on student desire may not be ideal. Strong consideration should be given to creating sprint classes or hackathons or other short intensive exposures to emerging media and technology. There is apparently a draft class on Experimental Games that should be commonplace in the curriculum. This is a crucial thing to include in a college curriculum so students have experience in evaluating emerging tech for opportunities as an ongoing professional skill.

3.3.9.2. Set aside space for room-scale VR testing*

The library has indicated that they have space the program could use to pursue that path, but that space does not exist in the current building.

3.3.10. Increase entrepreneurial or business modeling support*

3.3.10.1. Incorporate business modeling and entrepreneurialism into the curriculum*

Check – Prof. Pedersen's Business for Games class is a great addition. Student pushback is indicative that they do not understand the importance of making money when entering into the program, which makes it all the more important.

3.3.10.2. Hook students up to a larger entrepreneurial support system*

This was being pursued with the business school but Prof. Pedersen's main point of contact left. Prof. Pedersen has promised he will reestablish connections. (See 3.6.3.5.4. Create a not-for-profit student studio incubator.)

3.3.10.3. Connect to local or state governments for financial development support*

This is still required and is a key area for future expansion.

3.3.11. Encourage students to create their own interdisciplinary majors

While I only had the opportunity to interview a small handful of students out of the 91 currently enrolled in Computer Game Design, one criticism that arose repeatedly is a frustration with the balance between the technical and artistic elements of the program. The program as designed is meant to produce well-rounded indie developers with a mix of programming and art skills, which is, in theory, a very solid approach.

The problem is, some students just want to be programmers and some students just want to be artists and, predictably, the programmers want fewer art classes and the artists want fewer programming classes.

One interviewed student thinks the program does a good job of "introducing everyone to various aspects of game development." As such, she feels she could do anything in game design – but that could be bad. "If you just want to be an artist, you also have to pass all the programming classes." The student thinks that if you're art focused, you

should only have to take *a* programming class, not *all* of them. She would rather see one programming 101 class be required for artists to give them the basics, but their GPA isn't tanked if they're doing something that's not their strength. This student has seen a lot of artistic friends who have issues with the programming side, including her sister, who switched to Animation because she didn't think she could get through the programming. This student herself is a programmer, and she can get through the art classes, but she would rather focus on more programming classes because she sees them as making herself "more employable." She wants to have to take fewer art classes and more programming classes, as a programmer.

A second interviewed student also remarked that the games program "could focus more on the programming side, may do too much on the 3d modeling and art side." Ironically, this same student "hopes to work at an indie studio, doing programming mostly," but then added that he "enjoys 2D art more." The 2D classes he's taken only provide entry level training into Photoshop, and he would like to have the option to do 2D animation instead of 3D.

A third interviewed student remarked that after graduation, she just wants to do 3D modeling. "I could do texturing as well, but mostly I want to be working in Chicago doing modeling." The same student commented that she likes the ratio of art to programming classes, but, more worryingly, added that "If I'm going to make my own game, I'm going to have to relearn all of it." I suspect that was the direct result of front-loading the programming courses into the first two years, while the last two years are very art-heavy.

Note as well that this ordering is also a deterrent to a greater gender balance, as the programming side of games tends to be more popular among male students and the art side of games tends to be more popular among female students. In conversation with a different interviewed student, I mentioned how at Miami we offer a track in game art, which interested her greatly. "The tracks would help with diversity," she said, "as a lot of the women on campus are in art and would come over." Further, according to the

student, DSU *does* offer the opportunity to do concentrations, but that requires an extra year, at extra cost.

DSU currently has a 70/30 male-female ratio, which seems to be reflected in the ratio of programmers to artists as well. According to one interviewed student, “There is a severe lack of artists, it's mostly programmers. If they had a split path where each student could pursue their specified interests, they'd have more artists.”

Note that one interviewed student did add that the games faculty “do a good job of making it as accessible as they can. There are overrides if someone REALLY can't get through it, like an override for a student to not take data classes. The faculty are very willing to help and answer questions.”

All of this suggests that the program needs to adopt a curriculum that allows more flexibility based on the students’ individual interests and abilities.

At Miami, our Games + Simulation major was created by three faculty members, one of whom specialized in game development, one of whom specialized in game art, and one of whom specialized in game studies. As a result, we have historically had three “tracks” students could take classes in: game development, game art, and game studies. In 2024, all three of those original founding faculty members have moved on, and after intense discussion, we’ve concluded that these silos no longer serve our students’ best interests. Our students now *can* follow those same tracks as recommended paths through the major, but we’re now also strongly encouraging our students to work closely with their faculty advisors to create alternative paths through the major that best fit their individual passions. A student keenly interested in making music that is dynamically generated using AI as the game proceeds would be encouraged to take a mix of AI courses and music courses to fulfill the core requirements of their self-created major, for example, where the music courses offered are typically considered electives. A student who is primarily interested in the game layer of live interactive theater (as found in location-based entertainment venues like Disney’s *Galactic Starcruiser)* is encouraged to take a mix of game design, theater, and entertainment technology classes.

This flexibility builds in a layer of support for students with a high level of individual curiosity and drive (who, not for nothing, tend to do some *really amazing things* after graduating) and also adds a strong element of future-proofing to the program.

3.3.12. Increase the integration of theory + practice, critical + creative

During my meeting with the Deans and the Provost, Dean Bell commented on how much she loves "seeing the students sit and brainstorm ideas and talk through how they do it." In that same meeting Provost Hoey commented on DSU's dedication to pragmatic education over more abstract theory-based courses of study. The critical + creative thought process that puts theory into practice is the hallmark of a great program like NYU and USC. What students need is theory grounded in practice, and practice informed by theory.

To give students this mix, I would strongly suggest integrating readings from, for example, Salen and Zimmerman's *The Game Design Reader: a Rules of Play Anthology* (MIT Press, 2005) for seminal texts in how we think about games and play from such foundational theorists as Callois, Huizinga, Suits, Sutton-Smith, DeKoven, Bartle, Mateas, and Jenkins. The goal with this approach is to make students think more deeply about how games work, why people play, and what games have been, and thus to bounce them out of thinking stagnantly about just what games *are* to what games *could be.* That deeper, more fundamental understanding of games and play is what leads to breakout innovations in game design that lead to blockbusters like *Minecraft* or field-redefining works like *Immortality, Gone Home,* or *Galactic Starcruiser.* This kind of training is what students *won't* get by just watching YouTube tutorials on how to use Unity or Unreal and is a crucial argument for why aspiring game designers should go to a university to study how to make games instead of a technical school like DigiPen. The ability to perform a close reading of a game "text" for what it does well, how and why it does it well, and how it could be improved upon is not only a useful academic skill with an academic critique paper as a nice byproduct, but it's also a crucial component of

performing the competitive analysis that is required to make a successful pitch of a game project to a potential publisher.

3.3.13. Continue providing playtesting opportunities

This is more of a commendation for current practice than it is a recommendation for change. Multiple students I interviewed remarked on how much they appreciated the opportunities provided to have their games playtested, especially regular playtests with local high school students. “Before, when I was in Game 101, Peter brought in these project classes every so often and they'd playtest our games. I’d like to see this happen again.” Another student who produces their own side projects remarked on how much he appreciates the opportunity to bring in those games for playtesting as well.

3.4. Technology integration

This is difficult to assess. The technology I saw on my visit was representative of DSU being a tiny rural school making an effort to expose its students to platforms they may not otherwise experiment with, like VR. It pales in comparison to much larger, much more well-funded schools like the University of Southern California or MIT, but those aren’t your primary competitors. Again, you should decide what kind of program you want to be and how advanced you want to be, and then weigh your success or failure against that. (See section 3.2.3. above.)

3.4.1. Reevaluate underpowered student laptops

That said, one area that arose repeatedly in my conversations with Profs. Britton and Pedersen is that the current laptops issued to DSU students are insufficient for the students’ needs. Even though they have terminal access to cloud processing, they must have local CPU/GPU processing. Without that, they are operating at a significant disadvantage.

Further, more expensive hardware and customized needs hardware (such as drawing tablets) currently need to be acquired by the students individually. If the school is priding itself on its low cost and accessibility, then the school needs to pony up for the hardware that the students can't afford themselves beyond just laptops.

All of these higher costs may need to be offset by higher equipment fees included in tuition. This is a conversation that should be held between the games faculty and ITS.

3.5. Program assessment

3.5.1. Appropriateness of assessment measures / activities for the discipline

As noted before, Profs. Britton and Pedersen are making excellent use of an iterative prototyping system to conduct self-assessment, making constant refinements to the program based on what's working and what's not. However, I would strongly suggest establishing a kind of advisory board from peer institutions and industry to engage in regular check-ins to discuss emerging best practices. (Profs. Pedersen and Britton would love to do this but they need some help getting it set up.)

3.5.2. Major-field assessment activities, relative to the program goals

Also noted before, Profs. Pedersen and Britton have adopted an ongoing continual self-assessment model to see what techniques work and which should be abandoned. Continual ongoing evolution is excellent. They work with the external assessment office to evaluate their classes for meeting program objectives. Business of Games, Game Tools, and all the project classes are closely monitored internally and externally for continuous improvement.

*3.5.2.1. Every year's final projects should be judged not only by the professors, but by an external group of industry professionals**

The faculty concede that this isn't happening, but it should be. This is largely due to the difficulty in getting people from industry to campus. I'd suggest looking into presenting to a panel of industry professionals over Zoom.

3.5.3. Program accreditation, if appropriate

3.5.3.1. 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*

Profs. Britton and Pedersen need explicit guidance on how their impact and influence will be measured in their tenure reviews (e.g, Google Scholar citation numbers, etc.). What is considered peer reviewed? What is considered worthy research? How is impact and influence measured? (Citations? In what publications?)

Having both of them on the same tenure clock is a ticking time bomb. They're both in their last two years of the tenure clock, and mentorship on getting stuff built has just begun in the last few months. They need more assistance and guidance through the tenure process. As it is, as both of them will inevitably find themselves rushing to assemble their tenure review portfolios at the same time, their availability to the students will just as inevitably drop like a rock.

The new deans sound like they're better at this than their predecessors. Dean Bell and Dean Berry both say that the conversation about their tenure clock happened before they arrived. Provost Hoey suggests that they publish on their teaching processes. This has to be peer reviewed, but it's a very achievable goal in peer-reviewed journals like *Eludamos.*

3.6. Student support / student enrollments

3.6.1. Student recruitment efforts

Closer collaboration should be done with admissions. Early screening of students is key, and may have a direct impact on the ridiculously low graduation rate of admitted students. At Miami, we require students applying for the games major to submit a portfolio the faculty reviews for suitability. According to Profs. Britton and Pedersen, “With student-parent visits, we do a good job of vetting students as much as possible, even without the portfolio review. We give them a reality check up front, otherwise it's $50K down the tube.” Given your graduation rates, I’d strongly urge you to add the portfolio review.

Formal training for the admissions folks on exactly what the program is would be hugely helpful and give some badly-needed time back to Profs. Britton and Pedersen.

*3.6.1.1. Establish exchange programs with other schools**

This idea is based on similar exchange programs I’ve seen between MIT, the Rhode Island School of Design, and the Berkelee School of Music. According to Profs. Britto and Pedersen, “We were successful in one instance last spring. Only once. That was more student-initiated than us. Our Dean of Arts and Sciences wanted more, but we are not equipped to do that. It’s a time constraint.”

3.6.2. Student enrollment numbers

3.6.2.1. Improve gender imbalance*

This is a known issue, all the way up through the Deans and the Provost. Everyone is keen to correct the gender imbalance, starting with attracting more women into the program.

*3.6.2.1.1. Hire female faculty as dedicated game program professors**

Still highly recommended. Should a third faculty member be hired, it is heavily recommended that this be a strong female faculty member hired at an equal position to Profs. Pedersen and Britton (not a lecturer, which could be perceived as a "second-class citizen"). Parity is key.

*3.6.2.1.2. Offer scholarships to female students, and recruit heavily**

Based on student interviews, this still hasn't happened. This may not be easy to do now due to resistance to DEI initiatives, but I highly recommend reaching out to women in gaming groups such as Women in Games (https://www.womeningames.org/) to find external scholarships and help candidates secure that funding. If the school has an initiative to grow, this is an obvious untapped potential market. This needs to be an interdepartmental initiative, based out of the admissions department in conjunction with the individual programs.

*3.6.2.1.3. Halt the attrition of what female students the program does attract**

Addressing the misogyny in the classroom is an excellent step towards fixing the problem. Given that women in games tend to graduate more towards art and writing than programming, consideration should be given to preventing such students from bouncing off the programming class and dropping out. Consider implementing a sprint "booster shot" class in programming fundamentals for students struggling with the basics.

3.6.2.1.4. Rework the curriculum to make it more accessible to artists

As noted in 3.3.5. above, having the first two years of coursework be very programming-heavy and the last two be very art-heavy may serve as a deterrent to artists and, since the art side of things tends to be dominated by more women than men, may also be detrimental to establishing a greater gender balance in the program.

3.6.2.2. Improve racial imbalance

*3.6.2.1. Hire minority faculty as game design professors**

Check. Prof. Britton is not only an international hire, he's an amazing hire full stop. In addition to his clearly high professional skills, he brings a unique perspective to the DSU faculty, contributing to its diversity of backgrounds and experiences. His expertise and distinct perspective significantly enhance the game design faculty.

*3.6.2.2. Offer scholarships to minority students, and recruit heavily**

See 3.6.1.2. above.

3.6.2.3. Increase international enrollment

Obviously this is a major challenge post-COVID. At Miami a significant percentage of our students had come from overseas pre-COVID, but following the pandemic's travel restrictions and the increasingly anti-immigrant, isolationist political atmosphere of America, they're now only a tiny percentage of what they used to be. I wouldn't be at all surprised if the same were true at DSU.

3.6.2.4. Increase LBTQ+ inclusion and support

Being in South Dakota this is politically difficult, but if the goal is to grow the school, then this is another clear area for improvement. One concerning conversation I had with a student was regarding LGBTQ support on campus. The student is one of only a handful of LGBTQ folks. According to the student, "there *is* a gay-straight alliance, but I don't attend those meetings because it's so loud." The more alarming report is that when their partner hung a bisexual pride flag in their window, other students threw rocks at it. "It's not the faculty's fault," the student said, "but the campus isn't LGBTQ friendly."

3.6.2.5. Increase other diversity inclusion and support

This includes reaching out to the indigenous populace. This could easily expand the student base and give SDU another unique selling point.

3.6.3. Student graduation rates and student placement

This is an area of *major* concern.[5] As included in this year's Self-Assessment Report:

> **4.3 Degrees Awarded**
>
> Table 9 lists the number of degrees awarded for Computer Game Design, The Beacom College, the College of Arts & Sciences, and the university each academic year from AY16-17.

	AY17-18	AY18-19	AY19-20	AY20-21	AY21-22	AY22-23	AY23-24
Computer Game Design	13	8	18	11	14	8	10
College of Arts & Sciences	101	86	113	78	99	89	93

[5] Sadly, no pun intended.

4.6 Graduation Rates

Table 14 represents the graduation rates for the BSCGD program, the College of Arts & Sciences, The Beacom College, and the University. Additionally, there is no data for The Beacom College until it came into existence in Fall 2015. Prior to that, the BSCGD program was a part of the College of Business and Information Systems (BIS).

Cohort		Computer Game Design	College of Arts & Sciences	The Beacom College	University
Fall 2011	Number of Students in Cohort	25	74		275
	Graduated within 5 years	36%	30%		32%
	Graduated within 6 years	36%	35%		35%
Fall 2012	Number of Students in Cohort	30	69		283
	Graduated within 5 years	17%	38%		37%
	Graduated within 6 years	40%	45%		43%
Fall 2013	Number of Students in Cohort	36	63		276
	Graduated within 5 years	33%	33%		37%
	Graduated within 6 years	36%	33%		38%
Fall 2014	Number of Students in Cohort	29	52		263
	Graduated within 5 years	31%	35%		43%
	Graduated within 6 years	38%	40%		47%
Fall 2015	Number of Students in Cohort	32	66	153	320
	Graduated within 5 years	34%	41%	41%	42%
	Graduated within 6 years	41%	44%	45%	45%
Fall 2016	Number of Students in Cohort	25	66	177	305
	Graduated within 5 years	40%	39%	46%	42%
	Graduated within 6 years	44%	41%	52%	46%
Fall 2017	Number of Students in Cohort	27	70	179	354
	Graduated within 5 years	37%	44%	57%	47%
	Graduated within 6 years	41%	44%	58%	48%
Fall 2018	Number of Students in Cohort	25	71	204	376
	Graduated within 5 years	44%	32%	54%	46%
	Graduated within 6 years	44%	33%	56%	48%

Table 14. Graduation Rates for First-time, Full-time, Baccalaureate Freshmen

Also:

4.7 Student Placement

Career Services was able to contact 5 of 6 Computer Game Design graduates from 2023. Of the respondents, 4 were employed and 1 was continuing his or her education.

The following is a list of companies and positions filled by 2023 graduates of the BSCGD program:

- Bank West — Game Designer
- Fast Enterprises — Game Developer
- JDS Industries — Universal Support
- U.S. Bank — Web Developer

I would argue ***strongly*** that “Universal Support” and “Web Developer” are *not* video game industry jobs. If we assume that the 6 students graduating in 2023 entered in the cohort of 2018 and took five years to graduate (no data was provided to say exactly

when each of the six graduates entered the program, so I'm guessing) then that means that of the 25 students in the 2018 cohort, ***76% did not graduate and only 8% graduated with a job related to the major they pursued.***

Even if those assumed entry numbers aren't correct, referring back to the Self-Report's table 4.6, most DSU students *don't graduate within eight years.* That's a staggeringly low number, especially given that your own website promises "we're a **four-year university** with nationally recognized programs [and] an affordable, public-school price that's among the best values in the region".[6] Given that your stated tuition costs are between ~$18K and ~$21K a year, I'm struggling to see how the majority of DSU students are getting what they expect when they apply – most either don't graduate within the promised four years, wind up spending twice as much time (and, presumably, twice as much money) as a DSU student, and those few who do graduate within eight years don't have much luck finding jobs in their field.

3.6.3.1. Increase industry awareness of the program

*3.6.3.1.1. Establish a colloquium lecture series to bring in outside speakers from the industry**

"Yes, we do have speakers. Over the last four years we had speakers from Respawn, Magic Leap, Insomniac, Long Hat Studios, and a writer for Respawn. Time is the issue – it's been six months or so, time is hard to find to set this up. These have been over Zoom because there's no budget to bring people here. Think it would be helpful to bring people in in person, as it would solidify opportunities for students. This would give identity to the school – it would introduce to the industry visitors that we exist, and would prove to the students it's a viable school."

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[6] https://dsu.edu/admissions/index.html

*3.6.3.1.2. Turn the colloquium lecture series into a podcast**

"We'd have to get the guests first, but we could do that." Prof. Britton's considering doing a podcast with just the students and themselves and build from that.

*3.6.3.1.3. Establish a travel fund to send faculty and students to conferences**

According to Profs. Britton and Pedersen, "for the students, that would be great. That would be a great idea. Students have to get themselves there now – student clubs only get about $500, so they have to sell pizzas or whatever. It's a hard sell. As for the faculty, the school is only interested if we're presenting. We get $1500 in development funds." This is in line with a comment made during my conversations with the Deans and the Provost: "They do have funds to go to conferences, they have approval to go to conferences. They didn't understand the processes of how to do this."

Profs. Britton and Pedersen should go to GDC every year, *even if they're not presenting,* because that's a crucial opportunity for not just staying abreast of the latest developments in our field, but making connections with industry professionals to develop pathways for student internships and employment. To do so, their travel budget will need to be increased. The existing $1500 budget doesn't cover the All-Access ticket at its earliest-discount price ($1,699), not to mention the travel expenses.[7]

*3.6.3.1.4. Support the DSU e-sports teams**

Profs. Britton and Pedersen understand DSU has a healthy e-sports team, but have no time for that. "We have six students on the team, but we focus on production and they focus on consumption for sport."

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[7] https://gdconf.com/passes-pricing

*3.6.3.1.5. Publish your games publicly**

"We have published six in the last few years: *Three O'Clock Horror, Speed Demon, the Chef Game, Miscousie?*, the one with the ghost. But they're not findable from the website." (See 3.6.3.2. Improve Your Website.)

In my conversations with Profs. Britton and Pedersen, Prof. Britton explicitly stated that his goal is to "create viable games," and Prof. Pedersen remarked that the program's overall strength is in its production of "indie game developers."

I'd strongly recommend you make a presence for yourselves on Steam and Itch.io as a publisher for your students' games, or some other type of hub presence on those sites where you're pointing to those games. Should the students' game be accepted into an accelerator (such as the equivalent of the ShawneeXP incubator program) or be acquired by a publisher, that student version may need to be pulled down – but that's a brilliant problem to have.

3.6.3.2. Improve your website*

"Complaint being brought to the provost – if you go the website now, there's no demonstration of what we do. There is some text and some images, but it doesn't convince students to come here."

3.6.3.3. Finish drafting an advisory board, particularly from companies who can hire students*

"Nope. Didn't happen. Still need to do that."

3.6.3.4. Doggedly pursue internship programs*

During my conversation with the games faculty, the following comment was made: "If students bring opportunities, we try to help them apply. An attempt was made to work with Insomniac, but that fell through."

In my conversation with the administration, Provost Hoey pointed out the importance of the games faculty adding more emphasis on securing internships for the students. “Intentional development of internships would be a good next step for the faculty. Nurturing that, cultivating those internships.” When Provost Hoey asked student teams if they were considering internships, it was met with blank stares. “That's an excellent next area of development.”

3.6.3.5. Increase attention to entrepreneurialism and help students start up their own studios to create future jobs for future students*

Check. Prof. Pedersen believes this is 100% essential if the program is to grow. “Yep, the Game Business class approaches those topics. Prof. Pedersen connects them with the school foundation and opportunities they can explore. They practice applying for grants. Get them ready to deal with the business side of things.”

*3.6.3.5.1. Provide a lawyer**

They DID have someone, but she left. Will find a replacement for next offering of the class.

*3.6.3.5.2. Go to the state and local governments for support**

This was met with a derisive snort. A previous attempt was made to work with the governor’s office, but they proposed doing it for nothing.

*3.6.3.5.3. Establish relationships with local entrepreneurs**

Prof. Britton feels there’s opportunity with a local prefab home company, but it hasn’t been explored yet. Might explore prefabs with VR.

3.6.3.5.4. Create a not-for-profit student studio incubator

One of the most productive things you could do for your students is to create an incubator for one or more senior teams to have an additional year’s worth of development time to bring their projects to market. This is admittedly not a cheap undertaking, but if done properly could be utterly transformative to both your students’

lives, DSU's reputation, and the region. In conversation with Provost Hoey, this sounds possible – she recommends that Profs. Pedersen and Britton connect with Mike Roach at the Paulson Center, as he's working on a similar incubator project and part of his job is to foster entrepreneurship among the students.

Here in Ohio, Shawnee State University recently launched their ShawneeXP Game Accelerator program. Shawnee first secured a $5MM federal economic development grant to support career development in its economically-depressed town of Portsmouth. Shawnee State then agreed to match that $5MM, largely through providing such resources as access to university facilities and housing for accelerator participants in university-owned housing. Groups accepted into the program are not limited to Shawnee students, nor to students in general; while Miami had two recent alumni projects accepted into the incubator, one accepted team was made up of ex-Disney employees. Each cohort goes through a 10-week training process where they are housed on campus and introduced to a series of industry mentors, coached on how to take their pitched projects to their next level of development, taught how to pitch those projects to developers, and given access to a small amount of seed funding to get their projects off the ground. At the end of the 10 weeks, each group is expected to pitch their projects to potential investors or publishers t continue their development. All group projects are also showcased at the GDEX Video Game Expo in Columbus, Ohio. (If you're interested in finding out more about this initiative, you should reach out to its managing director Garrett Davis.)

3.6.3.6. Be open and honest about the difficulty finding work in games

As loathe as I am to suggest that the program should dilute its efforts to find its students employment in games, the stark reality is that statistically speaking, most graduates are more likely to find employment outside of games.

The difficulty finding positions in the games industry, especially in South Dakota, is acknowledged by the administration. In my conversation with the leadership, Dean Berry commented that the games faculty must be "doing things intentionally and

supporting students in the program by helping them professionalize, to have a sense of the many directions they could go. It's difficult to find positions in this career path."

The students themselves also acknowledge this difficulty. One interviewed student remarked that he does not feel like he could get a gig in the industry if he were applying for jobs now. "There are plenty of students who have their hearts in it this year, but last year he thinks there were less. [The faculty] don't talk a lot about the reality of the industry. They talk about multiple ways to do indie-style releases, especially Eric's experience with Frozen Code Base, but there's not a lot of discussion about jobs doing games outside of traditional games."

3.6.3.7. Do the students' job hunting for them

I am writing this with a fair degree of tongue-in-cheek snark, because I deal with this issue *all the time* in my own program. One of your students I interviewed remarked that he feels that if he's not ready to do professional work after graduation, it's his fault. "The games faculty provide information on new job postings and internships. They don't have a Discord." (You should have a Discord server to share this information.)

A different interviewed student said that "for the most part this program has readied me to get a job," but then complained that "they're not doing much to put us in touch with employers – they provide links."

3.6.3.8. Provide Professionalization 101 training

One interviewed student is struggling with how to set up a portfolio and what to include in it, and they complained there's nothing in the curriculum that teaches them how to do that. This is something that I had to add to our Miami courses too, including other basic professionalization training like how to talk to people at conferences, how to behave in public, what to put on business cards, and so on. These are things we assume students will know how to do, but they just don't. It's up to us to provide that training.

3.6.9. Student support services

Academically, this has been addressed across multiple sections elsewhere in this document. As for more personal support services such as mental health support, this was not directly addressed during my visit.

3.6.10. Academic advising

3.6.10.1. Games faculty should advise students starting in their first year

Profs. Pedersen and Benton should start advising students in their first year, so students are better prepared given what classes they should take. Even if it's more light touch than direct advising, games faculty should be giving feedback on what classes in what order students should be taking.

A one-sheet guide, printed and available freely, should give the students a template of what classes they should take, in what order, and in which semester. This should be shared not only with the students, but with other advisors as well.

4. Conclusion

To directly repeat what I wrote in the Executive Summary in part 1, the program is building very strong stuff given its constraints, and Profs. Britton and Petersen have done an exemplary job of revitalizing/rebooting the program, but it’s clearly in a moment of transition following stabilization. Some strategic decisions need to be made to determine whether this program grows into a point of focus and attraction for DSU or if it’s relegated to being a fallback major for the cybersecurity program.

Key recommended action points, broken down by section are as follows.

Program goals and strategic planning

- Pivot from rebuild to five-year plan, for both the program growth and the faculty tenure process.
- Establish a clear understanding of what the school's targets are for this program, and what resources are available to get there. Have clear communication between faculty and administration on what's expected and what's available.
- Establish a clear understanding of what is expected from Profs. Petersen and Britton for their tenure reviews. What is considered peer reviewed? What is considered worthy research? How is impact and influence measured?
- Leverage the school's unique strengths in cybersecurity and AI to further refine your differentiation as a games program, potentially leaning into AI even further. Keep the undergrad education focused on establishing indie developers but weave in a 4+1 master's degree in games and AI.
- Identified goals for the program as listed in the Self-Review are solid but will require additional investment to be done well.

Program resources

- Profs. Britton and Pedersen are operating "at the edge of being able to function," which is unsustainable. DSU's demands that they teach a full 4/4 load, serve as program co-directors, are responsible for the majority of games classes, advise all of the program's 90+ students, and are expected to conduct research worthy of tenure at an R2-level institution is **abusive.** You need to hire another faculty member, ideally female, to give Profs. Pedersen and Britton more room for administrative stuff and teaching. (Having a woman on the faculty will make female students more comfortable and will help with your gender imbalance in your student population.) Aim to have this faculty member specialize in AI, to bolster the program's existing strengths.

- Having all the DAD programming and computer science courses in one building is working well. Keep them together if humanly possible, to continue their cross-pollination.
- The classroom facilities are sufficient for what you're doing now, but insufficient if the program grows. The current classrooms aren't big enough to support two concurrent major classes. If you want the program to grow, you're going to need even more space.
- The laboratory equipment needs updating. The lack of dedicated graphics cards in the current hardware constrains visual asset development and work in AI.
- More resources need to be dedicated to travel to and from South Dakota for faculty, students, guest speakers and recruiters. For a rural program, bringing people to campus and sending students off campus for company visits and interviews is key.
- External grants are an appealing option to secure additional funding but requires a significant amount of faculty time and energy and is frequently unreliable for ongoing expenses. The current DSU personnel need to be reeducated on the needs of the games program.

Program curriculum

- Additional teaching on how to balance critical + creative thinking and combine theory + practice should be added to the curriculum. Students need a better understanding of the history and cultural role of games to more broadly and creatively imagine what games can and will do in the future.
- The current curriculum is designed to create well-rounded game designers, but students are struggling to perform well outside of their core skills. A more flexible curriculum that allows students a greater degree of control over their individual majors will assuage fears of art-centric students having their GPAs torpedoed by programming classes and vice versa.

- The current order of the courses taken (programming-heavy in the first two years and art-heavy in the second two years) is dissuading women from pursuing the major, as the programming side tends to be more popular among men and the art side tends to be more popular among women.
- Some students are afraid they're not getting enough individual projects for their portfolios, and are uncomfortable with the number of group projects they're being asked to do. Refocusing on more individual portfolio pieces should help.

Technology integration

- Much like the aforementioned lab hardware, the laptops issued to students also need dedicated graphics cards to do modern game development.
- If the university is dedicated to delivering an affordable educational experience, it needs to also provide more specialized game development hardware like virtual reality headsets and drawing tablets. The cost for such hardware may require increased tech fees to be rolled into tuition so they can be covered by student loans.

Program assessment

- Student work should be judged by industry professionals as often as possible to provide realistic assessment of their viability as employees.
- Faculty assessment (tenure) should also be judged by their impact upon industry professionals, not just fellow academics. This will require funded travel to the Game Developers Conference in San Francisco every year to stay abreast of the current state of the industry.

Student support / student enrollments

- Broaden your potential student base by appealing more to women and a broader, more diverse range of students. Offer more scholarships. Building on your core brand will help bring in international students. Get clarity on exactly how big DSU as an institution wants to be, and what your ideal targets are, to make sure your targets are realistic and sustainable.
- Market your program more broadly locally. Consider building up awareness of the games program on the reservations to provide the Dakota tribes with the awareness of the opportunity you provide. (See indigenous game projects like *Never Alone* and *Kun'tewiktuk: a Mi'kmaw Adventure.)*

Student graduation rates and student placement

- Your graduation rates are atrocious, especially the number of students that graduate in the advertised four years. You need to do a better job of advising your students so they graduate on time and on budget. Profs. Petersen and Britton should participate in the advising of first-year students. More communication should be happening between the games faculty and faculty of other required courses to prevent students from having to spend an extra year completing (or retaking) some general education required course(s).
- Your job placement claims are also highly dubious and problematic. You're basing your job placement percentages purely on those alumni who respond to the survey and counting jobs as being related to the major that are only very, very loosely associated at best.
- Acknowledging that securing employment in the games industry is already hard and finding such employment *in South Dakota* is almost impossible, you should continue to build up your entrepreneurial training and make resources available to help students start their own companies. The lack of game companies in South Dakota to hire your graduates is a problem that you yourself can tackle (long-term) by developing a not-for-profit incubator/accelerator.

- Act as publisher for student games. Getting games out on Steam and Itch.io will establish awareness in the industry (and among prospective students) of the quality of work DSU students can do. (See USC's work with *Journey.)*
- Work harder to secure internships and entry-level jobs for your students. This may require a more dedicated career development office. Right or wrong, students (and their parents) feel entitled to more of that labor being done by the university instead of themselves.

DSU's current Bachelor of Science in Computer Game Design is a very good program – but for it to *stay* that good or to ideally improve and achieve a higher level of greatness is going to require a greater amount of communication between the faculty and the administration about demands, available resources, and a clear five-year plan; a greater amount of invested resources available to both the faculty and the students; and an unwavering focus on maintaining a clear path for students to follow in order to complete their education in four years while developing the skills and portfolio pieces they need for seamless placement in internships and jobs in games or immediately adjacent industries. It's a tall order and it won't be easy or cheap, but it's the kind of life-changing work that is undoubtedly worth it.

Appendix 1. 2016-2017 Review of Program

Bachelor 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

Part 1: 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, world-class 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 zero. 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.

Increase 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-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 Long-term 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.

Part 2: Schedule of On-Site Visit

8:45 AM	Pick up at Motel (Steve Graham)
9:00 AM	Dr. Richard Hanson, Provost and Academic Vice President, Heston Hall 315 (820 North Washington Avenue)
9:30 AM	Ben Jones, Dean of Arts and Sciences, President's Conf Room
10:00 AM	Dr. Jay Kahl, Director of Assessment, President's Conf Room
10:30 AM – 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
6:00-9:00 PM	Student final presentation/demo of the projects, Science Center Auditorium

Part 3: Program Evaluation

3.1. Program Goals and Strategic Planning

3.1.1. 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.[8]

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.

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[8] http://www.dsu.edu/academics/degrees-and-programs/computer-game-design-bs

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 their field, 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.

3.1.2. 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.

3.1.3. 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).[9]

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.[10]

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

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.

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

[10] http://venturebeat.com/2016/06/08/the-u-s-and-global-game-industries-will-grow-a-healthy-amount-by-2020-pwc-forecasts/

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.[11]

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.

3.2. Program Resources

3.2.1. 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.

3.2.2. 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

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

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, 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),

3.2.3. 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.

3.2.4. 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.

3.2.5. Financial 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 real-world 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 (this requires, among other things, access to a lawyer).

3.3. Program Curriculum

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 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). 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.

4. 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.

5. Program Assessment

5.1. Appropriateness of Assessment Measures/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

Developers 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.[12]

5.2. 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 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.

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[12] 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.

- 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).

5.3. 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 have 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.*[13]

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, 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.

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[13] https://www.linkedin.com/in/richardlemarchand/

6. Student Support/Student Enrollments

6.1. 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.

6.3. 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, fewer 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 all-male 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.

6.5. 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 constantly changing 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.

7. Program Strengths and Areas for Improvement

7.1. Program Strengths

A Breadth of Knowledge. Professors Graham, Berman and Howard offer deep knowledge of 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 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[14], 3 of 18 in 2015[15], and 5 of 21 in 2014 – more than any other school in the country that year, including MIT, USC, NYU, CMU and DigiPen.[16]

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 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

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

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

[16] http://www.gdconf.com/news/dc-2014-announces-winners-for/

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 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.

7.2. 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 9th, *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,[17] and "women age 18 or older represent a significantly greater portion of the game-playing population (31%) than boys age 18 or younger (17%)"[18]. 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.

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

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

Does Not Offer the Latest Technology as Promised. All 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 United States between 2015 and 2020.[19] 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.”[20] 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.

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[19] http://venturebeat.com/2016/06/08/the-u-s-and-global-game-industrieswillgrow-a-healthy-amount-by-2020-pwc-forecasts/

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

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 (ArtD 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 are currently being offered, according to the students' testimonials, do not seem to be fitting that 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 visitors. 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 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.”[21]

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, 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 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.

Increase 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.

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

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. Students who are more entrepreneurial 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. The 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 Faculty 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 program. 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 USC.) 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.

Improve 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 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 longtime favorite 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, THQ 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 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 Long-term 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.[22]

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[22] For more on how the World Building Media Lab has used game mechanics in world building scenarios, see our chapter in Mark J.P. Wolf's upcoming book *Revisiting Imaginary Worlds.*

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 University-Identified 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 earlier, 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 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 should be 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 also 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 review, 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.