GAME STUDIO IN HIGHER EDUCATION: AN ANALYSIS AND RECOMMENDATION

An Interactive Qualifying Project

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By

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Introduction

Game Studio is a class used by the now-defunct Becker College as a part of its Interactive Media Major. Unlike most courses for the major that taught specific concepts of gaming like design, writing, or programming, this class put acquired skills to the test. As a student, you would be brought into a group of fellow gaming students led by a single gaming professor. In an ideal class, there would be a selection of sub majors in game programming, game design, game art, and so on. This class would be given the goal of conceiving a game, starting with base concepts, and ending with an actual product that could be played as a demonstration. Lasting for the entire school year, Game Studio was designed to teach the process of game development to students who had never personally experienced it before.

The program offered a lot of variation, which students could select depending on their school year and their experience in the field. Most students would have a professor-led project, where a professor would watch over or manage their projects to ensure everything went according to plan. The project might also be led by a graduate student, who has experience but can easily relate to the students while they design their game. There were also projects like Greenlight, where the intent was to turn a game into a finished and published product. The wide variety of offerings made for excellent additions for portfolios, when a student would enter the world of gaming.

Professional game development is seldom an independent endeavor. It usually involves large teams of individuals, each with their own skill set, skill level, and responsibility within the game development workspace. Student game studios serve the important purpose of not only giving the students the experience of being a part of a professional game development studio

system, but also helping to build significant team-based skills required not just in game development, but in everyday life. Skills such as personal communication, team-based cooperation, and having an agile mindset that allows one to take on and learn new skills can all be experienced in a group-based multi-skilled field like game design where multiple people with multiple skills work on one project together. Learning to work in a team-based environment with peers of a similar field of study and passion for the material is crucial for letting students know the experiences of how a professional in-person game studio will function and how they could fit in and contribute to an interactive media-based creative group project. Allowing students to understand the experiences of the profession they are going into in a safe cooperative environment with the intent of advancing their skills academically surrounded by their peers is an important step in their academic endeavors that gives them necessary immediate and intimate experiences.

There were occasional challenges we faced throughout this process, however. Sometimes the professors or instructors were ill-fit to oversee the project. There were times where team members were either inactive or left for a variety of reasons, making the workload that much more strenuous. And then, we had cases where the personal experience simply didn't fit our intentions. It was too much to handle, too little to learn much or was otherwise a confusing process. There were countless ways the project could go wrong, much like an actual game development studio. As such, participants weren't immune to widespread effects when something went wrong.

In the following report, we will present our experiences in Becker's studio as students. Our primary focus is on the structure of the Becker Game Studio, laying the groundwork for a more comprehensive overview. We will follow up with a showcase of the sort of work we

involved ourselves in, and the opportunities and challenges we faced, and express what Becker did right and wrong. We've also researched other colleges with game development programs, using as a comparison between Becker's model and other schools. And we'll conclude with our general thoughts up to this point, how we interpret the information we've gathered and how it relates to the Game Studio system. With all of this considered, let's discuss the matter of the Becker Studio, and how a student approaches such a system.

Becker Studio Structure

Becker College had a highly rated Interactive Media and Game Design program with an extensive curriculum covering multiple disciplines. The biggest focus of the program was the required Game Studio course (GAME 3900) that every IMGD student took part in. Students were given the option of three different studio experiences, Professor led, Grad led, and Greenlit. An additional studio called Live was run outside of the Becker curriculum by MassDigi that students could join alongside their other studios. Students began Game Studio in their sophomore year through their senior year and could work on a wide variety of projects. In rare cases, some students would stay on a single project for the entire three years while most others may take part in multiple projects throughout their years. The different studio options, while having their similarities, were run slightly differently with varying results of success. Below is a description of each type of studio and how they were structured.

Professor Led

Students would put forth a portfolio of projects they previously had worked on during their Freshman year when signing up for Game 3900 that spring. For their first time through, students did not choose which studio they were placed in unless they picked GreenLit or Live in the application form. There was a form that all students filled out stating which concentration they were, the top two roles they wanted, thoughts on their skill level for their top choice, confidence in working independently, a link to their portfolio (the most likely case being a google drive folder with everything they worked on that year) and anything they wanted the professors to know.

The professors in the Becker Interactive Media and Game Design (IMGD) department would have lists of needs for their studio, a certain number of artists, designers, programmers, etc. Some professors would have a list of upperclassmen that wanted to stay in their studio, which meant those students got priority in the professors' list. The priority of the students was by year and whether they were transfers. The professors would sit down and look over their lists and select students based on the students' answers to the form. On occasion, all the professors' lists were revamped due to the number of students, a majority of whom wanted to be designers, so a lot of students were left over. Most of those students were sophomores who had no experience in Game 3900 and were put into random studios that the professors recommended for a proper experience in game development.

For academic purposes, advisors would always have students block off Wednesday mornings from 8 to 12 because that's when most Game Studios would take place. The Game Studio would have a 50-minute lecture with a separate lab time later that day, depending on the studio it could last from 1 hour to 3 hours. After the first semester within a studio, a student is allowed to change studios, which simply means they were thrown into a pool of students looking for studios that needed their skills. At the end of each semester, there would be a day of presentations from each studio, to show off what they have done for the semester to all the IMGD faculty and students.

Greenlight

At Becker College, Greenlight Game Studios were game development teams conceptualized by junior and senior year students and then advised by a school professor. Students would begin by developing an original concept for a game that was within project scope and could feasibly be completed by the end of one semester. A greenlight submission document would then be submitted to a selected professor or faculty member who would advise the greenlight studio if the game's design seemed worthwhile and could be completed within an allotted amount of time.

Greenlight game studios were run similarly to normal game studio classes. Projects were staffed with several programmers, artists, and designers and the number of people occupying each role would be congruent to the number of people needed in terms of the size of the project. The student organizer of the greenlight studio was designated as the project's producer unless they chose to hand the job off to another student who expressed interest. The professor advising the studio would then provide grading to students.

Grad Led

For Grad Led, the structure was similar to professor-led but with slight differences. In Grad Led, two professors were overseeing the number of grads who in turn oversaw their own studios. There were bi-weekly sprints where each student would get a slide to cover what they did in the past two weeks and a weekly stand-up. The studio sizes were relatively small with five to six students plus the grad. These groups would work on the grad student’s game project, which was their final project. The similarity to professor-led is in the sprints and lab/lecture time. In grad-led, the lecture was simply stating what you did that week or going over the sprint review,

and lab time is when students would work independently on their assigned tasks. Our experiences with grad-led studios were during COVID so we were all online using tools like Discord, Zoom, Miro, Google Drive, or Trello to keep everyone in touch and to hold meeting times. The type of projects worked on were dependent on what the grad had pitched to the professors. How students got selected to be part of a grad-led studio is still unknown, but it is assumed the professors had selected students to be part grad-led similar to how they pick who gets into their studios. The weekly meetings would happen on Wednesday during that block of time that was set aside for Game 3900. We all experienced different types of grads, some were very involved and the other could be less involved, and some grads had very clear ideas on what was wanted to some grads who didn't have a clear direction.

Live Studio

Live Studio or Live, as the participants called it, was NOT a Becker class. It was either an internship, which was a 4000-level class that Becker College offered, a portfolio project, or for fun. The best way to explain Live is to walk through one of the Live project's life cycles. The stages of life for a Live project are Planning, Prototype, Create, Clean up and Publish, Expand/Polish, and Review.

Planning starts the summer before the current school year. In late April to early May, candidates for MassDigi Summer Innovation Program (SIP) and Experience Program (XP) are picked. The slots in SIP and XP are made available to students worldwide, making this a very competitive opportunity. Without a global pandemic happening and Becker College not shutting down, the selected class would be given room and board at Becker College's Worcester campus. Once at the campus, they would be split into distributed teams based on skill level and specialty.

They are then turned loose to start making a mobile game for iOS and Google Play Store. Why mobile? Mobile works best as it's easy to publish to both iOS and Google Play Store. Everyone most likely has a phone that one can use to playtest and around 2 billion mobile gamers help make analytics for what's working and not working easiest to capture. It is up to the team to come up with a game idea. Next, the team must plan out levels, mechanics, artwork, core gameplay, feedback loops, inspirations, competition, and any potential problems that they see before they can get approval from SIP/XP overseer Monty Sharma. Once a solid game idea and direction are established, it is time to prototype the game idea to be something playable.

Prototyping is one of the most important parts of SIP/XP, but prototyping is different for almost every team. For most teams, they make a minimal viable product or MVP, that contains all the core mechanics of their game. The MVP is more to see if the idea that they thought of in the Planning stage is worth making a full game around. If not, then now is the time to scrap their current idea and start again from the beginning, as making a game that the whole group does not enjoy or is fully behind is difficult as it's forced work rather than enjoyable work. Once an idea is settled on, the group could move on to the content creation-filled Create stage.

The Create stage is straightforward. The team’s programmers, artists, and musicians start going to town in their specialty. This takes up 75% of their SIP/XP work time, with each member of the team contributing in any way they can to make the idea that they planned outcome to life. While they are creating their own game, they are also helping others out by playtesting theirs too. The playtesting gives teams valuable data about what is engaging in the game, bugs that they need to fix, and suggestions on what players would like to see in the future. The teams continue to repeat this process of making the game, getting it playtested, taking feedback, and how to use

feedback until August, when SIP/XP starts to wrap up and they enter the Clean Up and Publish phase.

The Clean-Up and Publish phase is the same as the Create phase, with the added troubles of building the game and publishing it to the iOS and Google Play Store. Teams must decide on a cutoff date, for which no more new ideas can be added and they only work on upgrading old assets, fixing old code, and documenting how the game works for the next group. While in theory, the stress should be winding down as SIP/XP is ending and the new school year is approaching, it's quite the opposite. Everyone that does SIP/XP is a student and mistakes are always going to happen. From the scope being too big, bugs that do not have a solution, and publishing errors appear. College students might think that they are on top of the world, they are only at the beginning. Students think we know everything and that our teachers and professors lack do not have years of experience in the video game industry. But that's the wonder of Live, SIP, and XP; Monty lets one fail. If someone has an issue and goes to him, Monty will give them a general direction of where to go and it's up to the team to figure out how to get there. Even if their choice of getting to said direction was wrong, all Monty cares about is making sure that they understand what went wrong, why what the team chose to do did not work and how to prevent it in the future. After most of the teams learn a valuable life lesson, they get their game built and published to iOS and the Google Play Store as all SIP/XP games get transferred over to new teams in September when Live gets their applications and chooses their teams.

The final stage of XP/SIP is the Review process. The team sits down and reflects on what went well and what went wrong and why. A common way to break this down is analytics from players as it may paint a picture of what went wrong, like lack of players to not playing long enough or suddenly stopping at a certain spot. A common acronym that gets used is SWOT,

Strengths, Weaknesses, Opportunities, and Threats. It's a great way to break down what went well, what didn't go well, chances and problems that the Live team might run into. It's a great way to come together as a team to reflect on issues and celebrate all the hard work that was put in over the summer along with a farewell for everyone involved in SIP/XP.

In September, the projects that SIP/XP members planned, prototyped, cleaned up, and published got transferred to the students at Live. The Live teams receive notes on how to continue based on the SIP/XP's Postmortem, a backlog of tasks, a document outlining future goals and issues along with the ideas that the Live team has as well. Once Live reviews the past information, it is their time to Expand and Polish. The Live team will take the SIP/XP game and add to it with more content and more pleasing feedback and art. Just like the SIP/XP team, Live must Plan what content to add, Prototype new mechanics that they have in mind, create art, music, and programming wizardry, until they reach mid-March of the next year. The Live team will then clean up and publish, with the goal of being finished with work by April 1st. The team then goes through and reviews their work, and goes their separate ways.

Live compared to Becker's Game Studio is the difference between amateur and semi-professional work. While not good, Game Studio did have some pros such as being professor-led and guaranteed weekly meetings. Most Game Studio professors were in the industry and know the expectations of work and the general flow of a standard game studio. Game Studio was also built into the class schedule at Becker with meetings being the attendance grade and the work produced is the grade in the class. This meant that the work had more of a weight than just getting it done or one's GPA, scholarships, or more could be affected. That combined with Game Studio groups being randomly selected, some teams got unlucky and had team members that did more harm than good.

Live Studio is not without its own set of problems. The first is that Live is student-run. While this gives students a great opportunity to learn and make mistakes in a safe environment, they still have deadlines to meet. That is the only flaw that Live has and is due to students not having enough experience yet, which is not a significant problem. To get into Live students had to apply through an application, where they submitted what they have worked on, a reference or two from inside Mass Digi, and if their skills met a certain baseline. This prevented the issue of having lazy group members doing mediocre work in Game Studio. Live was about learning from mistakes, gaining experience, and making connections for the future.

Student Experiences

With Becker College's various studios, there were many diverse projects that students were involved in. Many different projects offered result in a wide range of experiences. Studio type, team size, project content, and work settings all contribute to the quality of experience in Studio. Besides this, the spread of disciplines per project contributed to the success and experience of each project. All the students involved in this report have shared their personal experiences with Becker Game Studio and showcase the diverse experiences that each individual has had.

Diego Arce

During both of my semesters taking Game Studio, I was placed on the Journey to Blackwood team. The game was a story-driven 2D platformer composed of three levels made in Unity. During my first semester, the team was composed of three artists, seven designers, and three programmers, and I was on the design team. Every week the entire team would get together via Microsoft Teams to discuss what everyone did and for the professor to evaluate our individual contributions to grade us. Our progress was displayed via PowerPoint with pictures and a short explanation of what we did. One of the main problems we experienced in both semesters was having an unbalanced team. Since I was on the design team which had plenty of students, the lead designer would give me basic tasks like game testing or other minor changes since I had no idea how this large team dynamic worked at the time. Because of the design team size, this did not affect our workflow. Once I had a good understanding of how the team and

tools like GitHub worked I was able to make larger more noticeable changes instead of mostly game testing.

As a game tester, I would go throughout the level and report anything that needed tweaking because it seemed incorrect or broken and report anything that needed improvement. One day every week, the entire team would get together and present the progress to the professor. We each had a slide containing what we did. As a game tester, my slides would contain details of what I thought needed tweaking. We also had a bug lists spreadsheet that contained every bug that we found and organized it by what team should handle it, design, art, or programming.

In the second semester, our team did lose a few students because of people graduating and others who wanted to change which project they worked on. The team resulted in being made up of seven designers, two artists, and three programmers. During this semester the problem of having an unbalanced team was much more prevalent than before, especially in the art team where one of the artists tended to not show up and was mostly a 3D artist, not 2D. During this semester I was able to take on major tasks like redesigning a section of a level since I was able to learn how to work in a large team dynamic during the first semester. During the final two weeks of the semester, we were finalizing the project, mostly correcting bugs and putting on the finishing touches. I along with multiple other team members went through our bug lists to try and fix any bug that fit our skills. In the end, I was able to meet two of my main goals going in, expanding my Unity knowledge, and learning how to work in a large game studio, which is important because now I can add this experience to my portfolio, which will help once I want to apply for a job at a large game studio.

During my second semester, I really showed my worth as a designer. I was no longer just bug testing or completing basic tasks, I was making large changes to how levels looked and

worked. Some of my first tasks of the semester involved adding art assets to fill a level that used to look dull and empty. One of my bigger tasks was to create an entirely new section for one of the levels based on design ideas from another team member. I was given a rough draft of what he had in mind, and I went in and implemented it by using assets of the same art style. This addition gave the level new challenges like swinging ropes above pits of quicksand. While building this I made sure to use our weekly presentations to my advantage to get opinions on what the team thought and if I should change anything. Another task of mine was to remove the "barren feel" one of the levels had. First, I went through the level to figure out what they meant by a "barren feel" and found that a large section of the level was just holding D and going forward. I decided the best option was to add some difficulty to the level by adding various death pits the player had to jump over. This added the perfect jump in difficulty from none to easy difficulty, which was perfect since it was the first level that was intended to be easy.

Fernando Barzuna

In the first grad-led studio I was involved in, I was a designer. The game that we were making was a two-player cooperative game aiming to be an interactive social experiment. The game saw one player take control of a scientist overlooking the second player who would take the role of a patient. The scientist would monitor the patient and manipulate the environment while the patient wielded a paint gun to shoot at the floor to reveal a maze-like path to reach the end of the room. Different puzzle layouts and traps would randomly generate each time players started a game, and they had to interact with each other to proceed through the game.

As the designer, it was my job to lay out each invisible path of the game. Other than the layouts my duties eventually evolved to taking meeting notes, meeting with the leader to review

or create new design documents about possible mechanics to be integrated. We would review them with the team and create surveys for playtesters and the team so we could all agree on what we should scrap and what we should move forward with. After a while, the project's priorities shifted to programming and 3D art tasks, so I tried to create some assets, but they were never used in the final product. In the end, I decided to leave the project for another grad studio that needed a designer.

The second project that I worked on was the Forest Survival game. In this game, you played as animals in a forest and had to survive by relying on natural resources while avoiding all kinds of predators. This project had some troubled development in the sense that the leader tried to go too big with her ideas and her execution. The lack of direction was also a problem, as many members would work on a task only to have to alter it or undo it completely. We weren't given clear instructions on what we should do, so there was a lot of guesswork involved. This made all the developers feel lost and unsure of the execution of our work. In my case, I had to create and undo areas of the forest week by week as I was told that what I did was acceptable only to find out next week that I should have done it differently.

My role as a designer was to make the forest within the Unity Engine. As mentioned before, there was little direction and rules we had to work with, so there was a lot of trial and error with me adding and taking away multiple sections of the level. There was also a lack of motivation and end goal within my time working on the project as there were no hard deadlines or tasks that required us to really communicate and work with each other. Our lab time would consist of us quietly working on our own tasks and going at our individual pace. Overall, it all came down to the leader not giving a clear sense of direction.

It’s worth noting that the virus, combined with working remotely and the state of Becker at the time made working on both these projects hard for everyone involved. No one saw it coming and no one could have prepared for such circumstances. I believe that it was due to this situation that the teams and the experiences within them had a hands-off feeling and why no one seemed to be on the same page.

Joe Colley

For my time in Game Studio, I was in the studio that worked on an American Student Association project. My work consisted of any type of game programming in the Unity engine in the C# language. In my first year, I programmed core game mechanics, such as picking up food, cooking food, and handling customers' AI for a cooking game. The next year, I worked on creating a quest system with the design of a smartphone to cater towards younger students, which involved saving messages, triggers to get messages, the “apps” that the phone had that the player could use, along with a dynamic mini-map. In my last year at Becker, I continued working on the smartphone quest system to completion, reworked our save system, set upfront and backend for Playfab Leaderboards, and fixed old bugs that only someone with three years of knowledge in the code could fix. Other non-programming tasks I did were manage code reviews, assist with source control help for everyone, manage the building of the project, and create our end-of-semester trailer.

My time at Becker Game Studio seemed to be a bit better than most. I really enjoyed being on the same project for a long time. While it did get boring at times and frustrating working for a client that had no idea what direction they wanted to go in, it was really rewarding to see how the progress every semester got better and better. However, having to deal with the

same problems for three years without change was frustrating. From designers who did absolutely no work outside of the first two weeks, daily sexism, changing direction every three weeks, and more I am forgetting, I still did not enjoy Game Studio. While it was a place to learn and grow, it felt more about getting it done someone's way versus getting it done quickly. Though we were organized and planned it out, we would frequently head in the wrong direction without asking for directions first, which wasted our time and our client's time. But, when the problems were at a minimum, there were times that I enjoyed working and going to the meetings. If Game Studio could have gotten better end goal planning, a bit more common sense, and hospitality, it would have been a wonderful place to learn and grow your game-making skills.

Justin Gaborit

During my time in Game Studios at Becker College, I contributed to a handful of game studio projects. One project I worked on was a virtual reality eye-spy game that had me developing an audio system for object collisions. This simply meant that when two objects would bang into one another or fall and land on one another an audible noise would be emitted from the location where the objects collided. During the beginning of my sophomore year, I began working on an adventure horror game that took place in a snowy wooded area. My job was to create an artificial intelligence system that would have an enemy traveling to different locations in the forest along a path. If the player encountered the enemy, a chase would ensue either resulting in the player either getting caught or escaping the grips of the enemy. If the player escaped, the enemy would default its path to the next closest location in the world that it was programmed to travel to.

In addition to this work, I also provided code to a graduate MFA project called “Don’t get blacklisted”. This game project was intended to be a comedic user interface-based adventure. I implemented a narration system along with a series of built-in minigames that were essential to the progression of the story that the game was trying to tell. I also worked alongside an MFA programmer who I helped develop a questline system that established a log of steps that the player had completed depending on which major step of the story they were on.

My experience in Interactive Media and Game Design at Becker College was both formative and at times challenging. The best projects I worked on taught me much about the game development process while the worst projects I experienced taught me how to work well alongside others and manage tasks that I found to be uninteresting and monotonous. To say it plainly, Becker College's game development curriculum and Game Studio structure often felt lacking in clear direction but nonetheless taught me many valuable life lessons not pertaining to the world of game development. Over the course of my three years at Becker, I contributed to the development of at least 4 game studio projects as a programmer.

As a game studio programmer, my job was very straightforward, but much of it relied on me learning on my own and at my own pace. During the projects’ first weekly meeting at the beginning of any given semester, I would usually be informed of the type of game we were striving to build along with the different tasks I would need to complete to develop the necessary code required for the game. As a programmer, I would often work alongside other more experienced programmers whom I could refer questions to when I was struggling with a certain problem. The most challenging moments I experienced while in Game Studio were when I had to develop a new system, I had no experience with and there was no one there to help me. These

moments were the hardest, but they also taught me the most about self-progression and learning as I experience challenges.

Julian Herman

For the 3 years, I attended Becker, I had only one game studio. Many individuals attended it, some joined, some left, but throughout my entire stay, I was only ever in the one. Spending that much time with mostly the same people under one singular professor tends to build a close-knit connection with them, and even if we didn't all have a similar background and frame of reference for our mutual interests.

My Game Studio was split into 5 teams, each representing a different pillar of game design: Art, Design, Production, Audio, and Programing. I primarily worked in the Design team which consisted mostly of five to six people at any one time. Many individuals left the group either due to other classes or graduating, but I stayed along with the team leader. As a part of the group, it was our job to focus on what we had to do for the project and report on what we had done to help push the project further every two weeks. Our team worked under a singular leader who met with other team leaders to discuss the direction of the project, what goals had to be met, and dictating what work needed to be done by who and when it should be completed. Working in the studio always gave me something to do, and when I didn't have anything, it gave me the incentive to reach out for a new task to see what could be done in order to help push forward the project.

At the studio, there was always something for me to do, and always someone to talk to. Due to our similar backgrounds, we all had at least a little something in common, meaning we were always personable and easy to talk to. It was never intimidating to approach someone else

and ask for help, ask a question, or just talk casually with no worries. Similarly, the teacher was always available for help and never turned us down when it came to questions or concerns not just in general, but about the flow of the project. When there was a creative decision that someone didn't get, we always talked it over and left with either our minds changed for the clearer, or the project changed for the better. The personable nature of the project also led us as a team to let the workflow be much more expedient. Everyone working on the same project, constantly communicating either through apps such as Discord or during in-person meetings allowed us to always be aware of the state of our project and give time and attention to aspects of it that needed more work. This constant flowing and communicative workspace ensured that everyone understood what needed to get done when it needed to get done, and who specifically should be responsible for doing it.

The Game Studio at Becker College helped me not just as a student but as a person in that it helped me understand what a well-oiled studio system would look like. If I am ever a part of another studio sometime soon, the knowledge I gained from Becker will help me be a part of it and manage it more accordingly and have it run the best it can.

Brendan Horack

I worked on two projects, an AR project on the HoloLens, and a VR project that was for an outside source. I worked as a producer, and my tasks revolved around facilitating communication between the different teams and making sure the engineers got assets that were important to what they were working on. I also managed our task tracking board and scheduling. I preferred to use google sheets/excel spreadsheets to document these things, but I also had experience with Trello. Weekly or biweekly I would prepare a PowerPoint summary of our work

during that sprint. Finally, once a semester I would work on a final presentation for the game studio presentations and work on a trailer for our game if we had enough to create that.

My experience in Game Studio at Becker was greatly defined by the impact of the COVID-19 pandemic. I started in the experimental technologies studio with Amanda Theinert where we were working on the Microsoft HoloLens. It was in my first studio experience as well as my first being the lead producer. I had never worked in a production role and never worked under anyone in that position. Luckily, I had a decent amount of support surrounding me. When it came to the learning curve of being a leader and a producer in a studio, I felt that I did a good job leading others and facilitating communication, but there were absolutely areas where I fell short early on. The greatest issues I experienced in Game Studio came from having an imbalance in the role distribution. Almost everyone experienced the designer role being extremely top-heavy and they were often not open to learning more skills to be more useful past the design stage. That isn't to say there weren't good designers that were more than two dimensional. Programmers were often short-staffed however often talented, and artists were a spectrum of ability. Game Studio could have been great, but many factors weighed it down such as the uneven workload distribution or the factor of outside sources paying for a product, products that oftentimes wouldn't be seen through to the end. I feel as though the vanilla Becker "Game Studio" wasn't a very well-executed project. There were good elements and highlights, but there were innumerable issues that I can't list briefly.

Morgan Jones

My work at Becker mainly consisted of 3D prop and environment creation, concept art, and UI design. The first project involved 2D and 3D environment art and concepting for a 2.5D

tower climbing puzzle game. The second project I worked on I joined partially into development and was added to the art team as an additional 3D modeler as well as completing all UI and promotional material. This game was a 3D top-down arcade shooter titled Beat the Machine that was showcased at PAX East 2020 and released on Steam summer of 2020. The final project I worked on was a 3D first-person tower defense in which I concepted and produced the 3D tower assets as well as all UI assets. The programs used between all these projects included Unity, Adobe Suite, Substance Painter, Substance Designer, Blender, and Maya.

My experience with Becker Game Studio has been varied, to say the least. My one-semester experience in standard Game Studio was incredibly slow and disorganized with the concepting and planning stage lasting nearly half of the semester. I was one of three artists and had to take up the lead role regardless of my lack of experience due to the other Senior artists never being present. My work was also completely disregarded and remade by the actual "lead" artist with no explanation as to why. Both of the following projects I was on were Green Lit Studios in which my experience was immediately better and became an amazing learning experience. My role as an artist on those two projects was much more significant and all the work I completed I was incredibly proud of and I felt my skills improved greatly. Game Studio had the possibility of success but because of its structure, it ended up being an unorganized, lazy attempt at "real studio experience" and the work produced was hardly portfolio material. Green Lit was a much more structured course in which the students had more drive and willingness to work together and created successful games. If conducted appropriately, Game Studio in school can be a wonderful experience for students as it allows them to work on something they are passionate about and enhance their skills by creating something they are proud of.

Vlad Karashchuk

For my Greenlit studio, I worked on a game called A Sunken Garden. In retrospect, our initial idea for A Sunken Garden was a project that was doomed to fail. It had ideas comparable to some of the most prominent indie games which were made by experienced studios. It was way too overscored, and we only started noticing that when we consistently failed to hit on our goals. During the 1st semester, I was mostly a concept artist, but I also did some 3D. Most of my concept art was of enemy NPCs, and another member was responsible for turning them into 3D models. At the end of our first semester, we decided to completely overhaul the game. We thought that making it a slender man-like game was much more within our scope than making a 2D platformer with a branching storyline. My 2nd semester was spent doing similar tasks.

One of the experiences that I remember from my Greenlit studio is modeling the main enemy for the game. I cooked up a concept for an undead deer monster, and when it was approved (without much pushback), I got to create a 3D model of it. I was updating my teammates in our weekly stand-ups on where I stood in regard to my progress on the deer, and I just kept chipping away at it until the final deadline. One thing I'll never forget is seeing the audience's amusement when the deer appeared during the trailer for this project that we presented at the end of the school year

As for my Grad-led game, it had the working title of Fogmosis. It was a surreal VR experience and the whole gimmick of it was interactive fog and the subversion of the players' expectations of how the real world works. I started off working as a 3D environment artist; I put a few levels together using the asset packs that the grad student had purchased, but I also made a few props that he specifically asked for, like a fortune cookie, mirror, smartphone, and a few variations of cardboard boxes. As time went by, I shifted from working on

environment art to working on characters again, just like what happened with A Sunken Garden. However, I had a little less freedom with Fogmosis because our project lead had some specific instructions for what he wanted. I modeled the fog monster, which was a weird amalgamation of an octopus and a dilapidated hand. But, on top of modeling it, I also rigged it and animated it, as well as implemented it into Unreal.

One experience that I'll never forget happened while working on the Grad-led game Fogmosis. It was probably the most frustrating thing I've done in my entire history of game dev. I modeled custom hands to replace the default Unreal VR hands, which was fine. But they also had to be implemented into the engine, and I took it upon myself to do that. It was very close to the end of the semester, so on top of not making any progress for many hours, there was significant time pressure. Also, this was being done in an engine I wasn't as familiar with - Unreal. I wasn't happy about having to hastily crunch in the last moments before the deadline, but someone had to do it. In the end, I managed to get them in. I feel like this gave me a brief idea of what crunch feels like, and how some developers in the industry are forced to do this regularly.

Garet Mildish

During my first year of Game Studio, I got the opportunity to work on "Cell Team Six", a top-down shooter where you play as a white blood cell trying to eliminate invading germs. I was on the design team, creating the basic concepts and designing power-ups for the game. Once the groundwork had been completed, we were relegated to implementing new mechanics (when possible) and building the levels with resources from the programming and art team. This experience had some issues, notably that our producer graduated before we finished the game,

resulting in some weeks when our productivity level was far from ideal. Despite the occasional hiccup, the process felt rewarding, even as it got frustrating, having to work with programs like GitHub just to ensure nobody's work was lost. The only thing that I didn't like is the fact that we only had one year to work on the game. In the end, we only had one incomplete level done to present. Regardless of how progress stagnated, I learned a lot about priority and how as a designer, I need to be in constant communication with the other teams during development.

The second year of Game Studio was very different from the first, it felt like whiplash. This game was called "Mythifex", a card game designed to mimic an adventure from Dungeons and Dragons. This project had started before I hopped on and seemed to be a passion project of the teacher, who was always engaged in expanding upon the function of the game itself. I oversaw designing new cards, writing story outlines for missions and expanding the lore for use in future stories. This was a project where my writing skills were tested, but I wouldn't say they were particularly useful. Unlike last year, the team was almost entirely composed of just writers, designers, and artists, with no programmers to speak of. As such, the whole thing felt like a constant churning of content with little rhyme or reason. It wasn't bad work, even when it sometimes increased in intensity, but it didn't feel nearly as satisfactory. The game wasn't finished, but by the end, we were working on entirely new universes as part of this game. The game will likely take far too long to come to fruition, so in the meantime, we've got a lot of work and content that feels empty.

Katie Rifenburgh

Game Studio really was just big group projects where we got to create games. We got to experiment with what part of the game industry without any real-world consequences and learn

new technologies. It allowed us to learn from older students who have experience in studios. I also have heard where older students just made the studio a bad experience for incoming students. The first studio I was a part of was really nice and cool to be a part of but sadly I never got to see the game how it was intended. The program team for this studio seemed a bit standoffish as they were older students who had been in this studio before. I was on the design team and became lead designer even though I was the "new kid" to the studio and one of only 4 females minus the professor. The design team was very welcoming and helped me through it all, including helping me with the design doc. The sole reason I was picked to be the lead was that we were going with my game idea, which if it was done in AR would've looked very cool. Now comes some of the downfalls of this studio, not only were we impacted by Covid-19 and had to change everything, but the studio also had some changes after the first semester. We lost a majority of our art team, we had all the 3D models ready they just needed to be textured and we only had 3D modelers left on the team, so myself and a fellow designer took on the part of learning substance painter and textured most of the models that were left and needed before the spring break that never ended. At the end of both semesters, I helped create our presentations and trailer videos that were presented to the entire IMGD school.

My second studio experience was a Grad Led type studio. In this type of studio, you worked on the grad's final project. My personal experience with my grad was that she wasn't very clear on her direction of the game and couldn't make final opinions on things. I was the producer of this studio but also ended up being a designer, artist, and audio person. In the first week of Game Studio, I had to help my grad redesign/rescope her entire game from an open-world RPG to a more manageable level-based system. As time went on, I lost all motivation to continue on the project due to her lack of direction for the game after it was

rescoped to fit within the year time frame. This experience was all online using discord as our main communication tool and meeting spot. In all honesty, this experience was nothing like my previous experience.

Payton Roche

Throughout my time at Becker College, I was in two different game studios that were both successful. My first game Studio was a small team with myself and one other person on a programming team together. This studio created a 2D platformer shooter. Each week my team would meet two times and show what we worked on in a sprint review. After the sprint reviews, people would split into smaller sections based on their majors. We would work on our specific work for the day and then be on our own for the rest of the week until we had our next sprint review. We could meet if your group needed a second time during the week, but it was usually skipped out by most students. The teacher would be in class during the sprints and would adjust our course based on how the sprint reviews were going.

In my first Game Studio, I worked alongside one other programmer, and each week we were tasked with implementing different features into the game that the designers brought to us. We also work on all implementations of assets into the build of the game. We would constantly message each other through the week and know where we were at and what needed to be done for the week. Being the less experienced programmer at the time, I would spend a lot of time in the lab trying to understand how he wrote the code to make the game work. We implemented far more features than were expected to, such as item pickups, movement abilities, various weapons, and a helpful user interface, because we enjoyed the game and worked well with each other.

My second Game Studio was online and the team for this studio was much larger. This studio involved making a game for the Worcester Art Museum and showcasing the different armor and weapon pieces purchased from Higgins Armory. Even though this team was two different classes combined with two different teachers, it was very successful for the school year I worked on it. We ended up creating a strong base with most of the programming done for the third-person part of the game. The game was what started as a third-person game that would have a card game feature once you interacted with an enemy. You would need to use the different cards that were made up of the armor pieces received from other battles to defeat your opponent and receive some of their cards in return. Our class, made up of half the team, would meet each week and discuss what we worked on for the week with our professor there to make sure everyone was working well, and there was structure to the meeting. We would then meet with our full team and the producers would give a brief overview of what needed to be completed for the week. After the producer gave out the broad tasks, the leads of the separate teams would come together with their smaller teams to assign tasks to individual students for the week. One day after the original meeting, the leads would group back together in a call and discuss what is going on in the groups. The discussion could have been what problems were happening, what tasks needed another person from a separate major to be worked on, or even just to see how everyone was doing. The main goal of the leads meeting was just to give a space to allow leads to talk to the producer and have a better understanding of what's happening in other smaller teams.

In my second Game Studio, working with the Worcester Art Museum, I was a programming lead and worked alongside another programming lead from the other class. We would run the time we met in class well and everyone would leave with a task for the upcoming

week. We would make ourselves approachable and easy to talk to, as well as check in regularly with everyone in our programming team to see how they were doing. We used HacknPlan to organize all the tasks for the week and we could see if progress was being made each week. At the lead meeting, we would relay how our tasks were going with people from the art, design, audio, and producers. If there were any problems or teams that wanted to combine, we would combine people from teams during the lead meeting. I worked primarily with the producers to just make sure the programming team was in the right direction. Constantly checking in saved us from a lot of problems. I enjoyed talking to everyone, especially the producers, partially because I was at my home during the entire semester, but also because they were kind people who enjoyed making the game as much as I did.

Joe Volpato

While working as a game programmer, we were tasked with working on a VR horror game. We worked on a game that was based around a fog monster and how the fog reacts to a person. We would meet once a week to report on what we did that week using presentations made on Google Slides. Then we would talk to one of the professors over zoom and keep him informed on anything not covered in the presentation. After the talk with the professor, we would take a break before continuing to talk more in-depth about what we did, if we needed any help with something, and if we finished, what our next task would be. Then we would split up into groups related to programming and non-programming then work on the project at our own pace for an hour. All of this was done over discord where we would be silent for most of the time but able to share our screens if we needed any help from other team members.

While working as a game programmer for the VR fog horror game, I experienced many difficulties. Since Unreal was being used I had to learn how to use it and follow many tutorials for all the tasks that I worked on. Every tutorial I followed to code the fog wouldn't work and had many errors. The fog just would react even though I copied it correctly and even had the lead designer look at it. I also worked on making other VFX-like water that would reflect and moving fog that can change its shape and move when a button is pressed. The online experience was weird and hard to transfer files at first but later, it got better.

While working as a level designer we were tasked with working on a kid-friendly trivia game. In the game the player would go around collecting tips/hints to answer questions given by other creatures, playing as either a polar bear or a fish. We would make a slide for a presentation and hand it over a day before the meeting. Then we would talk to one of the professors over Zoom and keep him informed on any information not covered in the slides, then take a small break after that. Depending on what must be done, we would either work on the project during lab time or we would do team-building exercises like playing a game together. After that, we would make sure everyone was on track and knew what they were doing for next week.

While working as a level designer, I experienced working on two different levels. For the first level, I helped add a gate to stop the player from going past an important part and gave my input about movement controls by having a sign tell you how to move faster. I did more work on the second level because the first level was basically done by the time I joined. I added an animation for the snow falling to give a better effect and worked on designing a part of the level and the inside of a cave that was used later. I was also in charge of the tips for the level

adding the signs and all the tips for all the questions and double-checking all the tips were true to make sure the level functioned well.

Themes

After discussing and analyzing student experiences we found a set of themes that we believe fit our collective experiences in Becker Game Studio. Many of these themes revolve around issues within the studio and its structure and how they differ between the various studio sections. Often, more structured studio settings had more success when relating to these themes such as scoping, direction, roles and leadership, communication, and workload. These themes help to illustrate where a studio can succeed and fail and what needs to be of focus when creating an educational studio setting.

Scope

Projects varied in the different types of studios. Greenlit was a student pitched and approved project, Professor led could be a project collaboratively chosen by the students or it could be a project for an outside entity, Grad-led was similar to Greenlit where students pitched the project for their grad program, and LiveStudio, being an external option, was finished projects that were assigned to student groups in the program.

Scope tended to be an issue in many settings, excluding MassDigi LiveStudio and Greenlit for the most part. Some professors in the base level game studio would see overscoping and show students this so they understood, but others wouldn’t, within the base game studio there was a different experience with each professor. There was also the issue of outside entities asking for a project with a large scope.

Direction

The direction given in each setting was another inconsistent variable. Greenlit, for example, had a specific direction and expectation due to the approval process for the project. Grad-led, in theory, should have been the same way, but that was dependent on the graduate student leading the project. Professor-led's direction was very much dependent on the students or organization involved. Most of the time, however, both were somewhat hands-off. Live had a very specific direction thanks to the professional leadership coming down from Monty Sharma.

Roles and Leadership

Roles and Leadership within each program were very important deciding factors surrounding the project's success. For example, in Professor-led studios, the student leads varied greatly and many people had many different experiences. Some could be extremely helpful and be good leaders, but others could be described as condescending, distant, or even completely hands-off. The student's attitude toward the project could be impacted by this. In professor-led studios, some students would put their best effort in every week, but others would often make excuses or not carry their weight leading to issues in the project. Professors' roles would vary, some would be hands-on and help as much as possible, some would step in when they saw a glaring issue, and others would be very passive to the point of just observation.

Greenlit was very different because students in the project were asked by the project owner to be there. At most they had a passion for the project, at least they had a vested interest in the project's success and wanted to help it succeed. Professors were typically just there to oversee the process and students had most of the control. The lead was typically the person who pitched the project and had a precise idea of the direction and scope.

Grad-led was similar to professor-led, but the grad student would be the lead and guidance for the project. The professor was there for oversight. Students tended to have a similar variation in interest and effort and the communication and leadership from the graduate lead would vary in clarity and precision. Some students received mixed messages and felt projects had an unclear direction

Live studio is a separate scenario, yet again, leading to a strong outcome. The leadership (Monty) is very clear about what has to happen and passes this information through producers in each project. Students involved want to be there, seeing as they applied, and put their best effort in. The expectation is that you do your best because if you applied and got in that means you must have some reason to be there.

Communication

Communication among the groups had some overlap in the roles that were taken along with the leadership there was. But most communication done in Professor, and Grad-led when not having in-person classes was through Discord. Now the main difference between the two sections was that the Professor-led studios had slightly better communication than the Grad-led studios. Professor-led studios had okay communication but it was a depending on the type of professor, hands-on or hands-off, and the students who took on the roles of producer and leads. If you had a slightly passive professor who stepped in when necessary and students who took their roles seriously you had in our experiences pretty good communication, but that was not always the case as stated in the roles and leadership.

Grad-led was worse than Professor-led, with communication levels being either poor, unclear, or over communication. This communication would be between the grad and the

students in their group. Some grads had a really clear idea and would sometimes over-communicate and confuse the students or overwhelm them. Other grads did not have a clear idea and that would confuse the students or make them frustrated. A lot of the time the only communication given to those in a Grad-led studio was the tasks given and made some feedback from the only the grad on what was created.

For the other types of studio, there was good and even great communication. Greenlit mostly used Discord to communicate but overall had good communication between them all because these were projects they wanted to work on together or were placed into. As for Live, they only used Ryver. When in Ryver you were really only supposed to talk about the work you were doing and the progress that was happening. Monty was a silent bystander in all the chats which was helpful and made sure students kept on track.

Due to communication, there would sometimes be internal conflicts among the studio. These internal conflicts mostly occurred in Professor-led studios. Most of the conflicts happened toward the end of the semester when students due to a lack of communication there would be little mitigation. In Grad-led studios due to the over communication or lack of communication, there weren't many internal conflicts in the studios. Greenlit studios would sometimes have the occasional internal conflict due to some type of miscommunication. In Live studio, internal conflicts were not common which stems from the selective process that got those students into the studio, to begin with, and the overseeing of Monty.

Workload

The expected workload for Professor, Grad and Greenlit studios was about 9 hours a week of work outside of the classroom. In Live studio, the expected workload ranged from 9

hours to 10 hours depending on the week. These were what was expected of each student and was the hope that each student was putting in those 9 hours of work when in reality that was not always the case.

The reality of the workload for Grad and Professor-led was all over the place which is due to role clarity within the studios. Some students would take on multiple roles within those studios. From experience, some students would take on two or more roles within the studios meaning those students would have to put in more hours than others. Some students would put in little to zero hours of work meaning other students would pick up the slack along the way. Role clarity for these studios was based on how the students were selected into each studio group, which would make some roles having mismatched students working on that assigned task, an example being a design student doing an art task.

Within Greenlit the students had balanced teams due to their selection and almost all of the pre-production work was done before the studio even started. The students in the Greenlit have ownership of their project and work which lead to some successes. These students had the motivation to complete the work and had balanced teams which meant that students were taking on multiple roles because some students did do the work.

Similar to Greenlit, Live Studio had balanced teams due to the selective process. Live studio avoided selecting production and design students. There was a high success within Live due to the application process. The application meant the students wanted to be there and had the motivation to work on the projects given to them. The teams were balanced out, eventually, Monty would appoint one student to be his connection to the team. To receive credit for taking Live the students simply would fill out an hours tracking sheet to prove the hours they put in.

Established Game Studio Structures in Higher Education

Research was conducted on The Princeton Review's top 50 Game Design: Undergrad programs and other notable institutions on their established studio structures and how their programs are designed around it. A wide variety of curriculums were observed with some institutions having more extensive studio structures while others had less of a focus on studio work. Many of these institutions had some form of Game Studio typically beginning in the student's Junior or Senior years and occasionally in the student's Sophomore year. Studio work rarely begins in the student's Freshman year across many of the institutions researched, with the focus on general education and introductory courses. Oftentimes, schools that do have a studio structure will offer this to all of their Game related majors, but there is not much of a distinction on if these studios are interdisciplinary. Based on the research, there does not seem to be a direct correlation between the institution's ranking on the Princeton Review and the extent of their studio structure.

Note: Undergrad enrollment is listed with the intent of contrasting the size of an institution with its program.

University of Southern California

Location: Los Angeles, California

Undergrad Enrollment: 19,500

The University of Southern California is ranked #1 on The Princeton Review's top 50 Game Design: Undergrad programs offering a Bachelor of Arts in Interactive

Entertainment. In this program, students will learn about in-depth game development from AAA to indie as well as experimental and serious games. A wide range of courses introduces students to different disciplines within interactive media. Skills learned in these courses will be applied in studio settings to prepare students for collaborative work within the professional industry.

The general studio structure of the B.A. in Interactive Entertainment, while not very structured in comparison to Becker College and other institutions mentioned in this report, is still prevalent. Of the core required courses in the program curriculum, USC offers two options, one of which is an interactive media-focused studio workshop. CTIN 290 Digital Media Workshop is a structured studio course that explores how the language of cinema shapes contemporary digital and interactive media practices. A budget of approximately $1,000 is provided for the studio projects for miscellaneous expenses and insurance fees. This is only a 4 credit course and is taken early in the student's academic career. Students will work in teams to develop a project and get an introduction to the studio structure.

There is an additional studio requirement of a 4 credit workshop taken later in the student's academic career with three different options. CTIN 459L Game Industry Workshop is a studio course where student teams will develop concepts and materials to solve an industry-related gameplay research problem posted by an industry partner. CTIN 491L Advanced Game Project I is a studio course of student teams on pre-production and prototyping of a functional game suitable for release. CTIN 492L Experimental Game Topics is a studio course where student teams will develop a game around a custom-made interface and experimental technologies. These three courses provide students with the space to work together in a more advanced studio setting and develop their skills with the focus of producing a product.

New York University

Location: New York City, New York

Undergrad Enrollment: 26,300

New York University is ranked #3 on The Princeton Review's top 50 Game Design: Undergrad programs offering a Bachelor of Fine Arts in Game Design. This program is part of NYU's Tisch School of the Arts where students take part in a very creative program with concentrations and courses in game programming, visual or audio design, or as they call it "the business of games". The program is very collaborative with an emphasis on the creativity of games.

NYU has 3 courses that appear to be of the "Game Studio" concept. The first being referred to as "GAMES-UT 122, OART-UT 1612 Game Development: Team Studio". This course involves research and development including multiple prototypes. It is a heavily professor-guided process especially when it comes to design and production. The end goal for the students that take this course is to leave with a playable digital game. The second course is referred to as "GAMES-UT 601 Major Studio", this being the first of their two major studio courses. This course gets more student involvement than that of the previously mentioned course. The end goal of this course is to create the basis for a potential capstone project or just a portfolio piece. Lastly, there is the "GAMES-UT 1000 Capstone 1" designed for Seniors. The goal of the course is to provide proof of concept and the project can be an idea formed in the

class, outside of the class, or based on a pre-existing project. This course can also extend into a second semester.

Rochester Institute of Technology

Location: Rochester, New York

Undergrad Enrollment: 12,900

Rochester Institute of Technology is ranked #4 on The Princeton Review's top 50 Game Design: Undergrad programs offering a Bachelor of Science in Game Design and Development. This program is part of the school of Interactive Games and Media where students learn about the game development process with an emphasis on programming. The students will also take various other courses related to game development from 2D and 3D asset creation to game design ideation courses. This is a strong Interactive Media program that leans on the programming facet.

At RIT all four Game Studio courses are part of the Advanced Elective category. A total of 12 Advanced Electives are required for the degree but studio courses are not directly required so listing any course as a "required studio" is difficult. The 4 studio courses include IGME-580 IGM Production Studio, IGME-589 Research Studio, IGME-588 New Media Interactive Development Capstone II, and IGME-680 IGM Production Studio. IGME-580 is a course where students work to complete one or more larger projects throughout the semester. It is an interactive media-focused class, but it also requires skills in things such as web development, social media, or streaming media. IGME 680 is a higher-level course of the same nature. IGME 589 is described as a research studio. Students in this course work on faculty projects and learn research methods to evaluate various aspects of projects. This course does not seem to follow the

format of a “Game Studio”. IGME 588 is listed as a Capstone II project, but there did not seem to be a Capstone I. In this course, a professor forms a team based on various disciplines and they will be expected to complete a project that will be tested by real users with feedback. This course seems to be very close to the concept of a higher education “Game Studio”. In all of these courses, students will complete assessments of themselves and their teammates.

DigiPen Institute of Technology

Location: Redmond, Washington

Undergrad Enrollment: 870

DigiPen Institute of Technology is ranked #5 on The Princeton Review’s top 50 Game Design: Undergrad programs offering a Bachelor of Arts in Game Design and a Bachelor of Fine Arts in Digital Art and Animation. DigiPen is an institute that highly specializes in Interactive Media and Game Development with many of its programs being structured around interdisciplinary team projects in studio settings. Both degrees have studio heavy curriculums often beginning in the student’s Sophomore year with projects spanning multiple semesters.

The required studio courses for the BA in Game Design include a six-semester, heavily structured progression. The curriculum begins with GAM 200 Project II, the first of a two-semester project in which students will work together to create a simple 2D game or simulation. The focus of this semester is pre-production and developing the skills needed for working effectively on a team, following the development process, using discipline-based practices, and applying them to game development. GAM 250 Project II is the continuation of GAM 200 where students will continue their projects focusing on production and finalization

through techniques for iterating effectively, formal playtesting, tracking progress, and integrating design, art, and audio into a unified experience.

GAM 300 Project III is the first of a two or three-semester project beginning in the student's Junior year in which students will work together to create an advanced game or simulation. The focus of this semester is on pre-production and exploring techniques for creating high-performance teams, tuning the development process for specific projects, using advanced discipline-based practices, and applying those skills to game development. GAM 350 Project III is the continuation of GAM 300 where students will continue their projects as well as take the time to explore techniques in creating effective resumes, successfully interviewing, and pursuing internships. This project may be continued for a third semester in GAM 375 Project III in the student's senior year focusing on polishing, post-production, marketing, and highlighting individual contributions to the project.

The required studio courses for the BFA in Digital Art and Animation have a much heavier focus on the different disciplines within Game Art involving a four-semester structured progression. The curriculum begins with PRJ 202 Game Art Project I, the first of a two-semester project that focuses on the creation of a simple 2D game or simulation. Artists work on cross-discipline teams involving visual design, the game art pipeline, essential development practices, fundamental team dynamics, and task prioritization methods. PRJ 252 Game Art Project I is the continuation of PRJ 202 that focuses on art polish, visual consistency, formal playtesting, game pacing, and game balance.

PRJ 352 Game Art Project II is the first of a two-semester project beginning in the student's Junior year in which students focus on advanced art pipelines, game engine rendering, visual consistency, and advanced testing techniques. PRJ 402 Game Art Project II is the

continuation of PRJ 352 that focuses on finalizing the project started in the previous semester. Two additional, optional studio courses provide Senior students the space to work in advanced studio settings and create projects that highlight their particular skills.

Michigan State University

Location: East Lansing, Michigan

Undergrad Enrollment: 39,200

Michigan State University offers 200 undergraduate degrees including a Bachelor of Arts in Games and Interactive Media and a Bachelor of Science in Games and Interactive Media. MSU has a detailed program when it comes to offerings. They describe their program as offering work in design, production management, art, AR/VR, board games, and emerging game media. The program overall is very promising.

MSU's Game Studio structure seems to be very limited. They offer a degree titled Games and Interactive Media. This makes the program seem very open-ended and it allows for exploration of many subjects within game design and development. The course that seems to match the description of a higher education Game Studio is MI 497 Game Design Studio. The course is described briefly as "conceptualization, design documentation, planning, prototyping, and distribution of games." The course is required for the degree.

University of Utah

Location: Salt Lake City, Utah

Undergrad Enrollment: 23,400

The University of Utah offers students a Bachelors of Science in Entertainment Arts, Bachelors of Science in Games and Engineering, Minor in Games, and a Bachelors of Science in Computer Science. Students are required to maintain a minimum of a C- average to remain enrolled. In order to receive their degree, students are required to complete 12 credit hours of prerequisite classes, 52 credit hours of general education requirements, 47 credit hours of major-specific requirements, and 30 credit hours of entertainment arts and engineering classes. The university's Game Arts and Development curriculum does not appear to have a formal game studio class structure.

Bradley University

Location: Peoria, Illinois

Undergrad Enrollment: 4,600

Bradley University offers both Masters and Bachelors Degrees in the following programs: Animation, Game Art, Game Design, User Experience Design. The university also offers Minors in Game Design, Game Production, and User Experience Design. Bradley's interactive media program allows students to explore a variety of classes that introduce them to elements of storytelling. Students make use of digital tools to create games and compose works

of virtual art. Students studying interactive media at Bradley can expect to complete 32 credit hours during their freshman year (16 credit hours each semester). Sophomore year students can expect to complete 30 credit hours for their second year of school, followed by 32 credit hours again for both their Junior and Senior year of school.

The university's curriculum leads students through introductory game design classes during their freshman year. Freshman students will also fill their schedule with a majority of electives and general education classes. Junior year students will study intellectual property law and computer game design also accompanied by general education required classes and a handful of electives. During their last year of studies, senior students will take both interactive media concentration focus classes and electives. Senior year students will also finish their final semester with an interactive media capstone class which has them developing an original game. Aside from senior year capstone classes, Bradley University does not appear to have a formal game studio program that students enroll in.

Shawnee State University

Location: Portsmouth, Ohio

Undergrad Enrollment: 2,700

Shawnee State University offers 79 Undergrad degrees including a Bachelor of Science in Game Programming and a Bachelor of Arts in Game and Simulation Arts. The BS in Game Programming is focused on developing programming skills to help students do anything including games. The BA in Game and Simulations Arts is a degree that explores game design, art, and development. The program curriculum is not very extensive when compared to others.

Shawnee has only one course listed that fits into the description of a higher education Game Studio. The course, ARTG 1501, is titled Game Studio and is described as teaching students the layout of a typical game studio, introducing them to the typical workflow of a studio, and teaching them the jobs within a studio and how they work together. This course is however not required for Shawnee's Game Programming major.

LaSalle College Vancouver

Location: Vancouver, British Columbia, Canada

Undergrad Enrollment: 1,500

LaSalle College Vancouver offers a Bachelor of Science in Game Programming, as well as five additional programs for various facets of game development that are non-traditional and provide students with a diploma upon completion. The BS in Game Programming is conducted in 12 quarters resulting in a three-year program and has a minimal studio required curriculum.

The BS in Game Programming has two required studio courses that would be taken in the student's 8th and 9th quarters. CC449 Production Team I and CC451 Production Team II have students work as a team on the production of a game project in a studio environment. There are open elective spaces for studio electives, but there are no specific courses listed and do not seem to involve team settings.

Northeastern University

Location: Boston, Massachusetts

Undergrad Enrollment: 13,700

Northeastern University offers students a Masters of Science in Game Science and Design. The major focuses less on game design concepts when compared with the curriculum of many other schools, but instead places more emphasis on weaving together different aspects of both art and design along with computer science to help students become more multifaceted. The program runs for two years and is 34 credits worth of classes. Most students pursuing this program have already done internships with or worked at places like Hasbro Toys, MassDigi, and Splash Damage Games. The master's program curriculum also places a large emphasis on providing students a sense of understanding performance analytics and the overall playability of a game. The program's faculty is composed of former game industry professionals, industry researchers, and business leaders. In addition to this, students select electives based on their desired career path as the university's program has no formal game studio structure.

Champlain College

Location: Burlington, Vermont

Undergrad Enrollment: 3,700

Champlain College offers students both undergraduate and graduate degree programs in Interactive Media and Game Development programs. More specifically, some of the degrees they

offer are Bachelor of Arts degrees in both Interactive Game Design and Interactive Game Arts. The college also offers a Bachelor of Science in Interactive Game Technology and Programming. The year-to-year curriculum for students has some overlap in both the freshman and sophomore years but as students grow more specialized in their fields of study, classes become more specialized and content specific as well. Although the college is often left out of top game design school lists, many of its senior students are able to find work relatively quickly after graduating. The school reaches many employers in both Canada and California where the game industry is at its biggest. Junior year students are also required to work an internship in another city outside of Burlington with many students opting to work in Montreal.

Champlain students engage in a number of game studio classes each year. Beginning with freshman year, students complete anywhere from four to five game studio projects in groups of six. As students move from one grade to the next, the size of their studio projects increases slightly along with the amount of time given to complete them. Students in their sophomore year will generally only complete two to three studio projects. During their junior year, students will complete one single game studio project. This project is larger than the projects of the previous year and will generally last all year. The same process follows for senior year. During their final year of school, senior year students will complete a final production project that lasts for both semesters. In total students will complete at or around 10 game studio projects in total. This is done to ensure that each and every student has a unique set of projects they can display on both a resume and portfolio page.

Student teams are generally arranged in groups of six. Teams are also often staffed with two artists, two designers, two programmers, and one producer. Before beginning game studio classes, students are taught scrum to build a general understanding of team coordination and

project completion. Once a studio team has begun work on its project, the team conducts about a week of pre-production planning to flesh out all possible ideas surrounding the game and to find out what concepts may or may not work design-wise. Before the game enters production, it is reviewed by a professor of the game design curriculum for general feedback and scope assessment. Students begin pre-production by deciding on what game they don't want to make. All team members are held accountable for contributing to the project's design.

Final Recommendations

After discussion as a group, considering everything we had written and researched we decided on the following recommendations. We found that seven-week terms pose an issue of an extremely steep learning curve. We wanted to recommend students take certain courses before attempting a game studio such as IMGD 1001. There were a number of us that have taken this course at WPI and found with a slightly greater emphasis on the studio structure, it could serve as a great recommended course before a game studio.

Our findings surrounding the struggle of uneven workload, Becker led us to believe smaller team sizes would be better. Also, emphasis on the scope of the project would help students in this format succeed more. The course would have an application after registering where students would list their primary preferred role, i.e. Designer, Artist (possibly specifics such as 2D or 3D), Programmer, Producer, Audio, etc. Students would also have the option to select an alternate role or indicate that they would like or be willing to explore a new role during this class. This application would allow the students to be distributed as evenly as possible. If projects are shorthanded in a role or have someone who is learning a new skill, students should be expected to explore premade assets and citing the fact that they did that. Doing this should not be looked down on, but encouraged, especially for new students. Ideally, this class would be set up through eProjects for registration similar to MQP and IQP to allow for that flexibility.

When it comes to the specifics of the projects, we came to the conclusion that students tend to be more enthusiastic about projects that they help decide the concept of. If students are asked to come to their first day of class with ideas for a project and collaboratively decide what they want their game to be, we think they will be more likely to succeed. That being said, failure

should be an option. The final class should be a post-mortem of the projects where why the group succeeded or failed is found and understood.

Some other notes we had were focused on having graduate student-led projects, outside entities, and piloting the program for a few years. Graduate students leading a project could work. The graduate student would pitch their project, much like Beckers Greenlit, and upon approval, students would be given the option to join that project. In this format, the graduate student would be taking on a producer/ lead role. At Becker, there were examples of projects that were requested by outside entities. This posed the issue of failure not being an option. We found that this may not be possible unless the entity accepts that the project may fail. As for piloting the program, we felt it would be best to have it fill an IMGD credit, but not be a degree requirement, at least for the time being. If the program gets a lot of interest then it would be made a requirement. This poses the question of "why choose game studio?". Students that seek out the studio option will hopefully be self-motivated individuals that want to challenge themselves. The goal is to offer them the opportunity to get experience in a game studio environment and work collaboratively. Getting to actively work hands-on with source control and management skills/styles.

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