The HEVGA 2025 Report **on University Games Programs**

HIGHER EDUCATION VIDEO GAME ALLIANCE

FROM THE HEVGA **PRESIDENT**

The continued evolution of games programs in higher education is nothing short of remarkable. As an interdisciplinary field that bridges the arts, sciences, humanities, and technology, games education not only prepares students for the workforce but also cultivates critical inquiry, creative expression, and new ways of understanding the world. Games challenge us to think deeply about storytelling, interactivity, systems, and human behavior, pushing the boundaries of what we know and how we engage with one another.

This report offers a comprehensive look at the state of games programs today—highlighting their strengths, but also their challenges, and the many ways they contribute to the broader academic and professional landscapes. It provides insight into the experiences of students and graduates, the evolving nature of curriculum and industry partnerships, and the continued advancement and recognition of games as a vital area of study. As we continue to navigate shifts in the industry, economy, and higher education itself, this report underscores the importance of adaptability, inclusivity, and innovation in shaping the future of games related curricula and research.

The last few years have seen both strong growth in games related courses, programs, and research, but also substantial issues of delivery, cost, and enrollment, and other tidal forces that are rapidly impacting higher education today. Similarly, the commercial games industry has experienced massive and volatile changes over the last few years, both during and then after the global pandemic. The relationships between academia and industry are ever more fraught at present, with several complex and intertwined issues, and exploring them is a primary motivation of this report.

HEVGA remains committed to advocating for the value of games in higher education and ensuring that our programs, students, and faculty are supported. The findings in this report reflect our ongoing efforts to understand the trajectory of games education, ensuring that it remains a dynamic and sustainable field.

This work would not be possible without the dedication of our survey committee, chaired by Sean Gouglas (University of Alberta) and Kenzie Gordon (University of Alberta). I also extend my gratitude to HEVGA's Board of Directors for their continued and unwavering leadership.

I hope this report serves as a valuable resource for educators, administrators, policymakers, and industry professionals alike. As always, I invite your thoughts and feedback as we work together to strengthen and support games education for the next generation, and continue to engage globally as a community of educators and researchers.

Sincerely,

Andrew Phelps
President and Founding Fellow

ABOUT HEVGA

The Higher Education Video Game Alliance's (HEVGA) mission is to create a platform for higher education leaders which will underscore the cultural, scientific, and economic importance of video games programs in colleges and universities. The key is to create a robust network of resources—including unified advocacy, policymaker engagement, media coverage, and external funding—in order to incubate and harness the impact of this community in a 21st century learning environment.

Executive Committee

Andrew Phelps, President
American University

Lindsay Grace, Vice President
University of Miami

Katherine Isbister, Treasurer
University of California, Santa Cruz

Drew Davidson
Carnegie Mellon University

Mirjam P. Eladhari
Södertörn University

Jonathan Elmergreen, Executive Director
HEVGA

Survey Committee

Sean Gouglas, Chair
University of Alberta

Kenzie Gordon
University of Alberta

EXECUTIVE SUMMARY

Video games have long provided experiences that are both entertaining and meaningful. Universities and colleges are increasingly offering a variety of courses and programs in video game studies, design, and development to meet the growing interest in games education and research.

Between 2010 and 2023, the number of postsecondary credentials in video games offered in the United States and Canada grew by more than ten times. These programs aim to train the next generation of game designers, developers, players, and critics, connecting students to the labor force and potentially expanding the independent game development community. Like film and other media programs, most games programs do not guarantee that the credential will land a student a job in the games industry. Many programs, however, strongly imply a link between the credential and possible employment in an industry enthusiastically described as an 'exciting and growing new field.'

A challenge facing games education is that the rapid growth of games programs, coupled with the post-COVID-19 boom contractions in the games market and industry consolidation, has led to an increase in qualified candidates entering the job market at a time when entry level gaming jobs are fewer and less secure. Some games programs, however, position themselves as offering a core set of skills in technical and artistic areas that include advanced teamwork and collaboration proficiencies which can be useful in a wide variety of career opportunities.

Understanding these programs is essential for creating effective policies that address the connections between schools, governments, and the gaming industry. This report will focus on three key areas: curriculum, industry partnerships, and post-graduation career paths.

This report documents the results of a survey of 74 games program instructors from colleges and universities across the United States and Canada as well as interviews with a subset of those surveyed.[1]
The report has found the following:

- Industry collaboration and instructors with professional expertise help legitimize some programs for students. In cases where industry exposure can be limited, opportunities to work with local organizations or non-profits on games-adjacent projects, such as VR/AR simulations, may fill that gap.
- Regardless of a program's given focus, many expose students to a broad range of areas of expertise in games including game design, game programming, art and animation, storytelling or creative writing, and level design.
- Almost all programs require that students complete a Capstone Project course which culminates in a complete game, and many of these games are shown at local festivals.

- More than half of respondents state that discussions of industry working conditions and current events is part of their instruction, though much of these conversations depend on the interests of particular faculty rather than being a formal part of the curriculum.
- Most programs make some claims about the employability of their graduates on program websites, but only two systematically track the employment of their students post graduation.

There continues to be challenges that higher education games programs face:

- Games programs offer a variety of working opportunities and career supports for students, such as portfolio courses, co-ops, internships, work-study programs, and projects with internal and external partnerships. However, some programs provide no assistance or industry partnerships for students to find such placements, which are required for the completion of a credential. This extended some students' programs and created significant stress for those unable to find a suitable position.
- Students in the creative streams of games programs tend to receive inadequate help with career counseling, or struggle with placements compared to their counterparts in technical streams like programming or engineering.
- Skill development and curricula tend towards either technical specialization in some aspect of game development or a generalist approach that examines many aspects of game development. There are conflicting views as to whether one approach or the other is more desirable by industry.
- Program directors acknowledged the need for diversity and inclusion in the recruitment and support of students. Members of marginalized communities (including women, people of color, and LGBTQ+) remain underrepresented in teaching faculty despite growing demographic diversity amongst the student body.
- High (and in some cases very high) tuition fees, particularly at private institutions, affected socio-economic diversity. Furthermore, program instructors often directed students to improve their portfolios by including non-curricular work, echoing comments by industry professionals who stated that employers are looking for portfolio pieces produced in students' spare time. Students who work part-time jobs, who have dependents, or who lack a familial support network struggle to meet this expectation.

The significance of higher education games programs and their reach in local industry and game development communities is demonstrated in an examination of three city ecologies – Montréal, QC; Rochester, NY; and Salt Lake City, UT – where an array of efforts to bridge connections are seen via incubators, game jams, educational workshops, collaborative projects, and community events.

INTRODUCTION

There has been extraordinary growth in games programs in the United States and Canada over the past twenty years. The first report from HEVGA that documented postsecondary programs in video games came out ten years ago. Since then, games programs have continued to grow in number, scope, and breadth, offered at institutions of all types. In Canada, the number of postsecondary games-related credentials increased almost tenfold, from 35 in 2010, to at least 318 ten years later.[2] In 2020, there were at least 671 games or games-related postsecondary credentials in California alone.[3]

Capturing the extent and diversity of video games programs is a challenging task. There is an incredible variety of game-related programs that can be found in public, private, and not-for-profit organizations and institutions, the structure of which depends heavily on their pedagogical goals, the types of schools that offer them, and the history of their formation. In universities and colleges, for example, the nature of a program is influenced by the faculty where the program first originated (such as Science, Arts, or Engineering), even if the program itself has incorporated more interdisciplinary collaboration over time.

The first part of this report provides a summary of our findings from surveys and interviews with games educators, including a description of the methodology we used to gather data for the report. The report describes the size and types of games programs and schools mentioned in the surveys. This includes a discussion of the types of skills that these programs seek to develop in their students.

The second part of the report dives deeper into the issues raised by the responses to the survey and interviews. The survey committee identified the following topics as priorities for this study: program collaboration with industry and community partners, curriculum content related to workplace conditions in the industry, diversity initiatives, and future directions. Perhaps not surprisingly, instructors and administrators frequently spoke to the impact of the COVID-19 pandemic on their programs. We have provided a summary of those discussions.

Finally, the report includes in-depth studies of the video game networks in three North American cities – Salt Lake City, Rochester, and Montréal. These local ecology case studies show that games programs do not exist in a vacuum, but rather reflect the complex interrelationships that exist between the programs, the games industry, external partners (such as cultural institutions and non-profits), the local gaming communities, and government. The case studies are not presented with the intention to show how one city is more 'developed' than another, but rather to demonstrate the diversity of games programs' efforts to work within their communities.

---

[1] *Gouglas et al., 2010; Borynec et al., 2022.*

[2] *This includes degrees, diplomas, certificates, etc. (Borynec et al., 2022).*

METHODOLOGY

This report is based on a survey and interviews conducted by HEVGA's Survey Committee in the fall of 2022. We received a total of 74 survey responses from eligible postsecondary instructors and program directors at institutions across the United States (n=71) and Canada (n=4). In some cases, our survey participants did not respond to all questions – this is reflected in some of the statistics in the report, which may be based on fewer responses.

We invited approximately half of the survey respondents for a follow-up interview, and interviewed thirteen individuals.[4] The study team conducted additional research using the institutional websites of our respondents' schools to gather information on school size, program size, tuition, and faculty. We interviewed three additional postsecondary instructors to help us with the local ecologies, one for each of the three cities.

[3] *Quotations from interviews have been edited to improve readability and ensure anonymity. We have chosen to use the pronoun 'they' throughout the report when referring to the individuals who participated in the survey and interviews to further protect anonymity. We use the term 'instructor' to refer to all individuals who teach a course in their program. This report also includes some data from the First Three Years Project, an ongoing longitudinal study that tracks the outcomes of 207 graduates of postsecondary games programs in the United States and Canada over three years.*

{ the PROGRAMS }

The term 'Games Program' covers a vast array of postsecondary credentials. We asked instructors to describe the program(s) that are offered at their institutions. Their responses revealed a breadth of programs that vary significantly in terms of the curriculum, the relationships with other programs at their institution, and their collaboration with industry and other community partners.

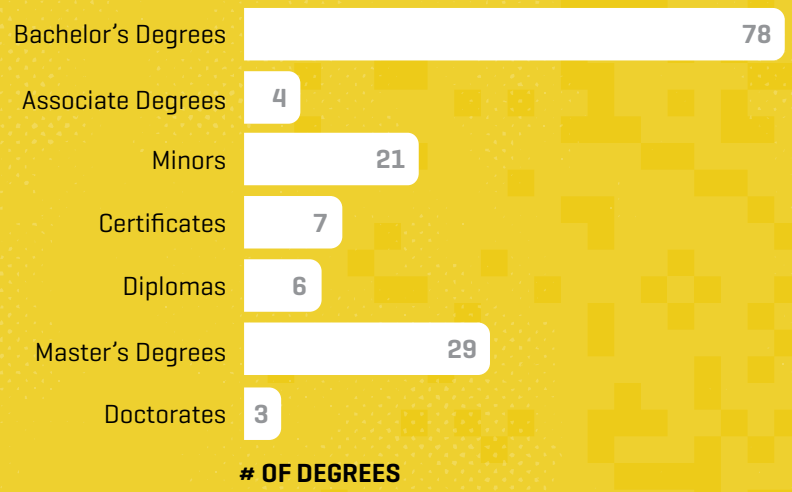
CREDENTIALS

Programs offer a range of credentials including degrees, diplomas, and certificates. Of the 74 responses we received, representing 48 institutions, there were a total of 148 unique game and games-related credentials. This averaged approximately three games-oriented credentials per institution. The 78 bachelor's degrees included Bachelors of Science (58%), Arts (19%), Fine Arts (14%), Information Science (4%), and one Bachelor in Game Design.

The 29 master's degrees included Master of Science (52%) and Master of Fine Arts (21%). Three programs provided a joint degree, such as Master of Science and Master of Business Administration. There were three doctoral degree programs.

PROGRAM SIZE

Participants indicated that programs ranged widely in size. The smallest program had six students pursuing a graduate degree. The largest had one thousand students enrolled across 9 different games-related degrees offered at the institution. On average, programs had approximately one hundred students enrolled. The most selective program in our sample admitted only 9% of applicants compared to one that admitted 80%.



TUITION

The tuition for games programs varies significantly depending on several factors: whether the school is public or private, whether the school is in the United States or Canada, and what type of credential is being pursued (certificate, diploma, bachelor's, master's, etc). For example, the average total cost of tuition and fees for in-state students of private games programs in the United States, based on the schools represented in this study, is $168,504 (see Table 1).

TABLE 1: *Average Total Program Costs (Tuition and Fees) for Resident Students in Games Credentials in the United States and Canada in USD, 2023.*[5]

	PRIVATE	PUBLIC	AVERAGE
CANADA	$69,030	$21,035	$33,034
UNITED STATES	$168,504	$34,124	$103,037

[5] *The calculation used an exchange rate of $0.75 USD to CAD.*

The highest tuition fees for any program that appeared in this study was a private, four-year undergraduate degree that cost more than $65,000 per year or approximately $260,000 in tuition and fees to receive the credential. Scholarships and bursaries may offset some of these costs for some students. There are higher cost undergraduate games programs in the United States that do not appear in this study.

One, perhaps unanticipated, consequence of high tuition fees at private universities is the effect it has on the types of students their program attracts. As described by one instructor, "Education at a private university is expensive at a tuition-driven institution. We need dollars coming in. And we're finding domestic students are less willing to take that on." Efforts to offset high tuition fees are limited, as the instructor stated that the school gives out very few scholarships.

As such, the program attracts more and more international students. The instructor stated that "China is by far the largest international student body at our university, followed probably by India. And then Europe probably comes in third, and then you kind of go on from there." The overall impact of a high cost of attendance means that programs may be more ethnically diverse, but significantly less economically diverse – the vast majority of students who attend the school come from wealthy families who can afford international tuition rates.

For other programs, university bureaucracy prevented them from attracting more domestic students. Schools often have limits on the wages that can be paid to undergraduate students. One instructor commented on the impact of this restriction:

> **"We wanted to make an incubator for experimental games, games geared towards social justice, towards education. And we really want to hire on our students and recent alumni to help facilitate that kind of additional learning that they might not be able to get in school. The problem with the university is that they're still running on a model of capping undergraduate students at a low wage, and we just can't compete."**

A public university instructor suggested that one of the significant differences between public and private schools in terms of a program's pedagogical approach arises from the much higher student costs. In a public school, they argued:

> **"You're less in a client approach where you want to offer a return on the investment for your students. You have more leeway to think of what you do as a form of public service for the whole of society, and not just for individual careers. In universities where students bear the cost of their education, the benefits of that education have to be thought of as individualized: a student individually decides to pursue a degree so they get an advantage for themselves. And this education has to make sense within that sort of individualistic circuit, whereas we think of ourselves as providing a service for the whole of society."**

COMPLETION RATES

Based on the estimated completion rates, there is significant variation in how many students make it to the end of their postsecondary program. At one program (an associate degree at a small state school), an instructor estimated that only about 25% of students complete the program. Other instructors reported a very high completion rate, with 95-98% of their students finishing the program. Based on estimates provided by participants, approximately 75% of their students in games and games-related programs complete their credential. This is higher than the overall average completion rate reported by the schools for all of their programs (67%).

There is a statistically significant correlation (∂<.001) between tuition costs (gathered from university and consolidated data websites) and completion rates. Programs with higher rates of tuition have higher rates of completion. The reasons for this correlation deserve further study.

{ the CURRICULUM }

The breadth of pedagogical approaches across games programs in the United States and Canada is vast, with many programs emphasizing specific strengths of their departments, faculties, and institutions.

As an ice-breaker for the interviews, we asked our respondents to tell us something amazing about their programs. These responses, four of which are presented below, provide a glimpse into the breadth of games programs.

"In order to graduate, our students must have formed an independent game studio limited liability company and published a game with it on Steam or an App Store."

"We focus on innovative, experimental, indie games, rather than mainstream industry."

"Our approach to the study of games is based on a simple idea: games matter. Just like other cultural forms - music, film, literature, painting, dance, theater - games are valuable for their own sake."

"Some of our students are combining game design with philosophy and religion in order to create games that ask interesting questions and get players to think about bigger questions of life in an accessible way."

And yet, there were commonalities amongst almost all programs regardless of whether they focused on game design, game development, or game criticism. The skills described in the survey and interviews can be generally grouped into the following categories:

- Programming, which tends to focus on C++, C#, Java, and Python, though other languages may be used during prototyping and iteration phases of development;
- Game design, which tends to focus on the development and testing of game mechanics, as well as level and environmental design;
- Art and animation, which tends to focus on 2D and 3D designs and effects, as applied to characters, environments, and special effects;
- Creative writing, which tends to focus on narrative design, character development, and collaborative writing techniques;
- Sound and music design, which tends to focus on composition, immersive environments, and audio effects;
- Game engine integration and development, which tends to focus on teaching students how to use professional engines like Unreal and Unity, as well as more accessible toolsets, such as Twine, Godot, and RPGMaker;
- User interface and user experience, which tends to focus on the interaction between player and game;
- Game criticism, which tends to focus on the social, cultural, and political aspects of the games industry generally or an individual game specifically; and
- Production management, which tends to focus on the phases of development, scheduling, and the production pipeline.

With respect to specific courses, instructors indicated that their programs required students to take the following course types *(see Table 2)*.

TABLE 2: *Required Courses for Programs as Indicated by Instructors in Survey.*[6]

COURSE	Percent
Capstone Projects	95%
Game Design	91%
Game Programming	77%
Art	70%
Animation	58%
Storytelling or Creative Writing	56%
Level Design	53%
Business of Gaming	47%
Audio or Music Design	44%
Critical Game Studies	44%
Human Computer Interaction	44%
Game AI	30%

[6] *Only 43 of the 74 respondents completed this portion of the survey.*

AN INFORMED MIDDLE GROUND

Concerning skills, many programs have adopted a 'T' learning model, where students developed significant technical depth in one subject and general knowledge across many others. For example, in some games programs, a student may major in computing science, but take required courses in creative writing, sound editing, project management, and game design. Domain expertise in programming is complemented by broad exposure to other areas of knowledge.

Almost all the programs represented in this study (95%) require students to complete a capstone course. These major projects usually require students to build a complete game (or game-like thing) in interdisciplinary teams over the course of one or two terms. The 'T' education model exposes students to the affordances of multiple disciplines. It gives them the terminology they need to communicate better with experts in other disciplines, as well as helps them appreciate the opportunities and points of friction that may arise in collaborative projects. In addition, such courses often expose students to project management frameworks common in the industry, like agile and scrum.

This 'T' learning model is not without critics. Even those who endorse this learning approach have raised doubts about whether it prepares students for the industry.

> **"We've taken the idea that students have to learn the basics of the game-making craft so that they can adapt to things in the future. But that means that they're competing with other people who have been very well trained in very specialized areas. It makes it a bit of a challenge, because the industry loves people who are experts already."**

In this instance and several others, instructors were not united in their opinion of what the industry wants from games programs.

INDUSTRY-FACING PROGRAMS

As is apparent in the previous sections, many programs wrap their curriculum in a game development production cycle that mirrors industry practices. This appears especially true for many of the games programs featured in the annual Princeton Review of Top Game Design Schools. Websites for such programs frequently assert that their programs prepare students well for success in the industry after graduation, a claim supported by instructors from such programs who participated in this study.

Many instructors insisted their programs should mirror industry practices if the program itself made claims about preparing students for employment in the industry. For them, this was an ethical issue, objecting to, as one respondent explained, taking "money from students promising them a job in the industry, but not training them correctly." Many, in fact, insisted the entire point of their program was to create graduates who were, in the words of one instructor, "actually hireable." Many students valued this preparation, but many also noted that their program frequently mirrored the crunch culture of industry, which caused them to burn out during their program or shortly after they started work in the industry.

Many of these industry-facing programs were significantly shaped by the nature of the local games ecology. As described in the case study on Montréal, the industry can play a part in shaping how postsecondary institutions frame their programs. For example, when visiting a program in a city with a well-developed AAA infrastructure, one instructor commented, "I think we drove past one game studio to go to another game studio. It was mind-blowing when I got there. There's how many game studios around you? No wonder your students are getting jobs in the games industry! It's easy-mode for them."

These direct connections also gave students a clear path to transition from school to work. Close industry connections, in the mind of some instructors, "are good because they give you mentorship opportunities, and a sense for your students of: 'Oh, I can be one of these people. And I see them as people rather than these weird super figures out there.'"

Programs located in cities without a well-developed AAA landscape may still choose to be industry-facing, but the focus may be directed to different segments of the games industry. One instructor in a smaller city described such a framing:

> **"We don't have the home-located multi-decade-long games industry here like in other places. Instead, we have a lot of different indie studios that are very plucky. So we thought our model should position students well for indie, as well as for seeing games as an expressive or critical medium. The portfolios that they create will be competitive in industry if they want to go into it, but**

the industry is not the target. A lifetime of game-making is the target."

Of the 74 instructors who responded to the survey, approximately 47% (n=35) stated that industry partners collaborate in the delivery of their curriculum in some way. Instructors with industry experience themselves were more likely to bring industry partners into their classrooms than those who had not worked in the industry.

When asked whether they thought instructors in their program should have practical experience in the industry, many respondents answered positively, as "Students often consider instructors with practical experience as more credible than those who haven't worked in the industry." They viewed experience in the creation of games as significant, especially in terms of sharing with students their knowledge of production workflows. Their expertise in "the complete cycle of planning, developing, and releasing a game (no matter the scale) is fundamentally important in being able to help teach those skills to our students."

NON-INDUSTRY-FACING PROGRAMS

Many instructors emphasize providing students with a broadly applicable skill set rather than training exclusively for work in the game development industry. They see games programs as a means for creating informed, well-rounded students. Games may be the focus of the credential, but the skills developed in these programs are readily transferable. As one instructor put it, "Our games students don't always get jobs in games, and so we want to give them some other direction that they can go once their four years with us are over."

This approach recalls traditions of a general liberal arts education, which did not necessarily prepare students for a specific career. Here, games are "part of a larger, holistic educational model." One instructor made this point directly: "I feel like what gets left out of preparing students for a career in the tech industry is a broader liberal arts education. The tech industry needs a little more humanities or humaneness in it, which isn't going to come from an industry-inflected education."

In many programs represented in this project, instructors offered students a broad education that prepared them for several career paths:

"We're open about intentionally not being a games-only program. Games are just one of the things you can do here. We want to be open to people discovering games. And occasionally, we'll have people who come from the game development industry and then explicitly do not want to do games. But they want to be in a program where they know there are going to be familiar ideas, even if they don't want their work to be game-specific."

What emerged as important for many instructors is providing an education that is flexible, open-ended, and adaptable. The key was to keep the best interests of the students at the center of the curriculum:

"We're just trying to figure out what's going to best serve our students long-term. In a way, it almost doesn't matter what we teach. If we teach them to learn new software and new technologies on their own, and to collaborate in teams of people from diverse backgrounds, both technically, but also socially, then that's the best thing that we can do."

COLLABORATIONS WITH OUTSIDE PARTNERS

Games programs pursue a wide spectrum of partnerships with outside organizations, including industry, museums, hospitals, research institutes, non-profits, and charities. Many programs, especially the large game-centered programs, bring personnel from industry into many, if not all, aspects of the curriculum. This collaboration spans much of the game development process—evaluating student game pitches, commenting on game design documents, lecturing or conducting workshops, and judging capstone projects. This makes a lot of sense considering that many of these programs attempt to replicate the industry's game design process in the classroom.

Industry partners may also bring projects to the schools to serve as student assignments, or they may bring students into their studios to work on projects through co-op positions or internships. This direct involvement, as stated by instructors and noted on program websites, legitimizes the programs in the minds of current and prospective students. One instructor noted that they would:

"rather have people with a lot of experience in the industry tell stories to my students than me. I'd like to have those

> **kinds of relationships where, a couple times a semester, you might have somebody Zoom in or show up and tell some good stories from the trenches. If we tell our students things, they're a little skeptical, but if you bring in a guest speaker who tells them exactly the same thing it's 'Oh, why didn't my professor teach me this?'"**

These relationships, while valued by some, were deemed by others to be less helpful in terms of effective networking as there was little chance to build a meaningful relationship with guest lecturers who appear once a term and then disappear.

Many of these postsecondary-industry collaborations are built on professional relationships between the instructors and specific companies, especially considering that 65% (n = 48) of respondents to our survey indicated that they had experience working in the games industry. The benefits of these relationships can compound as graduates move into positions in local game companies but maintain a relationship with their school. As one instructor states:

> **"Both alumni and industry partners participate. They come in and do things like playtest the games and provide feedback and mentorship. We don't have a requirement for co-ops or internships, but some game companies offer those opportunities. We have career fairs and other ways that can connect employers to the students, so they often do get internships."**

For many smaller programs or programs located in cities without a large number of studios, the opportunities to collaborate with industry may be limited. Instead, many of these programs have created and fostered relationships with other types of organizations, including museums or non-profits. Such organizations usually come to the school looking for help with a particular project.

Unlike industry collaborations, where industry partners usually fulfill the roles of experts and mentors, these opportunities put the students in leadership positions. This difference can have a profound effect on students' learning. One instructor said this about a collaboration with a non-profit partner:

> **"It's very exciting that we have an opportunity to work with these amazing community partners, who have different needs, but there's an openness to afford our students the autonomy to experiment and try different things. It creates a really rich educational environment for an art and design school to have that little bit of freedom, which motivates students to really invest, but without the high stakes of commercial success. Students also had a lot of energy and motivation because they were building a game for a purpose that had an impact and a good intention."**

Of course, collaboration with industry is only desirable if a program aims to place its students in industry positions, which many games programs do not. As indicated in the section on Skill Development, instructors may be preparing students in games programs for any number of careers outside of the games industry:

> **"We make no claims to preparing our undergraduates for game industry positions, even while many of our students end up taking them on. Even the track that's dedicated specifically to game development prepares students more for small studios or an indie career. We're more 'educational games' or a 'games for change' kind of career than we are 'big industry.'"**

EDUCATING STUDENTS ABOUT THE WORKPLACE

The annual Developer Satisfaction Survey (DSS) conducted by the International Game Developers Association (IGDA) gathers survey data on the working conditions and general career satisfaction of game developers. Topics covered include work-life balance and fair compensation, as well as issues related to poor working conditions, such as the prevalence of crunch and workplace harassment. In combination with corporate takeovers resulting in waves of layoffs and an intense post-COVID-19 contraction in the industry, these issues are significant topics of discussion in games and games education.

Given the prevalence of these discussions, we asked instructors and administrators whether they include these topics in their courses, either formally or informally. Of all respondents, 68% (n = 50) stated that their program did.

Some of our respondents reported that discussions of workplace conditions in the games industry were a formal part of their program's curriculum. This meant either an entire course on workplace issues, such as crunch, harassment, and unionization, or one or more sections dedicated to these topics as a component of a professionalization or portfolio course.

Instructors in such programs underlined the importance of formally teaching these issues in their courses: "In my core courses, especially the game design, prototyping and production, I do think it's really important for them to see what the industry is really like, what they can actually expect." A different instructor made the point even more directly, stating, "if our goal is to be industry-facing and to point these kids toward the games industry, it's only fair that we also teach them what it's like to work in that industry." For some, this is an ethical obligation: "I think that it's important to have transparency and honesty around what our practice is, and the role that we play in attempting to transform and challenge it. It's definitely a part of conversations throughout all our classes."

In some programs, discussion of workplace conditions was an informal part of the curriculum, with instructors introducing this material into their teaching depending on their interests or personal experience. Such approaches are often less systematic in terms of what is covered, like depending on current news stories to drive the discussion. For example, one instructor used the latest headlines to promote conversation as a warm-up to a class that was principally about game design:

> **"At the start of the class, I'll do a 'let's talk about the topic du jour on Twitter'. What are people talking about today? Right now they're talking about crunch, right? And so we'll discuss crunch and we'll reflect upon crunch. It is a little bit controlled, based on whatever I'm seeing being discussed that day."**

Others are more blunt: "I try to be frank with my students about how brutal the games industry is, not only with dealing with things like crunch, but in general: when you look at Steam, almost every project is a failure. The average amount of income that is made is below the poverty line."

Shorter-term diploma programs were less likely to include discussions of workplace conditions than four-year degree programs. However, the reasons instructors from institutions of all sizes gave as to why such material was not part of the in-class discussion were interesting and diverse.

Some felt that such material was not an essential component of games education. As one instructor explained, they talked about crunch with their students, but usually didn't talk "about sexism, or ageism, or any of the isms," as they felt there wasn't a good place for these conversations in their curriculum. Others felt that students could best address relevant social issues through their assignments rather than through the formal instructional content. For example, one instructor shared that their students worked on a game about crunch in their design workshop, even though the course itself didn't address crunch culture in the curriculum.

Others felt that proper attention to project scoping and management, as well as a focus on learning soft skills and facilitating a safe working environment for everyone, would eventually help move the industry away from problematic labor practices:

> **"I teach a little about harassment, but I tend to be more interested in ideas of software development safety. It is the idea that safety is an important part of software development, and feeling like you're welcome in a group is part of safety. So I don't do a social justice lens on that, I tend to look at it more as 'if we want to be successful we need everybody to feel safe.'"**

Finally, several instructors pointed out that the very nature of postsecondary programs often promotes detrimental production practices akin to crunch, with students sometimes forced to take on an unreasonable course load and work towards an arbitrary but strict deadline. This challenge can be exacerbated through the addition of a game development structure.

Some instructors address this challenge with frank discussions about crunch in game studios and their role in promoting crunch in the classroom. Instructors opined that both were needed to encourage sustainable production practices:

> **"What is crunch culture? How does it manifest? What are ways in which folks cope with it and challenge it? When you take multiple classes, you're crunching. We created a space to have an open and reflective conversation about it: how am I, as a faculty member, providing assignments that don't have flexibility in terms of time considerations? It was a growing moment for everybody to take a step back and find these pause points. A student might have been working somewhere and experienced this level of stress, and then their outlet was to come here and talk with us."**

CAREER RESOURCES & INTERNSHIPS

Games programs offer a range of supports to help students make the transition from school to work. Most offer all five of the supports we asked about:

- Career Counseling (74%)
- Portfolio Development (74%)
- Internship or Co-op Opportunities (73%)
- Participation in Game Festivals or Showcases (70%)
- Access to Alumni Networks (68%)

Co-op programs and internships take a wide variety of forms. Some schools have mandatory internships that are facilitated through program-specific supports and placements. Others provide industry experience through collaborative project work, networking opportunities through internship fairs, or incubator programs that seek to guide and commercialize student projects.

Project participants noted that these internship models do have challenges, especially when such efforts are poorly funded or supported. Many programs, for example, are tied to institutions rather than programs. Centralized programs, according to instructors, are better at finding relevant placements for programmers than creative writers. At some institutions, finding a placement is left to the students or supported only by instructors who are already teaching a full load; both can leave students without adequate access to internship opportunities.

Similar concerns arise in the discussion of career counseling services that struggle to understand the workplace cultures of creative industries. The application process for writers, for example, is very different from that of engineers, and students have reported that career counselors tend to have more experience with the latter than the former.

COVID-19

While the study did not directly pursue questions about the impact of COVID-19 on instructors and programs, the issue came up. The impact of the COVID-19 pandemic on students, instructors, and programs was profound. Even considering that much of game development can be done remotely, people and programs are still recovering from the changes. Beyond this obvious observation, two additional points emerged from the survey and interviews.

First, at the time of our study in fall 2022, many students were entering their first year of in-person education after several years online. Instructors noted that many students were unprepared for the social and collaborative nature of in-person game development. There is a need to care for the social well-being of future cohorts, "because a lot of our new incoming students will also be coming from a remote environment, and into a very sociable community-based practice."

And second, some instructors took the opportunity to reconsider the pedagogical value of curriculum that piled assignment on top of assignment. In the words of one instructor,

> **"I feel like one of the 'silver linings' of the pandemic was that so many faculty members burned out that we had to really re-evaluate. Many of us have stripped out big chunks of our normal course material. We say it's because the students are overwhelmed more easily, but that's not the only thing. It's that we're aware of that and sensitive to that now, because we experienced it too."**

{ the PEOPLE

This section discusses a few observations regarding the demographic makeup of the 74 instructors who responded to the survey.

GENDER & ETHNICITY

Of the participants, 64% were men (n=47) and 68% were white (n=50). Our sample size for this study does not allow for generalizations regarding the demographic makeup of teaching staff in postsecondary games programs, though it aligns with anecdotal reports that the majority of instructors in games programs are white men.

Many of those we interviewed acknowledged this and described specific activities their programs were undertaking to diversify the faculty complement. Most people interviewed acknowledged that faculty diversity needed significantly more attention. As one instructor put it, "I think my mentor worked with and recruited students who worked on games and who were similar to him. We were all men, and that created the effect that we're now running a boys club here, without many women doing a Master's or a Ph.D. in game studies. It's an issue."

Employment Status: With respect to employment status, approximately 86% (n=64) of the respondents were full-time employees, while approximately 5% (n=4) were part-time employees (the remainder did not specify). Approximately 44% (n=33) of the respondents were tenured or tenure-track faculty. Men were more than twice as likely to have a tenured or tenure-track position (51%) than women (25%).

Almost half of respondents (n=36) stated that they held an administrative position within their program, such as Chair, Director, or Area Coordinator. Having industry work experience was more strongly correlated with holding an administrative position in a games program than holding a doctoral degree.

TABLE 3: *Gender of Survey Respondents.*

GENDER	COUNT	%
Men	47	64%
Women	20	27%
Nonbinary/genderqueer/ third gender	2	3%
Prefer not to say	5	7%

TABLE 4: *Ethnicity of Survey Respondents.*[7]

ETHNICITY	COUNT	%
Asian	4	5%
Black	3	4%
Middle Eastern	1	1%
Mixed	8	11%
White	50	68%
Prefer not to say	8	11%

[7] *Those of mixed ethnicity reported their ancestry as White (6), Hispanic (3), Asian (3), Middle-eastern (2), Indigenous (1), and one as self-described with no further details.*

EDUCATION & WORK EXPERIENCE

Instructors in games programs indicated a wide range of educational backgrounds, with approximately 14% holding a Bachelor's degree (n=10) as their highest credential, approximately 49% holding a Master's degree (n=36), and approximately 38% holding a Doctoral degree (n=28).

Approximately 65% of respondents (n=48) previously worked or continue to work in the games industry. Approximately 72% of instructors who were men had industry experience compared to 60% for women..

Interestingly, one instructor asserted that once someone takes on a teaching position at a postsecondary institution, they are unlikely to return to the industry full-time. They said that almost every instructor "who has gone into industry has either boomeranged back into academia or has gone into some other form of consulting – when they jump back into industry, they jump out pretty quickly."

TEACHING

Respondents were asked to rate five responsibilities their institution prioritized: teaching, research and publications, securing external funding, service to the program, and community outreach. We used a Likert scale from 1 (least important) to 5 (most important). As seen in Table 5, respondents believed that teaching (4.4) was the most important aspect of their jobs. Securing external grants was the least important (2.2) – a finding that might surprise professors at some universities.

The number of years of experience teaching about video games ranged from 1 to 27 years, with the mean at about 12 years. Respondents also reported that on average, faculty had about 3/4 teaching load (meaning they teach three courses in one semester and four in another).

For the most part, respondents were skeptical of the idea of instructors spending time conducting research. While many instructors acknowledged the importance of research to both their craft and as a way of staying up to date on the industry, several instructors pointed out that dedicating time to research was not feasible due to either their workload, program size, or lack of incentive. As one respondent stated, research "at my institution is not possible. The teaching load is 4/4."

One respondent made clear that "It is much more important to spend time keeping up with changes in software and industry-standard workflow trends and techniques. Working on projects to keep up on these things is different from publishing academic work." In retrospect, we should have made clear in the questionnaires that creating games as part of their appointment could be viewed as a form of research praxis.

TABLE 5: *Importance of Institutional Responsibilities Rated by Respondents out of 5.*

	TEACHING	RESEARCH & PUBLICATIONS	SECURING EXTERNAL FUNDING	SERVICE TO THE PROGRAM	COMMUNITY OUTREACH
Mean	4.4	2.8	2.2	3.4	2.8

DIVERSITY AND INCLUSION

We asked survey respondents if their program promoted diversity and inclusion, and in what ways. Approximately 57% of respondents (n=42) did not respond to this question. Of the 32 people who did respond, all but one indicated that their program promoted diversity and inclusion in some way. As one instructor in game design stated, "Everybody plays games. Let's try to make sure everybody makes them."

Efforts to improve diversity and inclusivity are highly localized and depend on a host of factors, including the focus of the program, the type of postsecondary institution, and the city in which it is located:

> **"As our program is focused on design instead of programming, and focused on making play with a purpose, we explicitly discuss issues around diversity and inclusion. We look to attract students more interested in cozy and wholesome games; typically, these games are more inclusive in their approach."**

The pedagogical goals of this games program are very different from the goals of an industry-facing program focused on programming. These two schools will have very different approaches to diversity issues.

Diversity efforts can be targeted initiatives to achieve a specific outcome or more broad ranging. Some games programs are more active in such efforts, as indicated by an instructor at a large game design program at a larger urban university with deep and long-standing ties to industry:

> **"We have an inter-university initiative launched to award internships for students that would help diversify the pool of industry workers. We**

> **offer paid internships in our institution to students on the basis of either race, ethnicity, gender, LGBTQIA2+ identity, etc. We practice inclusive writing; invite guest speakers for conferences that speak to different paths in the industry and differing realities of games and games development; have readings on topics of diversity and inclusion; and take care in having a diversity of theorists in our assigned readings too."**

Instructors noted several ways in which they try to promote diverse perspectives throughout the curriculum:

- Highlighting a diverse set of readings and games that reflect broader backgrounds and experiences. This includes choosing games for analysis that eschew hypermasculine storylines or ultra-violent mechanics (many believed their students would have encountered these conventional games already, so alternate examples helped broaden their gaming experience);
- Promoting development training that brings awareness to diversity issues. Some schools have a team of specialists who help students with professionalization and soft-skill training focused on diversity, equity, and inclusion (DEI) issues and who help instructors include DEI material in their curriculum. Some schools include DEI issues as a key learning outcome in all their classes;
- Inviting diverse workshops, conferences, and guest speakers; and
- Seeking community partnerships with institutions, like museums, that actively promote the lived experience of marginalized communities. Instructors highlighted the benefits of students co-creating games with such partners to bring attention to issues directly related to their communities.

Most acknowledged that these initiatives are an ongoing process rather than something that can be fixed with a single initiative. One program, for example, grew out of an Art History department but is now in an Arts & Science faculty. An instructor noted that people in the program still participate:

> **"In all the conversations that are happening in art history: about decolonization, about the deconstruction of geographies and Eurocentric approaches to art, and things like that. It's part of the ambient culture of the department. Our approach to film and game studies was informed by this nexus of considerations and questions. Our faculty backgrounds are representative of and informed by our commitment to those ideas."**

Diversifying the student body within games programs depends on the type of program being offered and the nature and location of the school in question. In their survey responses, instructors estimated that students in their classrooms were on average about 30% women and 70% white, though this varied significantly. Generally, instructors in large public institutions located in urban centers reported that their classes are already quite diverse in terms of the ethnicity of the student body. They also reported that the demographic makeup of their games classes generally match the demographics of the city in which they are located. One instructor noted that they "are at a public urban university and make DEI a priority. We teach inequalities and systemic exclusion across our foundational courses." Instructors noted that this diversity in the classroom prompted faculty to incorporate diversity into their curriculum simply because students expected it.

Instructors at these urban universities did not hesitate to champion the diversity of their classrooms. One instructor asserted that their "students are 80% non-white. Roughly 75% of our students are women-identifying. Our constructively critical approach to making work with and about computational technologies is probably our best calling card for diversity." Interestingly, some respondents noted their games programs were more diverse than the rest of the department they were based in. For example, one instructor noted that "Student leadership within our project-based course has reliably been much more diverse than the overall group. Although the program is mostly CS students, we often are similarly diverse or more diverse than the overall population of CS students."

Programs not located in urban centers, or programs based in departments that tend to attract a less diverse student population, such as software engineering, employed targeted initiatives to increase diversity. This includes scholarships aimed specifically at diverse communities. Many of the people

we interviewed pointed to specific financial support for BIPOC[8] students attending their programs – most of these scholarships were institution-based while some were program-based.

Outreach programs that tried to broaden and diversify the applicant pool were also mentioned. One instructor championed their participation in an initiative that "supports underserved populations in high school so that the students are prepared to succeed in technology in whatever school they attend." Instructors mentioned many such activities undertaken by their programs.

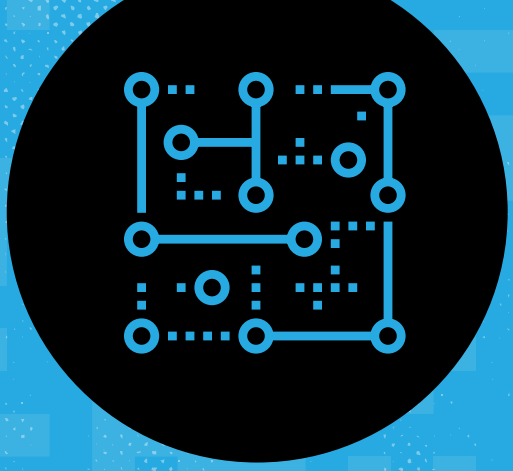
Finally, some instructors noted that diversity efforts were key to increasing student numbers in their classes. One stated starkly:

> **"We are making active efforts to diversify our program. We do it by advertising content and instructors. Instead of 'this is a generic games course and you'll be attracted to it because you're a gamer', it's 'you are included, and are a part of a wider questioning of what gamers are, which you're going to interrogate in the course.' We have courses on designing for inclusion in the curriculum, as well as specific courses on race, gender, and decolonization. Identity politics are absolutely at the center of it, because it's not just a disciplinary question, it's also an enrollment question. People will not sign up for a course that favors just a white male perspective. This is not just a 'politically correct' move, it is the right thing to do for a future in which we want to see students of all kinds signing up for our courses."**

Not only would a push for diversity increase enrollment, but some instructors also insisted that more diversity in the classroom and the industry would produce better games and grow the market:

> **"The first thing we need to understand is that not every player is the same. We do not have one monolithic market. It is hyper segmented. But, the population of game development students tends to be much more narrow. It's rather like running a film school where everybody only wants to make action movies. There's a lot of stories that you're leaving untold, and, from a mercenary standpoint, you're leaving a lot of money on the table."**

[8] *Black, Indigenous, and People of Color*



{ local GAMES ECOLOGIES }

MONTRÉAL, QUÉBEC

In 2024, the Canadian games industry generated $5.1 billion CAD in revenue from all sources, which is a 20% increase from 2019. The province of Québec plays a crucial role in the country's game economy, hosting 291 development studios and over 13,500 jobs, as of 2021. The city of Montréal is the epicentre of the games industry in Québec, with at least 56 games-related postsecondary programs and more than 200 studios, including Ubisoft, WB Games, Eidos, Epic, Electronic Arts, and Square Enix. The city has been described as having the "highest number of developers per capita in the world," which is made possible by a highly-educated bilingual and diverse workforce, numerous provincial and federal financial incentives, and international connections with schools and companies across Europe and the United States. There are dozens of postsecondary credentials, including degrees, diplomas, and certificates offered by a large network of colleges and universities.

The initial development of the city's game-specific postsecondary programs faced numerous challenges. Some schools simply did not view games programs as an important area for growth despite clear student interest. Some professors were equally skeptical, questioning the suitability of games for advanced research. Many argued that games training was more of a vocational pursuit not suitable to universities, or saw a computing science degree as the more natural pathway into games.

Schools offering game credentials: 4 universities, 12 colleges

In Montréal, the impetus for the growth of games education came from industry pushing for the creation of technical training and academic programs focused on games to increase the pool of talented workers, rather than colleges and universities responding to a changing market or increased student demand. In 2005, Ubisoft established its own industry-led educational institution, Ubisoft Campus, which was funded in part by the provincial government. Ubisoft partnered with Université de Sherbrooke and Cégep de Matane[1] to offer courses and skill upgrading to students and Ubisoft employees.

Active in Montréal since 1997, Ubisoft is perhaps the most significant contributor to the local gaming ecology. Through its CODEX program, the company promotes a series of education and community outreach initiatives that support students at all levels. Through its La Forge program, the company supports academic researchers. Ubisoft provides funding, mentorship, and tools for local independent studios through programs like Ubisoft Radar, Game Lab, and Indie Series.

Population: 4,342,213 (2021)

Although Ubisoft Campus shut down in 2010, the experiment prompted universities and colleges to reconsider their approach to video game design and development education. Many new credentials at the undergraduate and graduate levels appeared at trade schools, colleges, and universities across Montréal, especially in the years following 2013. There has been a similar increase in support for students. For example, the Québec Perspective Scholarship, worth up to $20,000 CAD, was created in response to the demand for labor in strategic economic sectors, including game design and development.

Studios: 250+

Behaviour Interactive, the city's largest independent studio, also plays a significant role in the local gaming ecology. Founded in Montréal in 1992, it has a range of partnerships with major developers, such as Nintendo and Disney, as well as a strategic partnership with Beijing's GAEA Interactive Entertainment Co. to expand into the Chinese games market. Additionally, Behaviour is assisting Montréal's Concordia University with their Next-Generation Cities Institute project to support research on smart, sustainable, and resilient cities and communities.

Postsecondary's initial hesitation to collaborate with the industry on games research seems long gone, collaboration now taking many forms. McGill University – one of Canada's top-ranked research universities – partners with many companies, including Ubisoft in the *Assassin's Creed Discovery*

Tour series to create immersive historical experiences, as well as Gearbox Software and 2K Games in the *Borderlands Science* game to advance medical research. McGill also brings together inter-faculty research with its Games and Gamification for Human Development and Well-being Working Group.

Concordia University partners with Ubisoft's Commit Assistant, an artificial intelligence system designed to detect coding errors, and also houses the Technoculture, Arts and Games (TAG) Research Centre, one of Canada's largest games research centers.

These collaborations between industry and postsecondary also extend overseas. Concordia and Ubisoft's collaborative project and educational platform, Game Creators' Odyssey, includes partnerships in Mexico, Portugal, Egypt, Jamaica, French Polynesia, and France. ISART Digital Montréal connects Québec students to campuses in France and professional development opportunities with a network of 500+ industry partnerships.

There are significant federal and provincial government supports for industry and investment in the form of grants, loans, and tax breaks, including

- The federally-funded Canada Media Fund that helps support and finance the production of Canadian media content,
- Québec's Multimedia Production Tax Credit is a 37.5% refundable tax credit for labor expenditures for media production, and
- Québec's Innovation Support Program provides indie studios with a grant of $30,000 CAN for developing projects and securing capital.

Interestingly, the Multimedia Production Tax Credit falls below 30% if the published titles are not made available in French, which has helped promote the region's localization industry.

The promotion of new Canadian-owned IP remains a challenge for the Montréal gaming community, with much of the industry revenue generated owned by foreign developers and distributors. Government funding, offered through the Canada Media Fund and a host of community organizations, works to promote locally-developed IP. These local organizations include MEGA+MIGS, La Guilde, Mount Royal Game Society, Pixelles, Game Play Space, Effects Montréal, and Gang de Devs, which host a plethora of games-based events like jams, showcases, workshops, and socials, providing support for the local game development communities.

The gaming ecology industry in Montréal is enriched by a wealth of private and publicly funded development opportunities, complex and varied institutional collaborations, and strong intra- and inter-industry research partnerships. Developers have many choices and opportunities for where they want to work. As one person active in Montréal's gaming community said about those looking for work in the city, "they want more than what the entry-level lifestyle provides. And then, because they're in Montréal, they find each other, they find a kind of economy and a cultural substrate that's hungry for indies." Unlike other cities, the robustness of Montréal's gaming community is such that the loss of one large studio might not be catastrophic to the entire games ecosystem.

1. Cégeps are publicly-funded educational institutions unique to Québec that provide academic, vocational, and technical training for high school graduates.

ROCHESTER, NEW YORK

Studios: 7

New York State is a games industry leader. It ranks fifth among US states in terms of industry revenue (approximately $5 billion USD in 2023), fourth in the number of current games companies with 141 studios, and has over 13,000 employees calling the state home. Its thriving games industry ecosystem is supported by top-ranked postsecondary games programs; local and international community game events, like Games for Change and Play NYC; various funding opportunities and tax incentives for new startups, indies, and expanding AAA developers; and anchor studios such as Riot Games and Rockstar Games. Empire State Development (ESD), a government organization that plans and funds economic development initiatives and support programs for the benefit of New York State, plays a particularly crucial role in supporting education, training, and research in the games industry.

Schools offering game credentials: 2 universities, 3 colleges

Since 2016, ESD has designated the Rochester Institute of Technology (RIT), New York University (NYU), and Rensselaer Polytechnic Institute (RPI) as Digital Gaming Hubs. The program granted each institution funds to provide resources, foster innovation, further collaboration between educational institutions and the local gaming communities, and promote industry growth.

RIT has offered a games program since 2005. It has approximately 1000 students enrolled in its current Game Design and Development degree, constituting one of RIT's most robust and financially successful programs. RIT's program demonstrates consistently high enrollments generating significant revenue for the university and the programs; award-winning student projects featured at national conferences such as the Game Developers Conference; a strong and active network of alumni who work in the industry and adjacent tech sectors; and public recognition year after year as one of the best game programs in the country.

RIT's renown as a center for quality education and research excellence in games has been bolstered by the creation of their Media, Arts, Games, Interaction & Creativity (MAGIC) Center and subsidiary MAGIC Spell Studios, funded by various state and tech industry parties including ESD, Cisco Systems, Dell and more. This allowed the development of various inter- and transdisciplinary research labs and initiatives that demonstrate games' relevance and reach, including work on augmented reality, cultural studies, health and wellness, and more. RIT has also expanded its industry involvement over the years. For instance, the Console Development Lab collaborates with Sony Interactive Entertainment and is devoted to systems, coding, optimization, and software architecture, while the Geo Games and Media Research Lab works with Niantic to study the implications of geo games, which use positioning technology to monitor game flow.

Games education and research are also emerging at other Rochester institutions. The University of Rochester offers games and interactive media courses, and a contemporary media composition degree that specializes in video game scoring. The institution holds an annual conference, called Breaking Boundaries, that invites students and scholars from a range of disciplines to explore the research potential of games. This conference partners with the city's Strong Museum of Play, which houses a comprehensive collection of games and design papers in addition to the World Video Game Hall of Fame. The museum hosts educational programming for industry professionals and students of all levels; keynote events like the Women In Games panel and exhibit; and offers scholarships and a fellowship program to incentivize students and scholars to research games and play. Moreover, the Strong Museum recently announced an expansion project, Neighborhood of Play, to introduce new interactive exhibits in the hopes of revitalizing the city's downtown core, projecting $130 million US in annual tourism revenue for Rochester.

Population: 207,274 (2023)

Additional events and activities that promote collaboration amongst the various gaming communities in Rochester include the following:

- ROC Game Dev, an organization dedicated to fostering the game developer community in Rochester, offers networking events, workshops, lectures and playtesting socials;
- ROC Game Fest, supported by RIT, ROC Game Dev, and the Irondequoit Public Library, serves as the area's only dedicated game convention to showcase local talent and beyond, through multiple events throughout the year;
- International Game Technology, in collaboration with RIT, developed an e-gaming program for Rochester Community TV allowing youth to advance their computer science skills;
- Great Lakes Gaming, founded by an RIT graduate, provides a networking space with their social and gaming lounge, and weekly competitive tournaments, including competitions sponsored by MSi; and
- A new chapter of the International Game Developers Association (IGDA) will soon be launched in Rochester.

Perhaps the most significant challenge facing Rochester's gaming ecology is the development of a robust industry presence in the city. Companies based in Rochester, such as Workinman Interactive, Second Avenue Learning, and Darkwind Media, do hire graduates of the local games programs, but most companies in the state are based in New York City. Two major studios founded in Rochester – Vicarious Visions (now Blizzard Albany) and Velan Studios – both relocated elsewhere in the state, although the former has a formalized agreement to maintain and reinforce long-standing relationships with RIT through financial support, game jams, and internships. As such, many graduates not only leave the city but leave to work in other industries. The lack of a robust industry in Rochester means the loss of one of the few local companies would have a significant impact. As one expert on the city said in an interview, "If Rochester lost Darkwind and Workinman, it would hurt."

Government and postsecondary have worked to address the shortage of local companies in Rochester, providing numerous tax and funding incentives offer much potential for new companies and encouraging partnerships across sectors. ESD's START-UP NY program particularly seeks to foster local development. It allows new and expanding businesses to operate tax-free for up to 10 years with the stipulations that they conduct business on or near state college and university campuses, partner with a state college or university, and create new jobs that would contribute to the local economy. Other support programs include

- the Employee Training Incentive, which offers refundable tax credits of up to 50%;
- the Internship Program offering up to 50% of the required credits per intern in advanced technology and software development training;
- the Excelsior Jobs Tax Credit that offers up to a 6.85% credit of wages per net new job; and the Digital Gaming Media Production Credit, offering applicants tax credits of 35% for projects produced outside of the greater NYC district in places like Rochester.

Rochester's gaming ecology is multi-faceted. There are world-class postsecondary games programs that promote innovative and collaborative research initiatives; cultural institutions dedicated to promoting gaming history and community; numerous city-wide events catered to students and developers of all levels; and various funding programs that encourage economic investment in a nascent game industry.

SALT LAKE CITY, UTAH

Population: 209,593 (2023)

Salt Lake City has a deep and historical connection with the video game industry. Nolan Bushnell, co-founder of Atari and creator of Pong, and Edwin Catmull, co-founder of Disney's Pixar, are both alumni of the University of Utah. The university's Entertainment Arts and Engineering (EAE) Program is viewed as one of the best game design programs in the country. Getting accurate data on the number of active game development studios in the city is a bit of a challenge, but there appear to be approximately 20 game development studios based in Salt Lake City. The state of Utah hosts a video game industry that supports approximately 1353 jobs and generated $394.6 million US in revenue in 2023. Salt Lake City has a smaller game developer community than Montréal or Rochester, but the gaming community is supported by strong educational programs and active community groups.

Studios: ~20

Salt Lake City has particularly been central to the growth and development of Utah's gaming industry. It was once home to early major players like Sculptured Software, Eat Sleep Play, Incognito Entertainment, Sensory Sweep Studios, Disney Interactive, Fall Line Studios (a Disney Interactive subsidiary), and Electronic Arts–Salt Lake (formerly HeadGate Studios). These companies have since either relocated, been acquired by larger companies, or gone defunct for various reasons. Currently, the games industry in Salt Lake City is anchored by major companies like Avalanche Software (a subsidiary of WB Games) and indies like Wahoo Studios and WildWorks.

There are government support programs that gaming companies can take advantage of, such as the research and development tax credit (up to 7.5%) and the Economic Development Tax Increment Finance program, which offers up to 30% tax credit for new state revenues created over a 5-10-year period, including software and information technology companies. However, there are no financial incentives specific to the games industry, or "no tax incentives for further growth," as noted by an industry expert. In 2010 EA executives unsuccessfully lobbied the government for financial incentives specific to the local tech industry. Interestingly, Utah has made significant investments in the film industry with the introduction of the state's Motion Picture Incentive Program, which coincides with the growth of Utah's film industry.

Schools offering game credentials: 4 universities, 2 colleges

Despite the robust state of games education in Utah, the shortage of sustainable game jobs in Salt Lake City has led to large numbers of graduates leaving the state. Utah Digital Entertainment Network (UDEN) was founded by professionals in the film, games, education, and technology sectors to strengthen Utah's digital entertainment industry through collaborative work, education, and talks, and addresses the tendency to export talent to other industries and geographical areas by encouraging localized inter-industry collaborations. This collaboration includes identifying talent in video game production to be hired for special effects in film productions and other industries relying on similar skillsets. The game studio Silverlode Interactive, for example, was founded by film industry professionals, while Spark XR, an augmented/virtual/mixed reality company, was created by video game developers.

Much of the vibrancy and activity of the gaming community can be found in postsecondary institutions, primarily linked to the University of Utah.

The Entertainment Arts and Engineering program at the University of Utah is one of the top-ranked undergraduate games programs in the country, with a similarly strong Master's of Entertainment Arts and Engineering. The university also offers a joint degree that combines the Master's program with a Master's of Business Administration, leading to numerous indie companies emerging from these programs.

The University of Utah also collaborates on numerous research

projects with external partners. The university's GApp Lab marries medical research and games through its interdepartmental research initiatives to create therapeutic and educational video games, apps and websites. Game researchers at the University of Utah are collaborating with cognitive psychologists and intelligence experts at Northern Illinois University to model system-generated narratives that can provide insight into security, intelligence, and anticipatory thinking processes. Another initiative is between the University of Utah and Rockwell Collins – an aerospace corporation that acquired its simulation business and technologies from Evans and Sutherland – to explore gaming and military technologies.

Salt Lake City's other higher education institutions, including Neumont College of Computer Science, Utah Valley University, Brigham Young University and Weber State University, also contribute to the local gaming ecology, bolstering the local workforce and talent through their games education programs. The Enterprise Projects program at Neumont College of Computer Science provides work experience for its students through hands-on project collaborations with partners like NinjaBee and Strange Reptile. Brigham Young University's animation and games program has built a strong connection with the games industry in Utah and beyond, with an alumni network embedded in top industry studios like DreamWorks and Pixar.

Outside of industry and academia, Salt Lake City has numerous community organizations and groups that foster game development in the area:

- IGDA's Salt Lake City chapter supports a network of professional game developers;
- Salt Lake Gaming Con is a convention dedicated to tabletop games and video games, featuring showcases, demos, tournaments, and game developers from across the industry;
- Metaversal SLC is a collective of virtual reality, game, and media creators that focuses on workshops, shared learning, and collaboration;
- Salt Lake City Game Devs is dedicated to supporting the community of local game developers; and
- Silicon Slopes Summit is a major annual business and tech conference that has recently integrated interactive entertainment into its agenda.

There is a strong community of game makers in Salt Lake City, with a handful of larger companies complemented by numerous start-ups and indies. One of Salt Lake City's unique features as a municipal game ecology is the centrality of the University of Utah and the network of games-adjacent partnerships that draw on local game development talent. There is much potential for growth as demonstrated by the richness of community activities and growing collaborations across creative/media sectors.

FUTURE WORK

One limitation of this study is the selection bias built into who responded to the surveys and who agreed to be interviewed. For example, part-time and precarious instructors were underrepresented among the participants of our project, even though evidence points to such instructors comprising a significant part of the postsecondary games programs' labor force. A future project could explore more fully the labor conditions and contributions of contract instructors.

Future work could explore questions opened or left unanswered by this study. One such project would be conducting surveys and interviews with people in the games industry (particularly HR professionals and team leads) to find what value they place on different facets of games education. There is a perception in the industry that game companies are more interested in hiring entry-level employees with an impressive portfolio than with a degree in a games-related discipline. This perception warrants further exploration.

Many instructors in our surveys and interviews voiced opinions on what would best prepare students for jobs in games, but these opinions were sometimes contradictory. Given that thousands of game credentials across Canada and the United States now aim to produce workers for the games industry, the urgency of grasping what competencies, skills, and experience best position students to find employment in games is high.

The relationships between games programs and their alumni deserve further investigation. Many games programs have invested significant funds in maintaining strong, vibrant connections with their graduates, with many alumni providing mentorship and networking opportunities to current students. The factors that contribute to a successful network would be worth examining, as would the costs of doing so. Having said that, many programs do not track the employment outcomes of their graduates at all, which is deeply troubling when some of those programs continue to make employment claims on their websites and in their promotional materials.

REFERENCES

Borynec, A., Gordon, K., Kuznetsov, E., Owino, A. & Gouglas, S. (2022). Counting Courses: Assessing Postsecondary Videogame Programs in the United States and Canada. In T. Bastiaens (Ed.), Proceedings of EdMedia + Innovate Learning (pp. 337-342). New York City, NY, United States: Association for the Advancement of Computing in Education (AACE).

Brault, M. (2021, December 6). *L'industrie du jeu vidéo victime de sa croissance.* Le Nouvelliste. https://www.lenouvelliste.ca/2021/12/04/lindustrie-du-jeu-video-victime-de-sa-croissance-da24db4592c4c3e431b61fcd70873bb3/

Deseret News. (2010, July 21). *EA officials suggest Utah consider offering incentives to technology companies.* https://www.deseret.com/2010/7/21/20129330/ea-officials-suggest-utah-consider-offering-incentives-to-technology-companies

Dorn, E., Dua, A., & Law, J. (2020). *Rising costs and stagnating completion rates: Who is bucking the trend?.* McKinsey & Company. https://www.mckinsey.com/industries/education/our-insights/rising-costs-and-stagnating-completion-rates-who-is-bucking-the-trend

Empire State Development. (n.d.). *Digital Game Development.* https://esd.ny.gov/industries/digital-game-development

Empire State Development. (n.d.). *Employee Incentive Training Program.* https://esd.ny.gov/employee-training-incentive-program

Empire State Development. (n.d.). *New York State Digital Game Development Program.* https://esd.ny.gov/new-york-state-digital-game-development-program

Empire State Development. (n.d.). *Excelsior Jobs Program.* https://esd.ny.gov/excelsior-jobs-program

Empire State Development. (n.d.). *START-UP NY Program.* https://esd.ny.gov/startup-ny-program#:~:text=START%2DUP%20NY%20helps%20new,campuses%20in%20New%20York%20State

Entertainment Software Association. (2020). *Impact of the Video Game Industry: Utah Impact.* https://www.theesa.com/video-game-impact-map/state/utah/

Entertainment Software Association of Canada. (2021). *The Canadian Video Game Industry 2021.* https://theesa.ca/resource/the-canadian-video-game-industry-2021/

Entertainment Software Association of Canada. (2024). *Canada's Video Game Industry Powering the Future of Play.* https://theesa.ca/resource/canadas-video-game-industry-2024/

REFERENCES

Facer, A. (2021, May 24). *Creating the future: Inside the booming video game industry in Utah.* ABC4.
https://www.abc4.com/news/digital-exclusives/creating-the-future-inside-the-booming-video-game-industry-in-utah/

Gouglas, S., Della Rocca, J., Jenson, J., Kee, K., Rockwell, G., Schaffer, J., Simon, B., & Wakkary, R. (2010). *Computer Games and Canada's Digital Economy: The Role of Universities in Promoting Innovation,* report funded by the Social Sciences and Humanities Research Council of Canada.

Gouvernement du Québec. (n.d.) *Québec Perspective Scholarship Program.*
https://www.quebec.ca/en/education/student-financial-assistance/quebec-perspective-scholarship

La Guilde du jeu vidéo du Québec. (2021, May 18). L'industrie québécoise des jeux vidéo : Une force présente et montante. *Les Affaires.*
https://www.lesaffaires.com/dossiers-partenaires/le-Québec-pole-mondial-du-jeu-video/lindustrie-Québecoise-des-jeux-video--une-force-presente-et-montante/625004

International Game Developers Association. *Developer Satisfaction Survey (DSS).*
https://igda.org/dss/

Loftin, J. (2007, October 13). *Utah video game industry reviving.* Deseret News.
https://www.deseret.com/2007/10/14/20046726/utah-video-game-industry-reviving

McAloon, A. (2019, September 26). *The Strong Museum receives grant to fund exhibit on the cultural impact of video games.* Game Developer.
https://www.gamedeveloper.com/disciplines/the-strong-museum-receives-grant-to-fund-exhibit-on-the-cultural-impact-of-video-games

McKenna, A. (2021, Décembre 6). *Montréal, le Hollywood du jeu vidéo.* Le Devoir.
https://www.ledevoir.com/economie/652074/egoportrait-Montréal-le-hollywood-du-jeu-video

Montréal International. (2022). *Welcome to Greater Montréal's World-Leading Video Game Hub.*
https://www.montrealinternational.com/app/uploads/2019/02/video_game_industry_profile_2022-1.pdf

National Centre for Education Statistics. (2021). *The Integrated Postsecondary Education Data System* [Data set].
https://nces.ed.gov/ipeds/find-your-college

REFERENCES

Oliphant, A. (2016, March 3). *All Play, No Work: A look into Utah's thriving video game industry.* Utah Business. https://www.utahbusiness.com/play-no-work-look-utahs-thriving-video-game-industry/

Pons, H. & Taffin, A. (2021, May 31). *Pourquoi Montréal attire les talents français du jeu vidéo.* Maddyness. https://www.maddyness.com/2021/11/18/pourquoi-Montréal-attire-les-talents-francais-du-jeu-video/

Scarlett, A. V. (2018, July 17). *Utah's 'Ecosystem' For Digital Entertainment Professionals Stands Ready To Help.* Medium. https://medium.com/beyond-tinsel/utahs-ecosystem-for-digital-entertainment-professionals-stands-ready-to-help-b34b013f31ed

Statista. *Population of Montréal, Québec in Canada from 2001 to 2022* [Data set]. https://www.statista.com/statistics/1338583/population-montreal-canada/

The Strong National Museum of Play. (n.d.). *Powered by Play: A Campaign for The Strong.* https://www.museumofplay.org/support/expansion-campaign

United States Census Bureau. (2021). *Rochester* [Data set]. Data Commons. https://datacommons.org/place/geoId/3663000?utm_medium=explore&mprop=count&popt=Person&hl=en

United States Census Bureau. (2021). *Salt Lake City* [Data set]. Data Commons. https://datacommons.org/place/geoId/4967000?utm_medium=explore&mprop=count&popt=Person&hl=en

Utah Governor's Office of Economic Opportunity. (2022). *Business Incentives.* https://business.utah.gov/corporate-retention-recruitment/

Utah Film Commission. (2022). *What's Next For Utah's Film Incentive Program?.* https://film.utah.gov/utah-film-incentive-program-2-0/

Utah Income Taxes for Tax Year 2024 - Research Activities. https://incometax.utah.gov/credits/research-activities

ACKNOWLEDGEMENTS

The Higher Education Video Game Alliance would like to thank the numerous instructors and program coordinators who offered their time and expertise when completing the survey and interviews.

The report was written by HEVGA and Kenzie Gordon, Sean Gouglas, Evgeny Kuznetsov, and Vi Vo at the University of Alberta. Many graduate students made essential contributions to the data gathering, including Morgan Cselinacz, Sam Graham, Sophie Talalay Harvey, and Anna Sollazzo, as well as the postdoctoral fellow, Itoro Emembolu.

Some study data were collected and managed using REDCap electronic data capture tools hosted at the University of Alberta. The collection and analysis of some of the study data was funded by the Social Science and Humanities Research Council and the University of Alberta.

APPENDICES

Percentage of Programs offering Industry and Networking Opportunities for Students

PROGRAM FEATURE	PERCENTAGE
Industry Curricular Collaboration	56%
Internship / Coops	90%
Portfolio Support	92%
Career Counseling	92%
Alumni Networks	83%
End of Year Game Festivals	70%

Type of Academic Employment by Gender

ACADEMIC EMPLOYMENT STATUS	I AM A MAN	I AM A WOMAN	PREFER NOT TO SAY OR OTHER
Untenured	49%	75%	43%
Tenure Track	6%	5%	29%
Tenured	45%	20%	29%
Count	**47**	**20**	**7**

Highest Level of Degree Completed of Respondents

DEGREE	COUNT	PERCENTAGE
Bachelor's	10	14%
Master's	36	49%
PhD	28	38%

Industry Experience by Gender of Respondents

INDUSTRY EXPERIENCE	I AM A MAN	I AM A WOMAN	PREFER NOT TO SAY OR OTHER
No	28%	40%	71%
Yes	72%	60%	29%
Count	**47**	**20**	**7**

Ethnicity of Respondents

ETHNICITY	PERCENTAGE	COUNT
Asian	5%	4
Black	4%	3
Middle Eastern	1%	1
Mixed	11%	8
White	68%	50
Prefer not to Say	11%	8

Course Topics Offered in Programs based on 43 Survey Responses

COURSE TOPIC	PERCENTAGE	COUNT
Capstone	95%	41
Game Design	91%	39
Game Programming	77%	33
Art	70%	30
Animation	58%	25
Storytelling or Creative Writing	56%	24
Level Design	53%	23
Business of Gaming	47%	20
Audio or Music Design	44%	19
Critical Game Studies	44%	19
Human Computer Interaction	44%	19
Game AI	30%	13

Student Program Enrollment based on 39 Survey Responses

SIZE OF PROGRAM	COUNT
1-25	8
26-50	8
51-75	9
76-100	7
101-500	6
501+	1
Total	**39**

HIGHER EDUCATION
VIDEO GAME ALLIANCE