

4 Enrolling Students into the Field

In that increasingly common and prolonged precarious limbo that early-career academics enter after completing a PhD, I worked for two years teaching game design at a private multimedia college in Brisbane. The kind of place that might be called a “polytechnic college” in the US. The students at this college were particularly vocationally minded. My students had enrolled in a bachelor of game development program because they wanted to work as developers in the videogame industry. At least at the start of their studies, very few of the students knew what such a job would actually entail, and fewer still had ever tried to make a videogame before. They assumed, much as I assumed 15 years earlier when I briefly enrolled in and then dropped out of a game development degree myself, that so long as they loved playing games, someone else could teach them the specific skills needed to get a job making games—and indeed that a job was the only path into videogame production at all. They were generally oblivious to the fact that, as outlined in the previous chapter, most videogame production teams are barely getting by, that few teams in Australia will ever be in a position to hire even one graduate, or that if they want to one day get paid for making videogames, they would likely need to create their own job.

This created a number of challenges for us teaching staff that will be familiar to any reader who has taught in a game development program before.¹ Students would often be eager to learn the technical skills of particular software environments such as Unity or Unreal but were highly skeptical of the equally vital “soft skills” of cultural theories, creative practice, and critical thinking. They would boast of their knowledge of—and try to produce imitations of—massive commercial blockbusters such as *Dark Souls* or *Grand Theft Auto*, but turn up their noses at much smaller but more innovative independent and artistic titles more easily imitated with their available skills and

resources. With each new cohort, extensive time and effort would be committed by the teaching staff, often external to the college's formal curriculum, to educating the students about the realities of work in the videogame field and how unlikely they were to walk into a job after their degree. Even the notion that making videogames was itself a creative practice and not simply a repertoire of technical skills was difficult to convey to some students. These challenges always struck me as bizarre. While all creative students surely commence their studies with a necessary optimism bordering on naivete in regard to their own chances of success, I can't imagine a prospective student for a music degree being oblivious to the challenges of making a career as a musician, or believing that they might be able to be an excellent musician simply because they enjoy listening to the latest hits despite never having touched an instrument or engaging with music theory. One improves as an artist by making art badly until one can make art competently, but our prospective game development students typically thought they would learn how to make videogames well and *then* they would start making videogames.

Where our students picked up the mistaken idea that their years of experience as videogame players would straightforwardly convert them into competent videogame makers was hardly a mystery to the teaching team. On the walls of the corridor outside the small campus's main computer lab were two marketing posters advertising a previous year's open day: one for the film production degree, one for the game development degree. The film degree's poster showed an assortment of equipment that one might see on a film set: a director's chair, a camera dolly on rails, microphones, stage lights, a clapper board. Over this assortment of objects related to the craft of filmmaking were the words "Spoiler alert! You get the job." The game degree poster, on the other hand, did not showcase the tools and equipment necessary for game production. There were no lines of code, software interfaces, motion capture suits, drawing tablets, spreadsheets, or trigonometry equations. Instead, there was a couch, an open pizza box, a PlayStation 3 console, three pixel-art hearts in the corner of the poster, and chunky pixel text that spelled out "PWN the competition"—embarrassingly outdated Internet lingo meaning to beat the competition. The two posters side by side demonstrated a stark contrast in how the college, its potential students, and those students' parents envisioned the difference between studying film production and studying videogame production. Film was depicted as first and foremost a creative

craft that required honing particular skills with particular tools; videogames were depicted as a consumer product that the students consumed. Neither the poster nor the prospective students had a comprehension of videogames as crafted works requiring, as films require, specific skills, tools, tastes, and design methodologies. The poster for the film degree was targeting prospective students interested in making films. The poster for the game degree was targeting prospective students interested in *playing* videogames.

This chapter examines how formal videogame development education perpetuates or challenges the dominant structure of the videogame field, considering in particular what position-takings it legitimizes, and how it encourages or discourages those of different dispositions to enter the field at all. Schools are “consecratory institution[s]” (Bourdieu 1993, 124) that are, at once, where newcomers to a field can experiment with new positions in direct competition with the established positions and where the established positions of the field have their dominance sustained through academic canonization. While a formal education is, of course, not the sole means through which a new cultural producer might take a position in a field, it is a common means through which the field as a space of possibles is presented to potential newcomers. It is through educational institutions that newcomers to a field come to perceive some position-takings as more favorable to their own dispositions and others as less so.

It is only relatively recently that the videogame field has “professionalized” in the sense that a formal qualification is seen as a dominant pathway toward employment as a videogame maker. Up until the early 2000s, pathways into videogame careers were often an unpredictable combination of hobby and happenstance. Traditional pathways typically included either starting as a self-taught modder or working in the notoriously exploited position of game tester in the hope of finding a path into a design role (Deuze, Martin, and Allen 2007; Bulut 2020). Since the early 2000s, however, as the required team sizes of commercial videogame production grew exponentially, and as existing gamemaker labor pools were rapidly burned through by grueling and exploitative conditions, the need for “a constant supply of workers” (Kerr 2017, 17) saw gamemaking transition into a professional identity one can train for. This is unsurprising if one considers the trajectories of aggressive formalization already mapped out in earlier chapters. If it is already difficult to imagine the ability to make videogames outside of a formal job in a videogame company, then it follows that one

cannot access the skills to make videogames without a formal education in order to obtain that formal job. As the videogame field intensely in/formalizes, however, and pathways to videogame production other than formal employment are increasingly seen as legitimate, just what role a formal game development education plays in the field is deeply contested—and endlessly debated among gamemakers, journalists, and educators (e.g., Yang 2018; Wright 2018; Warner 2018). In game development education we can clearly see the contests that shape the frontiers of the field of videogame production. Between the varied foci of students, educators, and institutions are tensions between gamemaking as vocation versus gamemaking as craft; tensions between gamemaking as software development versus gamemaking as creative practice; tensions between traditional studio-publisher models and precarious, entrepreneurial indie models of production; tensions between the subjectivities of gamers produced discursively by companies and the dispositions required of aspiring gamemakers. Ultimately, by looking at videogame development education programs we can see just what positions in the field are presented as more or less preferable to the field's newcomers, and who is encouraged to take these positions.

To explore these tensions, I draw from insights provided by my game development educator, student, and alumni participants, and I contrast these perspectives with how Australian tertiary (or higher) education institutions presented their game development programs in the public-facing material available to prospective students. Here, I am greatly indebted to my research assistant, Dr. Taylor Hardwick, who collected and compiled this data. We began with an official list of Australia's 139 registered tertiary institutions, which the Australian government categorizes as either "public university," "private university," or "other approved higher education institution." Of these, public-facing information from each institution's website was collected from any program or major meeting either of the following two criteria:

- The program or major title includes at least one of the terms *game*, *interactivity*, *interactive media*, or *play*.
- The program explicitly references game development as a potential career outcome.

In total, 120 programs across 42 institutions met the above criteria, of which 81 (67.5 percent) met the first criteria, meaning that 39 programs (32.5 percent)

did not directly reference games in their program name but did advertise game development as a potential career outcome for graduates of the program.² Of the identified programs, 110 (91.6 percent) provided a bachelor qualification or lower.

The first section of this chapter contextualizes the emergence and growth of formal game development education within broader neoliberal shifts in tertiary education toward prioritizing the “job-readiness” and “employability” of students. In Australia, over decades, students and parents have become increasingly anxious about future employment prospects as the cost of education rises and social welfare safety nets deteriorate. At the same time, for universities, the drying up of public funding avenues and an increased dependence on enrollment fees for covering operation costs (and exorbitant vice chancellor salaries!)³ has led to institutional realignments that directly exploit these anxieties by prioritizing employability as the major marker of an education program’s value. It is in this context that game development programs first emerged to, primarily, provide students a *pipeline* into videogame production jobs—jobs that, as we have seen, no longer represent the reality that most videogame production activity happens under. There is a clear tension here between the employment-directed pipeline that has traditionally defined videogame development programs and the nature of self-driven work in the intensely in/formalized videogame field.

The second section considers just what gamemaker dispositions game development programs thus attract and foster under such employment-centric conditions. In the context of hoping to enroll students with vocational ambitions (or at least anxieties), most Australian game programs align themselves with a dominant “gamer” identity through the language used and videogames referred to. As the gamer identity has been exhaustively shown to be highly gendered, this has a particularly limiting effect on who feels welcome in such programs, as well as what sorts of positions in the field students are likely to perceive as feasible.

The third section then considers the difficulties faced by both educators and students in transitioning these “gamers” into “gamemakers”: a different position that demands a different relationship to videogames through different skills and values. Where students often start their courses expecting to be provided an incrementally expanding skillset that will allow them to turn ideas into videogames, educators instead wish to impart more holistic knowledge around creative identity and practice. Finally, in this ambivalent

context, the chapter turns to what the students and their educators imagine their future will entail following graduation, especially in the context where a great deal more students are studying videogame production than there are employed gamemakers. Ultimately, students are shown to be torn between embodying three competing identities as they strive to take a position in the videogame field: the prospective employee, the autonomous and disinterested artist, and the hustling entrepreneur.

The Pipeline

It is no coincidence that formalized education pathways for gamemaking emerged at the same time as the team sizes required to produce commercially viable videogames were growing exponentially. At the height of the field's aggressive formalization in the early 2000s commercial videogames became increasingly technically complex and content-dependent, and so videogame studios required more and more workers skilled in a wider range of specialized technical disciplines. At the same time as studios required larger workforces, endemic poor working conditions ensured few remained at a single studio (or, indeed, in the field) for long. Studios desperately required a much larger pool of potential workers from which they could continuously hire.

As such, many of the earliest videogame development programs emerged as partnerships between large studios and nearby universities, providing a synergy between the needs of employers (for employees) and the needs of universities (for enrollments). For instance, Abertay University in Dundee, Scotland, has since the launch of its first game development degree in 1997 had a close relationship with local studio Rockstar North (originally DMA Designs) which developed the first *Grand Theft Auto* title in the same year. DMA cofounder David Jones was “instrumental” to setting up the university's first game development degree (Abertay 2017), and the university and Rockstar North have a close relationship to this day. The earliest tertiary game development programs in Australia, meanwhile, were explicitly designed to meet employer needs. Academy of Interactive Entertainment (AIE) was established by founders of Micro Forté studio in Canberra in the late 1990s to meet their own employment needs, and then expanded to meet the employment needs of other Australian studios (AIE 2021). Farbs, a 41-year-old solo gamemaker in Canberra, detailed this very direct pathway while telling his own story of how he entered videogame production in

the late 1990s. While completing his studies at AIE, “the Micro Forté people came downstairs and said, ‘We have job openings, who would like a job?’ I put my hand up and got a job.” This is a particularly exceptional case not of a university partnering with videogame companies but of videogame companies cutting out the university entirely to set up their own institution, controlling each end of the education-recruitment pipeline. Nonetheless, it exemplifies the employer-oriented modes in which videogame development programs first emerged.

University game development programs and local large studios thus become symbiotic in a way vividly and cynically detailed by celebrity game designer Warren Spector in a 2008 interview:

We [game development studios] need so many more bodies now. We don’t have the time to train [them], so they need to get that training some other place—and it happens in schools. On top of that, and one of the things we’ve discovered—and this is me being utterly cynical—in the US at least, the education system is less about educating students than making money. It’s just horrifying. The reality is, videogame studies have become so popular that it’ll make a lot of money for universities. So I get what I want—which is a larger talent pool from which to draw with a consistent baseline of knowledge, and universities get more students, which means they make more money which means they’re happy. Which is kind of a win for everybody. . . . Sadly, the games education movement is kind of in its infancy. Most of the [teachers] are either people who can’t get jobs, and if they could, they would—or they’re people who love games, but don’t really have any professional experience (Gillen 2008).

Tellingly here, “a win for everybody” encompasses both employers and universities but seemingly not the students who have been suckered into a system of supposedly (though I suspect not truly)⁴ unqualified educators. What Spector is describing, aligning with broader suspicions among gamemakers toward formal game development education, is a situation where universities and employers are beneficiaries, but students are merely the product.

In such intimate arrangements between educational institutions and videogame companies, the student cohort effectively becomes a pool of human capital that local studios can tap into as required. Education here is presented to students as a streamlined pipeline through which students are taught the skills required of a videogame developer, and then directed into waiting videogame development jobs. As Alison Harvey (2019, 758) has explored, the education-as-pipeline metaphor “evokes a vision whereby if enough force is imposed at one end of the pipeline—be it pumping entrants in or ‘priming’

students for employability—students will inevitably be propelled toward success . . . it affirms a singular, normative direction for students, graduates, and employees to take.”

This is not a situation unique to videogame education, however, and the pipeline to industry has come to be a prominent metaphor for shaping and marketing tertiary education. Where once tertiary education was largely seen to provide a more general level of knowledge and ability that employers could then build on, through the later decades of the twentieth century companies have tried to “break free of their social obligations to employees” and now “prefer to hire workers on a ‘plug-in-and-play’ . . . basis, rather than having to invest in expensive and intensive training before new recruits can ‘add value’” (Brown, Hesketh, and Williams 2003, 114; see also Greene 2021, 10). Over the same time, at least in the UK and Australia, university funding has shifted away from reliable public investment and toward a dependence on the individual fees of students (Pietsch 2020, 237). Together, the demands of employers for ready-to-go graduates requiring no further investment or training, and the dependence of universities on attracting the enrollment fees of students who are themselves preoccupied with eventual employment opportunities, leads universities to narrowly focus on markers and metrics of employability or job-readiness, rather than a more holistic approach to the multifaceted reasons one might undertake further education.

Language of pipelines, job-readiness, and employability, turn the multifaceted reasons for undertaking a tertiary education and the diversity of experiences, directions, and pathways through professional lives into a homogenous pool of human capital simply waiting to be pumped into the needs of a specific industry. Focusing on individual students’ job-readiness or employability forces students into an individualized competition where one needs to be *more* job-ready and *more* employable than their peers (who receive the same education) by networking, undertaking side projects, or further self-education. Subsequently, the inability to obtain employment following graduation, regardless of whether relevant jobs actually exist, becomes framed as the fault of individual students who failed to identify opportunities to make themselves sufficiently employable (Brown, Hesketh, and Williams 2003, 110).

Of course, some disciplines of tertiary education have historically been more vocational than others: few students study accounting, engineering, or veterinary science without intending to commence a career in accounting,

engineering, or veterinary science. For the more traditionally open-ended programs of the humanities, arts, and social sciences (HASS), however, where cultural production programs most squarely sit, the pressure to shift toward job-readiness and to direct students toward identifiable employment gaps has been particularly disruptive. Whereas HASS graduates are just as likely to obtain a job as graduates in science, technology, engineering, and maths (STEM) disciplines (British Academy 2020), a supposed lack of prospective career outcomes of an education in HASS has been a long-running stereotype and public anxiety. The open-ended and generalist nature of HASS education fails to fit into the metaphor of the pipeline—of students directed from Degree X to Job X—and so are seen by employability-concerned students and parents as less attractive, and thus by university administrators and neoliberal governments as of less value to the corporate university.

As both prospective students and their parents became increasingly anxious about the need for tertiary education to lead directly to a job, HASS departments began rebranding their degrees in ways that drew attention to the “job-ready attributes” and “transferable skills” they provided students. One response has been the reshuffling at many institutions of HASS disciplines to fit under a “creative industries” umbrella, which strives to better articulate the innovative value of the humanities and arts to the economy (Cunningham 2014, 10–11). This has allowed a restructuring of tertiary arts and humanities programs away from holistic arts graduates toward job-ready creative industries graduates. As one anecdotal example, my own university, Queensland University of Technology (QUT), abolished its arts faculty in the early 2000s to replace it with Australia’s first creative industries faculty. This falls within the university’s broader rebranding at the time to be a “university for the real world,” a deliberate move to contrast QUT with Brisbane’s other major university, the sandstone⁵ University of Queensland (UQ). The implication to potential students (and parents) was clear: UQ can offer you the sandstone buildings and scholarly debate and campus lifestyle, but QUT knows what employers want. To this day, each undergraduate subject across the university requires at least one assessment of “authentic learning” that is “based on or related to real-world issues and problems.” Of course, the communication and critical thinking skills of the traditional research essay are not considered “real-world” skills here, but rather the skillsets that would be perceived by potential employers as those that would add value to their companies but which they do not want to invest in developing themselves.

This is the context in which formal videogame development education became established as a pipeline through which videogame companies gain access to graduates as a reserve army of gamemaking labor. Just as videogames are a cultural medium native to the era of neoliberalism, the videogame development degree is native to the era of the neoliberal university, along with its emphasis on explicit and direct employability pipelines. But if game development education exists to serve the industry, what happens when that industry no longer exists? In 2016, the Game Developers Association of Australia (GDAA) estimated, through an unclear methodology, that approximately 5,000 students are enrolling in programs at least partly focused on game development skillsets each year, despite the local industry at the time only employing approximately 900 people (*Game On* 2016, 13). The 120 game development programs we identified in our own review is the equivalent of one program for every ten formally employed game-makers in Australia. Further, as we have seen in the previous chapters, the Australian field primarily consists of small, grassroots teams not looking to substantially grow, and who don't require large intakes of graduates each year the same way a large triple-A studio might. What happens to a talent pool of job-ready graduates when there are vastly more graduates than jobs at the other end of the pipeline? If game development education is first and foremost an employment pipeline, it is drastically oversupplying.

The notion that there are now too many game development students to meet the needs of videogame employers is a common claim of those game-makers critical of game development programs and suspicious of the profited ambitions of the universities that offer them. But whereas one might think it unwise to train to become an accountant, engineer, or veterinarian if there were ten times more accounting, engineering, or veterinary science graduates than jobs, the same is not necessarily true for creative fields such as writing, music, or acting. That is, despite the lack of poets making a living from their poetry, students still perceive some value in undertaking a poetry degree. This raises a much larger unresolved question when it comes to game development education, one that cuts to the heart of this book's central concern: do videogame producers exist in the cultural sphere, alongside dancers, poets, filmmakers, and artists? Or do videogame producers belong in the technological sphere, alongside computer scientists, information technology professionals, and software engineers? No straightforward answer exists for such a question, of course, but it is an epistemological tension that

defines the frontier struggles of the videogame field; that underpins how different institutions approach videogame development in terms of pedagogy, course requirements, and graduate attributes; and that ultimately determines whether or not one sees the ratio of game development students to available jobs as a problematic oversupply of an employment pipeline.

The funneling of HASS programs into employability pipelines and job-ready outcomes thus only tells part of the story when it comes to the development of formal education pathways of game development. Also at play here is the ambivalent position videogames have always held between STEM and HASS policy, skills, education, and funding (Cunningham 2014, 34). Of the 120 Australian game development programs we identified, 37 (31 percent) were in a STEM-aligned department and 57 (48 percent) were in a HASS-aligned department, with those in each emphasizing different learning outcomes and potential career paths. Of the rest, 20 (17 percent) were in a games-centric department and 4 had unclear disciplinary homes. Surprisingly, only two programs explicitly framed themselves as collaborations of HASS and STEM departments across the university. While videogames are often advocated as the medium that marries art and technology, in Australian institutions game development programs seem required to make a decision between situating videogame production as *either art or technology*, as either a STEM or a HASS faculty takes ownership of a games program and molds it to their existing resources, staff, and programs. While this is almost certainly due to the mundane practicalities of how universities operate, that Australian game development programs are so broadly split between STEM and HASS departments points to the broader ambivalences around what institutions imagine videogame makers to be—cultural producers or software developers—what skills they imagine videogame producers require, and what identities and employment opportunities will be available to them. It speaks to just what dispositions an institution attracts, what positions within the field are presented as available to students, and what sort of position-taking students are encouraged to take.

Calling All Gamers!

At the start of this chapter, I described an open day recruitment poster at my former college that appealed to potential students first and foremost as gamers, not as gamemakers. Such a move was consistent across the public-facing

material of Australian programs. Charles Sturt University introduces their Bachelor of Computer Science (Games Programming Specialisation) by explicitly “Calling all gamers!” and claiming to provide said gamers a “chance to turn your passion into a career.” As we will see below, this speaks to a general sense of obscurity and mystery around exactly how one might go about acquiring the skills to produce a videogame, and indeed what such skills even are. Instead of focusing on those few prospective students who may have had some amateur experience with videogame production, institutions target the much larger pool of prospective students who are passionate fans of playing games. Playing and making identities and practices become conflated.⁶

Before elaborating on the obscuring of videogame production skills, it’s important to first understand that *gamer* is not a synonym for *player*. As has been extensively explored by game studies scholars, the gamer is a particularly hegemonic and gendered videogame playing identity that speaks, primarily, to the young male audience cultivated by the aggressively formalized videogame field since the mid-1980s as a prominent and stable consumer demographic. There is not room here to adequately explore the social construction of the gamer in detail (see Shaw 2014; Kirkpatrick 2015; Chess 2017) but suffice it to say that when an educational institution is “calling all gamers,” they are not simply calling anyone who plays videogames but specifically those enthusiasts who “live and breathe” videogames, who have a particular passion for consuming particularly commercial genres of videogames, who have a particularly limited and market-shaped notion of what videogames are and how they are made, and who have a particularly masculinist notion of the central, deterministic role of the player within videogame expression (Keogh 2018, 167–192). A passion for and experience of playing a particular kind of videogame—challenging but surmountable, systemically complex, technologically sophisticated, produced in a commercial context—has long been naturalized as the most authentic mode of videogame consumption, and consequentially is also presented by the public information of most game development programs as a preferred disposition for those who wish to study videogame production.⁷

A hegemonic and masculinist notion of the gamer was both a product and a prerequisite for the field’s aggressive formalization, ensuring a predictable and stable consumer base existed for the narrowly commercial titles of this time. Consequentially, gamers notoriously have a limited and selective understanding of videogame production that is highly influenced by marketing

lingo and focused on technological jargon (Arsenault 2017; Nicoll 2019) with little comprehension of the scale, required resources, or creative challenges of producing a videogame. For the gamer, videogame production is imagined less as an iterative creative practice always mediated by tools and skills—for lack of a better word, a *craft* (Keogh 2022)—and more as a highly technical and expert use of advanced computer software to bring already-formed ideas to life. Indeed, this limited understanding would seem to be why formal education has become a popular path into videogame production, as it promises not simply to teach the required skills but to reveal just what those skills even are. A Murdoch University program, the Bachelor of Information Technology (Games Technology), addresses this mysticism of game development directly:

Have you ever wondered how your favourite video games are developed? As a software developer and computer programmer, you'll help turn an idea into a playable video or mobile game. With increasing opportunities in this growing industry, you'll gain the skills needed to work in both the international games industry and the information technology industry.

This program positions itself as not only the sole pathway into videogame production employment but the sole pathway into the competencies, capitals, and skills required to navigate the field. Indeed, employment in the industry and position-taking in the field are presented as the same thing. For the gamers that such material is targeting, as the previous Charles Sturt University program goes on to say explicitly, universities present themselves as “your key to the field of games.”

Tellingly, in the above quote from Murdoch University, after the secrets of game development are revealed to students, they will be able to “turn an idea into a playable video or mobile game.” Videogame production is thus presented to prospective gamer-students as both secretive but also ultimately straightforwardly learnable. Students I interviewed likewise expected it to work this way. When I asked students why they chose to study game development, they frequently began their response with a statement like “Well, I’ve been playing videogames my whole life” and went on to speak about their passionate lifelong engagement with videogames as a gamer. However, many students would then reflect that the actual process of videogame production is very different from what they imagined when they started. In Brisbane, 21-year-old Ash Muir was a part-time solo gamemaker who had graduated from a videogame design program two years before our interview. Muir reflected that when he began his studies he “kind of expected

what I would expect out of just playing videogames: just raw fun. . . . So what I thought was that videogame development was, uh, I guess the equivalent of livestreaming. There's never a day where you're not playing games, right?" Similarly, 18-year-old second-year student Ethan Tilley reflected that "while playing games the past 12 years" he "didn't think it would be this difficult and this much of a struggle to get something working." Most vividly, 26-year-old third-year student Nicholas Duxbury gave the example of realizing "bullets don't just come out." A gamemaker can't simply place elements into a videogame and expect them to work; they have to design the videogame's technical, visual, audio, and ontological attributes from the ground up in complex ways. This level of complexity shocked Duxbury: "When I was young and first getting into games that's exactly how I thought it worked. You just placed these things together and it makes a game." Muir, Tilley, and Duxbury all gesture toward the notion, much like Murdoch University, that when they commenced their studies, as avid gamers, they thought they would simply unlock the skills that would allow them to translate their ideas into products. But over time they came to realize that the process of videogame production is much more iterative and complex. One does not simply drag-and-drop bullets into a videogame; one has to first invent physics.

Teachers similarly struggled with the disconnect between how new students approached videogame production as straightforward and fun and the realities of how complex, iterative, and resource intensive videogame production actually is. Aaron Williams, a 27-year-old teacher in Brisbane, described how this disconnect led to exaggerated expectations of new students as to just what sort of videogame they might be able to produce:

People come on board and they're like "I want to make *Dark Souls*," or "I want to make something like *Super Meat Boy*." "I want to make *Gone Home*." Cool. That was made by people who had a lot of industry experience, who worked within the triple-A sphere, so they knew what went into creating a large-scale project with a lot of people. . . . A lot of students come on board with ambitions of making "*Gone Home* but bigger." And it's like, no, you can make "*Gone Home* but smaller." A lot smaller.

In other words, how gamers understand videogame production to work—as they have largely deduced from gamer culture and the marketing material from publishers rather than from direct observations or experiences of videogame production—is disconnected from how production within the field, through the gradual development of a creative practice, actually functions. As such,

when the marketing of videogame production programs focused primarily on attracting gamers, educators found themselves putting extensive effort, especially in the program's earlier classes, into shifting students' relationship to videogames away from that of a consumer position and toward that of a producer position. Or, as one anonymous teacher put it, into helping students "unlearn" their misconceptions of how videogames are made before they can actually begin learning how to make videogames.

To stress, the issue here is not simply what new students don't know but what they mistakenly *think* they know about videogame production and the process of becoming a videogame producer via their position-taking as gamers with "gaming capital" (Consalvo 2007). Educators felt this was particularly pressing in the Australian context, where graduates had very little chance of finding employment in a larger studio that may look more favorably on narrow technical skills over a broad creative portfolio and open-ended mindset. As one Melbourne-based educator put it bluntly, "If you are a more traditional triple-A gamer nerd, you're kind of in trouble in Australia . . . but if you come in with your own weirdo perspective, you can actually do a lot."

Counterintuitively, it is thus the students who have spent the least amount of time and energy participating in a dominant gamer culture that educators typically find the easiest to teach videogame production, as they don't require the same processes of unlearning before they are willing to take the positions in the field actually available to them. At the time of our interview in 2018, Grace Bruxner, 20, was a student in a game design program at a Melbourne university. Bruxner's small experimental games were already receiving critical praise in the videogame press, and she had already gained part-time work at a local studio in quality assurance. Bruxner described herself as previously being "interested in games, but I didn't like playing them" and stressed that she "was never much of a gamer." Instead, Bruxner enrolled in her game design program because, as an artist, she wanted her audience to engage with her work in a different way:

I found with digital art and 2D art people weren't engaging with my stuff in the way that I wanted them to. . . . But one thing I liked about games is you're sort of forcing people to look at your game for an extended period of time and really engage with it. So maybe that is an ego thing. I just really want people to engage with my work a lot and really look at what I was doing.

Students like Bruxner are the ones with "weirdo perspectives," as the above educator described them. They don't come to their studies with the traditional

gamer expectations and are thus better positioned to take advantage of the program as they do not require the same unlearning in order to fully grasp the space of possibles available to them. Often, they have enrolled in a games program in order to enhance a preexisting art practice, like Bruxner, and thus are better equipped to understand the iterative and nonlinear process of striving for legitimacy within a cultural field. But such students also risk marginalization when contrasted with the gaming capital of their peers who are prioritized both in the official literature and industry-inflected marking criteria of their institutions. While Bruxner was ultimately pleased to discover her university had a proactive student selection process that helps ensure the program maintained a gender equity among the student cohort—exceptionally rare for game development programs in Australia—she was nonetheless “apprehensive about it being male dominated” before commencing: “I was prepared to be ignored or disrespected for my opinions on games.”

Ultimately, Bruxner succeeded and has since obtained critical acclaim and commercial success with her *Frog Detective* series of games. But as Harvey (2019; 2022) reminds us, the games education pipeline is particularly leaky for women and other minorities with its call to gamers and its focus on the fraternal bravado needed to produce the most commercially feasible genres of videogames. Even if educators think the “non-gamer” students are best positioned to take advantage of a formal videogame production education, when tertiary programs are “calling all gamers,” few non-gamers (and, consequentially, few women, few trans folk, few nonwhite folk, few queer folk, and few poor folk) decide to enroll in the first place, and fewer still continue to graduation.

You Will Make Games!

How does one become a cultural producer? The simplest answer, for Bourdieu, is by producing cultural products that are recognized by other producers, by critics, and by audiences as the legitimate product of a cultural field. A formal education is one path through which many come to produce cultural products, but a formal qualification is not necessarily required to earn a living as a musician, an artist, or an actor. One can be recognized as a musician, an artist, an actor, or indeed a videogame maker if one develops, over time, a craft that is itself recognized as the craft of a musician, artist, actor, or videogame maker. Such a craft, however, is not simply applying

previously gained skills to the production of new artifacts. As Glenn Adamson (2007, 4) notes, “Craft only exists in motion. It is a way of doing things, not a classification of objects, institutions, or people. It is also multiple: an amalgamation of interrelated core principles, which are put into relation with one another.” These “interrelated core principles,” however, are not simply determined by the individual craftsperson but also by the broader field within which they operate. As Bourdieu (1993, 63) notes, a “long, collective labor” leads “to the progressive invention of the crafts of [the field].” Or, as Karen Patel (2020, 9) similarly notes of what she calls “aesthetic expertise,” “embodied cultural capital which, when recognized as legitimate, functions as symbolic capital (honour and prestige) and can be synonymous with an authoritative position in the field.” One becomes a cultural producer, then, when one’s activities and practices are recognized by others within the field as that of cultural production.⁸

As such, the profession of cultural producer is “one of the least professionalized there are” (Bourdieu 1993, 43). This is a stark contrast to many vocations that have very strict, legal, and commonsensical requirements of formal qualifications: you probably don’t want to live in a house built by unqualified builders or undergo surgery with a surgeon who has not been to medical school. As already explored earlier in this book, however, the very notion that videogame production *is* a cultural field remains a contested one due to the ability of formalized, commercial videogame production to define itself as the only space in which a position as a videogame producer can be taken. If the students recruited into game development programs are themselves predominately gamers who perceive the videogame industry *as* the entire videogame field, it makes sense that they would in turn understand the role of videogame maker as one that, like the builder or the surgeon, requires specific qualifications and skills *before* one is able to make games when, in reality, as with musicians and artists and actors, one becomes a videogame maker by making videogames until one is recognized as a legitimate videogame maker.

The assumption that one needed formal training as a videogame maker *before* one could enter the field was clear in how few students I interviewed had experimented (or felt it would be possible to experiment) with making games before enrolling to learn game development—a situation that would surely be odd in most other creative disciplines. Some had experimented with level editors, amateur tools, or with nondigital game design but

typically saw these activities as disconnected from the skills they assumed would be required to make legitimate, commercial videogames. Institutions reinforce this sense that formal education alone can reveal the process of making videogames, promising prospective students that as part of their studies they will, actually, make games. University of Canberra's Bachelor of Games and Interactive is the most explicit: "All students that complete the qualification will be given the opportunity to apply their skills and knowledge to the development of creative works. (You *will* make games!)" The parenthetical aside implies that while *other* programs won't actually help you make complete games, in this program you will. We will unlock the secrets of gamemaking for you.

As we saw in the previous section with Muir, Tilley, and Duxbury, students who have a primary relation to videogames as consumers, not producers, enter game development programs under the pretense that they will gain the ability to turn ideas into games once the skills to do so are revealed to them. This is at odds with understanding videogames as a cultural form and their production as a creative, iterative practice. Even in the unlikely situation where a new music student has never before picked up an instrument, one can assume they have a basic understanding that the activity of playing music differs from listening to music. The creative writing student has probably at least tried to write a story or poem, even if they never showed it to anyone.

Educators were commonly frustrated by this situation. They felt that one of their major responsibilities as educators was to help students appreciate what the process of becoming a videogame maker even is to begin with. Williams, the educator quoted in the previous section, pondered how this situation is perpetuated not only by university marketing but by a more general invisibility of the extensive labor, consideration, and iteration that goes into a videogame's production:

On a film project—I'm looking at my Blu-ray of *Mad Max: Fury Road* right now—we can perceive that it required people to take a shit ton of vehicles out into the desert and crash them. That was really hard, and it took a long time. A lot of work went into that . . . We can grasp an understanding of it [even if we don't understand the filmmaking process]. Whereas when it comes to game development, it's also a shit ton of hard work [but] I think for a lot of students coming on board they don't fully grasp that in its entirety. Because it still comes down to this image of a person sitting in a computer chair looking at a monitor, right? That—in terms of

their understanding of what that image constitutes an activity being—is relaxing. It doesn't communicate hard work. If you [were making a film and you] wanted that shot in the desert you had to head out to the desert and grab that shot. If you want to set your game within a desert, you have to construct all of the necessary assets to effectively communicate that you are in a desert. And that's not just getting a really good painting of a desert and placing a really good character controller inside of there, right? You have to consider how's this going to feel, how can we correctly approximate the feeling of being in this environment? . . . It's fucking hard! It takes a really long time, and I think for a lot of students coming on board it takes a while to sort of develop that understanding of "Oh, I'm not just going to sit at my computer and magic is going to happen. I'm going to need to work hard at this, and it's going to take a long time."

Just as Duxbury came to realize that you can't simply drag-and-drop bullets to create a videogame, and as Muir came to realize the process of making videogames is not the equivalent of playing videogames all day, here Williams outlines a much more pervasive confusion where the intangible, digital nature of videogames obscures even a basic layperson comprehension of the skills, craft, and labor of videogame production.

New students, and the marketing of the institutions that helps to attract them, thus have the process back-to-front. They think they need to learn the skills so that, as Williams puts it, they can sit at their computer and let the magic happen. But in reality they need to begin making videogames—probably bad and derivative ones—in order to begin the long process of getting better at making videogames and slowly developing a legitimate position within the field. Educators thus found themselves spending effort and time getting students to think of themselves as *already* videogame makers before the creation of any one legitimate videogame. Tony Parmenter, 40, teaches at the same Brisbane college as Williams. Parmenter reflects:

What I came to realize, and I say this explicitly to students who I'm teaching, is that I'm not here to get you a job in the games industry. I'm here to help you learn how to make games. I'm here to help you become a game developer. And if I do my job right, by the time you graduate, you will already be [a game developer] because you will already be making games. More than one game. You will already have things to your name. You will already have things that other people have played. You will already have things online. You will already be trying to talk to people and get feedback from them about the things that you made. You may not be getting paid for it yet, but you have the skills and you are doing the thing. And that's worth something.

Teaching game development means teaching students how to take a position in the field of videogame production—or perhaps more so, it means shifting students away from thinking of videogame developer as simply a job one obtains after one gains the necessary qualifications, and instead teaching students just what positions are available to be taken, in the present tense, by producing videogames now. To put it simply (and in words that I would regularly use with my own students), one does not simply learn how to make videogames and *then* make videogames. One makes videogames badly and, in the process, becomes better at making videogames.

Williams explained the challenges of getting students to think of their own practice in this way, in part because of the popular narratives surrounding videogames that emphasize a creator's eventual commercial success and not the extensive noncommercial work that preceded it:

The thing that always shits me when I hear people talk about *Super Meat Boy* and talk about the significance of *Super Meat Boy* is, like, you're negating the fact that Ed McMillan [one of the developers of *Super Meat Boy*] made 30 to 50 things beforehand that were all made for nothing, released for free, and had very little attention in the beginning. . . . But I don't think we go through those stories, I don't think we look at those small, weird, experimental trash art games that developers start off with. That you *have* to start off with. . . . You start off making these small, weird ideas that go nowhere and do very little but [are] where you identify who you are and what you want to make so that you're prepared to tackle that larger project, so that you can put more stringent restrictions on what your bar of quality is. But you need to do the work. You need to put in the effort to do small things, to throw shit at the wall and see what sticks, before you can reach that point. But I don't think we communicate that as an industry globally. As an industry I don't think we communicate that there is a starting point for this.

Thus, the teachers and the program marketing are themselves in agreement that it is crucial that students actually *will* make games. But where they differ is in the types of videogames that they insist students should be making: the commercial, polished videogames of an industry (an end point), or the small, rough videogames of a novice first entering the field (a starting point). The institutions market game development as a skill that will be revealed. The educators instead present game development as the practice of game developers and see the games that students make during their studies as the first steps toward a position-taking that, over time and with much practice, might become legitimized.

In other words, game development educators are interested, primarily, in *producing videogame producers*, in teaching students how to take a position in the field, or in teaching students “how to teach themselves” as one anonymous educator put it. Educators are priming students to undertake the act of position-taking in the videogame field, to understand that videogame production even *is* a cultural field that requires position-taking, that this is more than simply an industry where one gets a qualification and then subsequently gets a job. As an anonymous educator put it:

So I think the best students realize they aren't students. They're just out there; they're cool; they have friends, and of course those are the people who get hired because they're already known as dependable. Part of what it means to be successful in this kind of highly networked, contractor, entrepreneurial-whatever-artistic mix is just being a cool person out there.

Game development students are, in this educator's telling, quite unlike software engineering or information technology students who gain a suite of skills, formalized in a qualification, and then get employed to use them. Instead, they are like novice cultural producers who are given some introduction to the skills, networks, ideas, movements, and tastes required to start producing cultural works and who in the future might make better cultural works. Whether or not they get paid to do so is another question.

PWN the Opposition

At the annual Game Developers Conference (GDC) in San Francisco, the two-day Education Summit brings together game development educators to share knowledge about pedagogy, industry partnerships, and career pathways. At the 2019 Education Summit, I presented a talk called “Are Games Art School?: How to Teach Game Development When There Are No Jobs” (Keogh 2019a). The talk was inspired by the debates that regularly play out on Twitter and in videogame production mastheads as to whether or not it is ethical for educational institutions to enroll so many game development students when, in most cities around the world, there simply aren't enough game development jobs for them. The title was an intentional provocation against the general assumption, detailed earlier in this chapter, that game development education should exclusively be about funneling students down a pipeline toward employment. I instead suggested there might be

other ways in which a game development education could be valuable. My argument, echoed throughout this chapter, was that we don't (or at least shouldn't) stop offering poetry programs simply because there are no poetry jobs, and we shouldn't stop offering music programs despite the small number of music graduates who will ever become full-time musicians, so why should game development be any different? The crucial difference, I argued, was that poetry and music students typically know, vaguely at least, that they are receiving an education to enter a cultural field with its inverted economics of disavowal and disinterest, whereas game students, as we have already seen, often too straightforwardly believe they are receiving a qualification for a technical job. Most music students surely optimistically hope they will be the lucky one who actually makes it, but a game development student might not comprehend that luck will have anything to do with it at all. "Teaching game development when there are no jobs," I argued, means teaching game development students to be the right *kind* of videogame makers to survive when employment opportunities don't exist: as entrepreneurial cultural producers—or, what amounts to the same thing, as artists.

As it would turn out as I undertook this book's interviews, I was far from the only educator that felt this way. We've already heard from Parmenter, who stresses to his students that "I'm not here to get you a job in the games industry. I'm here to help you learn how to make games. I'm here to help you become a game developer." An anonymous educator was much blunter on the point that it was not their responsibility to get students employed by a videogame company and echoed Robert Yang's comments quoted in chapter 3 that not commodifying gamemaking activity is an acceptable outcome for their students: "If 100 percent of our graduates didn't work in games but either got something out of it or made smallish games for free in their spare time and that was a useful hobby for them, and they become fucking, like, garbage collectors or accountants or whatever I would say mission accomplished." Educators widely insisted that their responsibility was to teach game development, not to get students employed in game development. I suspect most educators in making such claims imagine themselves reacting—much as I was when proposing my GDC talk—to debates in the field among gamemakers that regularly question the ethicality of game development programs and the ability of game development educators.

Such frustrated responses by teachers make even more sense when one considers them to be counternarratives to what their institutions have

promised students, particularly in the context of the previous chapters, which have painted a picture of working in the contemporary videogame field as highly precarious. In contrast to the unpredictable nature of finding work in the videogame field, prospective students (and, just as importantly, the parents of prospective students) are reassured by institutional marketing that careers exist on the other side of their studies and that they will be employable for those jobs. Much like policy and trade association reports, Australian educational institutions do this by regularly drawing attention to how much money videogame production generates globally:

Angry Birds. Candy Crush. Minecraft. Call of Duty. Grand Theft Auto. Thanks to each of these, the gaming industry today is worth billions of dollars. . . . This degree will equip you with the skills you'll need for a successful career designing and creating the next wave of popular video games and virtual worlds. (Macquarie University, Bachelor of Game Design and Development)

The immersive media wave is growing, with virtual, augmented and mixed reality set to explode. Exciting opportunities are emerging everywhere—from marketing, entertainment and digital art, to training and education. And then there's gaming, which now generates over \$134 billion annually. (University of Adelaide, Bachelor of Media [Immersive Media])

In these highly typical justifications for why one should undertake a videogame development education, the impressive economic value of global videogame production is boasted while any mention of the disproportionate concentration of this revenue in a small handful of North American, Chinese, and Japanese companies, or of the relative dearth of employment opportunities within Australia, is conveniently ignored.

Institutional framings of game development education obscure the reality students will face after their studies further through a vague focus on the opportunities a student might be able to take advantage of, rather than a more explicit outlining of clear career pathways:

Game of Thrones fans, *Fortnite* addicts and Pixar lovers, turn your passion into a successful career in the exciting world of film, television, gaming, and digital design. . . . you'll acquire the skills, mindset and contacts needed to reach the top of your game in your dream career. (Flinders University, Bachelor of Creative Arts [Visual Effects and Entertainment Design])

Today, having the right skills and evidencing qualifications are insufficient to ensure a graduate is employable. As this university alludes, students don't only need skills but the "mindset and contacts" required for success. As a

human resources manager told Philip Brown, Anthony Hesketh, and Sara Williams: “Academic qualifications are the first tick in the box and then we move on” (2003, 120). In a time of self-enterprising portfolio careers, a student must be *more employable* than their peers who are obtaining the same education, and so must exit their studies not simply with a qualification but with the right mindset and established professional networks. In the above university’s instance, this is promised through formal industry partnerships and contacts, reiterating Daniel Ashton’s (2009, 292–293) finding that videogame production students often place more authority in industry representatives than in their academic educators.

Students striving to identify a pathway into the videogame field thus find themselves caught between the overly optimistic but strategically vague framings of videogame production by the institution, and the overtly pessimistic counterbalance provided by their educators. These competing pressures and expectations were felt and internalized by students in a variety of ways. Some were clear-eyed, verging on pessimistic themselves, about the lack of job opportunities, and put this down to the warnings from their teachers. This included Zachariah Chandler, in Melbourne, whom we heard from in the previous chapter:

I’m pretty sure the first lecture I went to, like the first thing they said to us was “Guess what? None of you are going to get a job ever.” And I took that completely at face value. Like, yeah, it’s an arts degree. It’s probably worse than the graphics design and the programming degrees on their own because they’re an art form. No one pays artists. No one cares. . . . I think it’s been a repeating motif among the lecturers. I don’t think it was just said once. I think it’s been hammered in pretty well.

This sense of defeatism in terms of employability carried through into the careers of gamemakers after they graduated. In Melbourne, Alexander Perrin, 26, and his colleague founded their own two-person company after their studies. When I asked Perrin why they took this route, he replied, “Probably because it was half-drilled into us by all the teachers that [getting a job] just wasn’t going to happen.” In these cases of students hearing and adapting to the warnings of educators who themselves are trying to counterbalance the misrepresentation of employment opportunities presented by their institutions, we can clearly see how, as Harvey (2019, 761–762) details in the UK context, trying to prepare students for reality as a gamemaker can also lead to students internalizing a “labor bravado” that embraces precarity

and uncertainty, and makes game development education “a sort of formalized school of hard knocks” where little economic return for autonomous creative gamework is naturalized.

The grim realities of how unlikely they are to find employment in the videogame field lead many students to adopt (and many teachers to encourage) an entrepreneurial mindset that, in addition to producing videogames, insists students network within their local community and hustle on side-projects external to their formal assessments—in a way not actually dissimilar from Flinders University’s above promise to provide students “the skills, mindset and contacts” required for success. Benjamin Drury, a 23-year-old student in Brisbane, deflected my question asking what sort of position he hoped to be employed in after his graduation. Instead of having concrete goals of specific companies or positions he wished to be hired for, Drury would “rather spend more time working on getting connections. . . . I don’t really care who I work with, as long as they’re cool people and they’re making a cool thing.” Bruxner in Melbourne, meanwhile, explained how she had been “consistently hustling” throughout her studies “because I went into the course knowing how difficult jobs are.”

I had no expectations of getting a job. . . . I just know it’s a difficult industry, and I still feel a lot of students don’t. I had a conversation with someone a few months ago, my friend had just lost his job and we were just talking to another student and she’s like “Oh, you’re going to get a games job?” as if it’s just something you can just go and get.

Even as institutions’ and educators’ framings of videogame production are starkly at odds, both ultimately frame videogame production as an unpredictable but passion-driven vocation that demands an entrepreneurial position-taking to develop the networks and mindsets required for success—or at the very least for survival.

As Bruxner also suggests, however, many students certainly remained unaware of the difficult situation facing them after their studies. When asked what their plans were after they finished their degree, many were simply pinning their hopes on the internship offered in their program’s final year to turn into a paid position, or they thought they would find a job at a local indie company to get experience before applying for triple-A positions overseas—a career pathway that is certainly uncommon.⁹ Importantly, however, a disinterest in future employment should not imply such students are necessarily

naive. Many students simply didn't want to think about future employment and were instead just embracing student life as its own important period of their life.

Ultimately, and unsurprisingly, many game development graduates aren't employed by existing videogame companies. A 2019 survey of game development graduates by the Higher Education Video Game Alliance (HEVGA) with participants overwhelmingly (89 percent) from the United States found that only 54 percent of respondents were working at videogame companies.¹⁰ But if we can safely assume most graduates are also not making a living off independent work, as the previous chapter would suggest, then where are all the graduates going?

This isn't a question I can definitively answer, but it is worth noting one further strategy educational institutions take to market the employability of their videogame production graduates: highlighting the flexibility and transferability of videogame production skills. While each program is primarily interested in attracting students who, through their passionate consumption, want to obtain employment as videogame makers, they also often tacitly admit how unlikely this actually is. In addition to the excitement and value of videogame production jobs, many of the courses also note the transferrable skills imbued by their program, or the extensive range of economic sectors now looking to take advantage of game design methods and software:

The games industry is experiencing substantial growth and the ubiquity of games means that there are not only more jobs than ever available in the entertainment games space, but that companies in other fields are looking to skilled games graduates to create digital experiences for their business needs, such as simulation, training, or education. (Murdoch University, Bachelor of Creative Media [Games Art and Design])

Games developers design, create and produce computer and video games and other graphically based software in a range of industries. . . . This degree also prepares you for work outside of games and digital media to give you broad career options. You can work in health, defence forces, education and automotive, and could join our graduates who are designing everything from simulators to medical imaging. (Federation University Australia, Bachelor of Information Technology [Games Development])

Game development programs advertise a diverse range of potential job outcomes of their programs beyond the videogame industry, such as software developer, technical architect, security architect, UX designer, web designer, mobile app designer/developer, and visual effects artist. In a less grounded

but similar vein, program descriptions also draw attention to a general sense of unpredictability in terms of the future—an anxiety many students feel personally—but reframes this as a means of potential, adventure, and opportunity: “You’ll graduate with the expertise needed to find work in this flourishing creative industry and, more importantly, the knowledge that you can adapt to whatever the future holds” (University of Canberra, Bachelor of Arts [Digital Media]).

Claims that students will possess “transferable” skills sits squarely alongside the language critiqued earlier in this chapter of job-readiness and employability. As universities become more financially dependent on the career pathways of students, HASS disciplines in particular become pressured to speak about their students’ learning outcomes less in terms of general knowledge and more in terms of concrete skills that can be exploited by a potential employer (Bridges 1993). The traditional humanities education, with its organic and multifaceted pathways for students, is usurped by a need to ensure “the practical competence or capability of students” (Bridges 1993, 44). “Transferrable skills” thus becomes a language through which traditional humanities and social science education contexts can speak the language of employability and make a case that the “skills” of the humanities and social sciences (critical thinking, communication, problem solving, and so on) have a value for the broader economy. While an accounting student’s accounting skills have clear value for an accounting firm, a poetry student, if they wish to be employed, needs to be able to make a case for some sort of learned skill that is transferrable out of the poetry context. For game development programs, gesturing toward a general transferability of game development skills provides a way to reassure anxious students (and, perhaps even more so, their parents) that one way or another, there will be *some* sort of job available on the other side of the degree—even if the institution can’t say exactly what that job might be.

The following chapter will consider those gamemakers who transfer their skills into other sectors in more detail. Here, though, it is worth noting that just how this transferability of skills into other jobs and sectors could be achieved was unclear to current students, and typically wasn’t something they had thought much about before I explicitly asked. Students studying more programming-aligned courses (more often those embedded within STEM faculties, such as computer science) had an easier time seeing how they might seek employment beyond the game industry, considering how

the programming languages and software environments often overlapped. Students majoring in more specific roles such as animation or audio could also see how the same skills could easily fit in other areas of media production that similarly use the same tools and processes. However, the majority of students in more nebulous “game design” tracks struggled to imagine how game design skills might serve them beyond game development jobs specifically.

Ultimately, between the marketing of the programs, the preexisting expectations and consumerist identities of students, and the attempts of teachers to prepare their students for the realities of survival in a precarious and unpredictable cultural field, student gamemakers are torn between three competing professional identities: *employee*, *entrepreneur*, and *artist*. They strive to become employees by focusing on building the skills perceived to be most desired by imagined employers (in or beyond videogame companies) and by building their job-readiness before entering the pipeline. They strive to become entrepreneurs so as to create their *own* jobs at the other end of that pipeline, complementing their game development skills with business literacies, bolstered portfolios, professional networks, and self-driven mindsets. They strive to become artists who can build a creative identity through the iterative development of a craft and by accruing the necessary cultural and social capital in place of unavailable economic capital. The competing demands, dispositions, and available position-takings of each of these professional identities remain unresolved in videogame development education as a pathway into the videogame field, with different programs placing more or less emphasis on each, but always torn between all three. In each instance, students are effectively told that success is up to them, and that they need to be *more* employable, *more* entrepreneurial, and *more* artistic than their peers—an individualized competitiveness very much in line with my former college’s poster that promised students they would “PWN the opposition.”

Conclusion

In Melbourne, I interviewed Christian McCrea, a 39-year-old educator who had been involved in the development, delivery, and directing of game development programs at several universities. I asked McCrea about the perception held among gamemakers that educational institutions are exploiting students to profit off enrollment fees while not making students job-ready for videogame production work—never mind the fact that even if they are

job-ready, there are too many students for the needs of local companies anyway. McCrea, like many educators, pushed back on this:

More important than job-readiness is why do the job-ready not go for the job? The Australian games industry would be stronger if they did. We'd be making more money as a country if they did. . . . Why are these very talented people walking away? Sometimes it's a really obvious answer. They hate the culture of game development work. They don't want an unstable work life. . . . Sometimes it's personal but often I think it is systemic. . . . So historically games industry luminaries have said, "Here's a skills problem" and I've always thought, well, you've got a pipeline problem. You've got a flood that hasn't been tapped correctly. You've got skills out here that exist in the world, provable skills, but they're not applying [for jobs]. There's no skill lacking. . . . That skill and talent is being burnt out.

In McCrea's reframing, the problem is not an inability of educational institutions to provide the graduates that videogame companies need, but a failing of videogame companies to produce a culture that adequately welcomes, fosters, and retains the skills of Australia's junior gamemakers. McCrea's redirecting of the problem to the feet of videogame companies themselves is an important reminder of Brown et al.'s (2003, 110) point that evaluating a student's job-readiness is itself a form of victim blaming that demands the student adapts to the demands of employers, rather than asking what it is employers are or are not doing themselves to attract, invest in, and retain graduates.

Christian continued, providing examples of various highly talented graduates he knew who either left videogame production entirely because of the toxicity and precarity of the field's culture, or who were working away quietly on their craft in "hidden nooks and crannies of skill, talent, and ideas" beyond the purview of local companies. The pipeline metaphor of tertiary education, Christian emphasized, needed to be considered more critically and literally:

What's a pipeline in the real world? A pipeline is a private contract built over public land. It's two companies, privately owned, wrecking public land between them. . . . The university is a private corporation, and the company is a private corporation. What's the thing in the middle being wrecked? What's being driven over the top of? There's a web or pool of skills and talents and interests that's there, that is in the world, but which has no outlet. . . . [There is] a huge web of game development knowledge and skill [in Australia]. There are people who worked on multiple triple-A games who can't find work. There are many many many talented developers in Australia who can't make the rent. Adding more students to them is not

a problem. It doesn't actually hurt. You're making something bigger. But like, again, if you think about it as a pipeline you're only thinking of two ends of a transfer. That's crazy. That's not how value is represented. . . . It's about the field. You just talk about the field rather than the sector.

It was in this interview with McCrea that the seed of this book's focus on the broader field of videogame production first came into focus for me. McCrea's call to step away from the pipeline metaphor, to think of the role of videogame development education more holistically than simply pumping students into the industry, serves as a broader call for us to better articulate, as this book is striving to articulate, the nonlinear pathways into, through, and out of the field of videogame production.

Formal videogame development education programs, with their contesting of employee, entrepreneurial, and artistic student outcomes, exemplify the broader conflicts over the frontiers of the field of videogame production in its current, intensely in/formalized state where a wider range of positions and position-takings are contesting legitimacy than ever before. Formal videogame development education programs reinforce and reproduce the dominant structure of the field by focusing on the employment pipeline first and foremost, and working to primarily attract and legitimize students of a gamer disposition while discouraging and disavowing potential students of other gameplaying dispositions. But, despite this, they are also a site where newcomers can experiment with new positions that challenge the existing structure of the field. The trick, for researchers, educators, and students themselves, is to consider the whole space of possibles presented by the videogame field and the various pathways available for taking a position within it, not just those at either end of the industrialized graduate-employee pipeline.

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