2003 IGDA Academic Summit

Concluding Summary

Ernest W. Adams

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Ernest W. Adams
Game Design & Development Consultant
http://www.designersnotebook.com

Introduction

First I'd like to thank Jason Della Rocca and the IGDA Education Committee for inviting me to deliver this summary. I need to begin with a few disclaimers. I'm not used to writing a half-hour lecture on the fly, so these remarks are perforce unrehearsed. Also, I'm afraid that in the course of the Summit I didn't catch everyone's name. I can't give proper credit to everyone who contributed good ideas here, for which I apologize in advance.

I need to warn you that this summary is going to contain a certain amount of my own opinion—I am, as you can tell, inordinately fond of the sound of my own voice. Also, as a game developer my remarks are necessarily going to be directed *from* the game industry *to* academe—when I speak of "us" and "you," I will mean "us game developers" and "you academics."

Just to introduce myself: I'm a game design and development consultant, and I worked for Electronic Arts for eight years. I'm also one of the original founders of the IGDA, and I have had a longstanding interest in improving relations between the academy and the game industry.

I've divided my remarks into categories of identified problems and proposed solutions.

Problems of Communication

My first major category, and to some extent the reason we're all here, is problems of communication.

Information Transfer Between Industry and the Academy

Obviously we have a big problem to establish communications between the game industry and the academy generally. We need a big fat pipe that runs between the two of us, and most especially, everybody must know where it is. In graphics, it's SIGGRAPH. In AI, it's the AAAI. The game industry has Gamasutra and the GDC, but as has been observed, there is a tendency in game development to keep our best stuff secret. Academics don't know where to go to read about us; we don't know where to go to read about their work. There are academic conferences, including discipline-specific ones, but we don't tend to find out about them. We need *one* place where we *both* go.

SIGGRAPH is a possible answer. It's the one academic conference that industry *does* go to.

Problems of Language and Terminology

A number of our problems center around difficulties with language and terminology.

Job Roles and Descriptions

Several academics have complained about the lack of standardization in job roles in the game industry, as there is in the film industry. I'm afraid you are simply not going to get a hard-and-fast definition of job roles. The reason that every movie ends with an identical set of credits is that those job descriptions have been negotiated by the Hollywood unions and craft guilds. We don't have those, so we don't have hard-and-fast job descriptions. We have general classes of skills—a producer is not a programmer is not an animator—but I can be a Senior Producer at one company, an Executive Producer at another, a Supervising Producer, a Line Producer, and do the exact same job at each one. I can also be a Senior Producer at three different companies and have very different responsibilities at each one. It's all a matter of negotiation and company culture.

Craft Terminology

Craft terminology changes continuously, but it's moderately universal across the industry at any particular moment in time. If you don't know what Phong shading is you can find out by asking any industry graphics programmer. Soft science terms and game-theoretic terms are our real problem.

About two months ago I got in a big fight with a famous game developer about the meaning of the term "gameplay." To me it *does* including the setting of the world; to him it doesn't. To him all side-scrolling platform games have identical gameplay; to me, they don't, because Sonic the Hedgehog is set in a different world from Super Mario Brothers and the nature of the fantasy counts to me. This is a good example of the problem, and it's just as much of a problem within the industry as it is between the industry and the academy.

In my opinion, this is what peer reviewers and journal editors are for. In other disciplines, especially scientific disciplines, a common terminology arises because the journal editors insist upon it. I would urge those of you who are starting to edit journals—Espen Aarseth of *Game Studies* and Mike Van Lent of the *Journal of Game Development*—to take a firm line on this. Textbooks will also help to some extent here. It doesn't matter if you don't make the optimal decision, as long as you make *some* decision and stick with it—and best of all, if you talk to each other and agree between the two of you.

It would be good to have a game dictionary, but it must be backed by a prestigious institution, just as the Oxford English Dictionary is backed by Oxford University. That way it will attain the credibility it needs to be universal.

Problems of Academic Processes

My next major category is problems of academic processes.

Funding

The electronics industry, the pharmaceutical industry, the chemical industries all know whereon their bread is buttered, and they are prepared to pay for a close relationship with academe. The movie studios, on the other hand, do not pay for film schools. Film schools are paid for by the students, and by large cash donations from grateful alumni. Steven Spielberg and George Lucas make personal donations to the USC film school, but 20th Century-Fox and MGM do not.

At the moment, you guys don't have any grateful alumni, because none of your alumni have yet gotten rich. In ten years, when some of them have, that's the time to hold out your hand.

In short, I don't think you're likely to get infusions of raw cash from game publishers, any more than book publishers pay for English departments. The benefit the industry has to gain from academe is not as clear-cut as it is in the electronics industry. Instead, you need to angle for sweetheart deals on software and hardware from tools vendors—the people out there in the GDC trade show. They have a more clear-cut incentive to cooperate; the more people who learn to use their tools, the more demand there will be for them.

Places To Publish

Another problem the academy has is that it needs legitimate, peer-reviewed publication outlets so that professors can get tenure. I can tell you right now that the industry doesn't have the foggiest clue about this. We don't know what standards are required or how to go about it. This problem is up to you guys.

Coping With Student Expectations

Several people have pointed out that there's a tension between vocational training and broad-based education. A good many students want intensive training that will help them get a job in the game industry as fast as possible.

My own feeling is that you can let the nature of your institution determine that. If you're in a four-year institution, then stand up for the principle of a liberal education, and don't apologize for it. If the kid wanted an Associate degree in coding, then he went to the wrong place. You can and should try to persuade them of the benefits of a broad education, but don't apologize for it and don't make exceptions. That's what you're there for.

Tell them: there are very few 40-year-old programmers in the game industry, because it burns people out too fast. If programming is all you know, then when you burn

out, you're not going to have any place to jump. (Students all think it won't happen to them, of course.)

Lack of Development Tools for Consoles

Academic institutions can't get hold of development tools for consoles, because you have to be a licensed developer to get them. Fortunately, this problem is beginning to ease a bit. The Microsoft Xbox is based on PC technology, and you can now program the Sony PS2 using its Linux kit without a development station. This enables students to get development experience on these devices without having to have development stations.

In any case, this is primarily a problem for trade schools; those schools that concentrate on research and general skills aren't seriously affected by it.

Interdisciplinary Nature of the Work

Another problem is the extremely interdisciplinary nature of the work. Turf wars within academic institutions make it difficult to set up programs. We've heard during the summit that a professional certificate program is easier to get approved than a full degree program. We've heard several useful suggestions about this:

- Try to find a champion as far up the academic ladder as you can, because they will be able to cut across departments and programs, and adjudicate turf wars.

- Within academic institutions, emphasize that there is synergy to be obtained from working to exploit all these students.

- Instead of having turf wars in which different departments try to siphon off the students who have particular interests, and nobody gets a thorough grounding in the whole development process, try to persuade the departments in question that there is benefit in cooperation.

- Try to use grassroots efforts to amplify students' desires to the point that the faculty hear about them. Starting a local chapter of the IGDA automatically creates a sort of pressure group. Reaching the students' parents is also helpful; the parents can also bring pressure to bear on the institution.

The universities that solve this problem and successfully establish an interdisciplinary program will get the students, and those that do not will lose out. It's as simple as that. If you want to serve wanna-be game developers, you have to establish a program that wanna-be game developers can use.

If you can't persuade your Dean to do it on high-minded pedagogical grounds, you'll have to resort to baser instincts. Say, "Dean, Carnegie-Mellon is going to kick our ass if we don't get our act together on this." If the Dean doesn't care whether Carnegie-

Mellon kicks your ass, then there isn't much you can do about it. But it is to be hoped that the Dean will like the idea of kicking Carnegie-Mellon's ass instead.

Curriculum Development

Everyone is still trying to figure out what should be in a game development curriculum. We heard several useful suggestions from Ariel Comstock of the EGADS group in Austin, Texas.

- Research your existing course catalog to see what you've already got.
- Ask students about their own experiences with those courses.
- Identify supportive programs and individuals within the institution.
- Research your competition. See what other colleges are doing.
- The IGDA effort is really the best resource available.

Databases!

So many databases have been proposed over the last two days that an impartial observer could be forgiven for thinking that this Summit was sponsored by Oracle. Anyway, the answer to a lot of problems seems to be to create databases. We've heard suggestions for databases on all of the following subjects:

- Bibliography
- Vocabulary
- Research problems
- Academic job openings
- Internships
- A speaker database of guest lecturers.

What Industry Needs from Academe

Now I'm going to talk for a bit about what we've heard that industry needs, and I'll include some of my own thoughts as well.

A Mechanism for Informing the Academy of What We Need

The problem is that 90% of what we need, we need by July so we can get it into the product for a November ship. Our longer-term needs are much less well-defined. I

think we really need a journal called the *Journal of Really Hard Game Research Problems that Industry Is Too Busy to Solve*.

Code, Cred, Theory, People

Someone summed it up very well at the previous year's summit: the game industry needs code, cred, theory, and people. I'll go through each of these in turn, from least to most important.

Code

Code is working software that does things we need. Code is actually the least useful to us. The code cannot be a purely theoretical research project. We need good code that's bug-free, optimized, and parameterized so it handles general cases, not one particular special case.

Unfortunately, when we need game code, you can't produce it on demand. By the time you've got it ready, we don't need it any more.

Tool development is of longer-term value, and the code doesn't have to be as polished as a game.

Your best bet in this direction is probably long-term research on known problems. Pathfinding. Strategy and tactics in situations of imperfect information. Two good examples we heard about are David Ranyard's Facial Animation collaboration between Sony Computer Entertainment Europe and Oxford University, and John Laird's SOAR project at the University of Michigan. These kinds of things have a better chance of catching our attention.

People

We need well-trained mature people who above all can work in a collaborative environment. The rumors you've heard are true: game companies really do hire brilliant 16-year-olds with no degree. What is less well-known is that those kids usually self-destruct after 6 months to a year. They burn out, they go off the rails, they lack the maturity to sit down and keep on grinding out the work even when they're sick to death of it.

Even a big publisher like EA only needs five or six Einsteins in the whole company. What we really need are competent, self-motivated team players. Make your students work together, and grade them on how well they did.

Theory

Theory helps in the long run but not the short run, and I'll be blunt: we're not going to pay you for it. If you can do for game design, community design, and art direction what SIGGRAPH does for graphics programming, then we will be very happy.

What we really need you to do is push the boundaries of game design, because *we cannot do it.* We can't afford it and our corporate masters don't approve of it. As someone said yesterday, we need you to find out for us whether the water is deep or shallow and where the alligators are.

For example, if I ran an academic program I would absolutely forbid the students from developing a first-person shooter. First-person shooters are a solved problem. Don't waste your time. Of much greater use to us are:

- Cross-cultural research into playing styles and consumer preferences.
- Computer-human interaction theory.
- Community-formation dynamics.
- Business models.

Cred

This is something you can't actually do anything about, it will just happen. The single most important long-term benefit that you can provide us is cultural credibility, because that will help to get people like Judge Stephen Limbaugh off our backs.

A Warning from Industry to Academe

I gave this warning at GDC Europe, but it bears repeating. This is a highly personal opinion.

To those of you who come out of dramatic and literary criticism: if you do to this medium what you have done to literature and drama, then communication between us is at an end.

I'm sorry to sound like a Philistine, but I don't have the time or the interest to read through the reams of self-indulgent masturbatory navel-gazing that constitutes most academic criticism. Articles full of words I've never heard of and which are defined according to a peculiar lexicon that is only meaningful within the confines of your tiny little field, are of no use to me.

I come from a family of academics; I'm sympathetic to academics and the educational process; but I also come from an old-fashioned school of belief that the purpose of teaching is to impart knowledge and understanding, not to show off your vocabulary or impress your peers. I don't care if it *does* get you published in *Social Text*. Don't do it.

Conclusion: We Are a Self-Selected Group

It's not actually that difficult for those of us in this room to agree on what we want from industry/academy cooperation. We're here because we want to be and we believe in it. The problem is the Dean of the College of Humanities and Sciences who hears the term *video game* and thinks "ah, yes, Pong", and the Vice President of Production who hears the word *college* and thinks, "ah, yes, Freshman English and slideshows about Michelangelo"—neither of those guys are here.

The people in this room represent a tiny fraction of 1% of the game industry, and a tiny fraction of 1% of the academic community. So, no matter what we decide our highest priority is, our *real* highest priority is evangelism in both communities.

There's a tremendous potential synergy between industry and academe, but in order for it to happen, we have to make the connection. I'm sure we've all seen the electrical equipment in the old Frankenstein movies. You know the device that has two silver ball-shaped electrodes, and a spark jumps across the air gap from one to another? In order for that to happen, you have to drive up the voltage to the point that it overcomes the resistance of the intervening air. The rule of thumb is that for every inch of distance between them, it requires an additional 25,000 volts.

So if the game developers in this room are one electrode, and the academics in this room are the other one, our colleagues who are not here with us represent the air in between. The Dean of Humanities and Sciences. The Vice President of Production. They're the source of resistance.

We can do two things about this. First, we can move the electrodes closer together. That's what we've been doing here. Second, we can turn up the voltage. It's up to us to generate a big enough spark to overcome the resistance.

As we conclude today, let us resolve to go back out there and shock a few people.