

Cogswell College 2012 Commencement Keynote Address

delivered by Charles House, Chancellor of Cogswell College.

Follow your heart

Thank you, Dean Martin, for that kind introduction. And thank you to the trustees, faculty, staff and all of the students and family members gathered here to celebrate.

Cogswell College has a long history of inspiring innovation and entrepreneurship, going back a hundred and twenty five years to Henry Cogswell, an enterprising dentist who in 1847 designed the vacuum method of securing dental plates. In 1853 he performed the first dental operation in California using chloroform. He built Cogswell College to teach practical hands-on education.

In the tradition of Henry Cogswell, we believe that by instilling the traditional values of a well-rounded education, while incorporating a practical approach with the latest technologies, we can foster the most creative and capable graduate.

I first came to Cogswell to help install a new program in entrepreneurship and was struck by the entrepreneurial spirit of both students and faculty at Cogswell. Today, in addition to our undergraduate Bachelor's degree program and the students' remarkable entrepreneurialism, we are launching our Masters' Degree program this autumn that will appeal to folk already at work.

For you adults, raise your hand if the job you are doing today didn't exist when you were in school. So, it's an active question, "JUST WHAT SHOULD WE TEACH?"

We already teach the elements – **think flexibly, be resilient, learn from failure, practice, practice, practice...** As these elements come into play, we gain important values, knowledge, and resourcefulness.

We start by asking three things of our enrolling students –

1. a portfolio of their previous work – art or music
2. sufficient mathematics and English writing
3. passion and enthusiasm.

Once here, we insist that each student master 45 units of "General Education," and many are concerned when we don't transfer some units. **Some, here to get a job, plead, "why so much math? Why so much English? Just teach us the tools."**

But we cannot teach just the tools for today for the jobs of today. The jobs and the tools will change, time and again, over the course of a lifetime. So we have to teach something else. That "**something else**" is the crux of the question. We think of it primarily as **curiosity, a desire to learn, to grow** – indeed, it is dedication to lifelong learning, mastering new tools and skills almost routinely, rapidly, with enthusiasm.

Let's start with tools: tools, including Henry Cogswell's dental tools, have enabled us to change our world. Tools develop skills, create jobs, and give insight for the next advance.

We teach tools at several levels.

First, we teach how to use them, including some of the best tools in the world for animation and music – tools like *Renderman*, invented by *Pixar* for spectacular visual effects, tools like *CUDA* for using incredibly powerful multi-core microprocessors.

Second, while we teach the tools, we teach context. Specific tools differ – you can learn *Renderman* and go to work for *Pixar* or *Disney* directly, but you have to learn a new tool at *Dreamworks* or *Lucas Arts*. And *Renderman* changes over time as well, just like other software. Think of your home computer over the years. So we will teach a wide range of tools, including those that are inexpensive or free, so that our students can go anywhere and adapt.

Third, we teach the math behind the tools. Our Digital Audio Technology program teaches the basic mathematics of sound, called Fast Fourier Transforms before students use digital synthesizer tools. For example, harmonics in the left side front speakers are balanced differently than those in the back right side, **and our students know both how and why.**

Fourth, we teach software engineering that ties a suite of these tools together. Digital media industries are still small, nimble, ‘on the edge.’ Their tools and systems are not standardized. This is not like typical IT shops with millions of standardized suites. Our students have a major edge if they can construct and operate a digital media tools suite.

So we teach the tools and the math behind them, and we teach how to be resourceful with those tools, even how to build your own tools. But guess what?

It’s a lot easier to teach tools and math to an artist than to teach art to a mathematician.

So we spend a lot of time on the art side – kinesthetic art: drawing, sculpture and modeling. Amazing as it might seem, it’s far easier to understand 3D images on a computer screen if you’ve done three-dimensional clay modeling.

Many of you know that music and math are closely related. Learning one is valuable to learning the other, which is also true for animation, digital image creation, and game design. And the artistic side is often the ‘grabber’. Artistic products were a huge part of *Apple* success, after all.

So – tools, math, and art – is that enough? Emphatically not. Skill with art, math, and tools isn’t enough to build a movie, a musical score or a game that has lasting interest. There has to be a ‘game-line’ or ‘great sound,’ or a compelling story line, with characters that have *persona*.

And that is where our general education comes in. This is specifically tailored to the needs of these students – **in place of traditional English classes, for example, we teach narrative – what makes a great, enduring story?** (You still have to be able to write & speak, by the way)

In the new digital world, the hardest thing to do is to get someone’s attention. Engaging, exciting compelling stories, or great sound, or an addictive game line can do that. Then students can apply their art, math, and tools skills to build it.

So, for you graduates, congratulations! You’ve learned practical skills here, you’ve created some fabulous portfolios of work to demonstrate to potential employers, and you’ve doubtless made some lifelong friends. **But you’ve also gained perspective:** you’ve worked on teams, solved new problems together, and you’ve learned dedication, hard work and perseverance.

You now know how to make a compelling digital message – whether it is a game, a movie or a sound track. And many of you have practiced doing this in a small business environment, in a

digital studio in a garage. In addition to all of the great entertainment companies, our graduates can often create their own opportunities.

Not only can you create your own opportunities – you might have to do so. The learning you'll do from now on will not often be found in books, or in courses, or from professors. Years ago, when I was managing my first R&D lab at HP, a young woman engineer said, **“I want to be like you – what were the three things that have helped you for this job?”**

I was a bit taken aback, but then blurted out an answer somewhat like this:

1. I got a history degree (after degrees in physics and electrical engineering)
2. I opened a plant nursery with my wife and a fireman and his wife
3. I joined the Colorado air pollution control commission

The history degree taught me that others have had to solve all sorts of problems over the years. The plant nursery taught me, in a hurry, about cash flow.

The air pollution business taught me how to ask good questions in a field I knew nothing about.

None of these were things I learned in school. I don't know of a school that offers a course in how to ask good questions when you don't know what you are talking about or listening to....

It also turns out that each of these three led to major contributions, each of which were nothing like I was thinking at the time. We invented Logic Analyzers, thanks to the history perspective. The nursery work led to *The Return Map*, published in the *Harvard Business Review* – it was done simply to explain profits to Colorado College ice hockey team members. The air pollution work led to the first causal explanation of emphysema, the fastest rising killer disease.

The point of that story is that you never know where your breakthrough will happen. Most likely it will NOT happen in the place you've studied, or even where you're looking.

I was in Hachioji, Japan a year ago, leading a workshop on innovation for a printing/imaging Co.

I had just finished saying, “We're going to talk now about earth-shaking products” when WHAM!

All of the phones, radio, TV, trains, cars in Japan were stopped cold. 17 million people could not get home, or even call home to say they're safe. I was the only one with communications – my SMS messages to my wife in Calif. worked, and she told us all what was happening to us.

Guess the new product from this printer company? **Yep, an emergency responder system.**

Which brings me to Cogswell's terrific Fire Science program, with our graduates here today. I have been involved with some Dept. of Homeland Security issues – let me assure you that these folk are as entrepreneurial and resourceful as they come. We're all indebted to them for what they do and we're especially pleased that they chose Cogswell's uniquely approved program.

The point of all of this is to say that your education here is but a beginning. The problems you'll face weren't taught here, but the resourcefulness you learned will help you solve them. And it is key to understand that there is a huge difference between **GOOD WORK** and **GREAT WORK**.

Leadership, game-changing contributions, making a difference – all come from **GREAT WORK**.

Let me tell you about some great work. First – the Android game **BLAST MONKEYS** from Yobonja! Built by Tobiah Marks and Angelo Yazar, Cogswell grads in a company that now has had several other Cogswell alumni, this game with ten million downloads was the top Android download in June and July 2011. It was only Yobonja’s fourth game, a great example for a small digital studio. Their challenge now? Building a robust, sustainable company.

The second is Project X. How many of you graduates worked on it? (Show of hands)

Project X is a one-of-a-kind, project-based class run like a professional animation production studio, with about twenty students on it for at least a year, to create a short animated film. It is very hard work, combining all of our disciplines, into a single story that hopefully captivates a movie audience. Our program director, Professor Michael Huber, is a very tough taskmaster, with Hollywood ‘chops’, who wanted to teach students his craft.

A film screening is a ‘win’ all by itself. Only one out of six commercial submissions gets selected. Our newest film, *Worlds Apart*, has been screened twenty-five times so far, and won seven awards – including MIAMI, PHILADELPHIA, SAN JOSE, OREGON, and ENGLAND. In Philly, we were told that the film was judged the BEST for 650 films they’ve screened in the past six years. **They said, “WHAT ARE YOU TEACHING OUT THERE?”**

But the excitement for me is what the kids say in the “**BEHIND THE SCENES**” films.

One says, “everything I know, I learned in this one class”

A shy girl says, “I learned to be more assertive”

A diffident young man says, “I developed self-confidence. I AM an artist”

One of the jobs of a chancellor is to be the campus ombudsman. I get to entertain irate parents, wayward students, upset faculty, accreditors, snake oil salesmen, and others. I especially love hearing students say **Project X is too hard, and that Professor Huber is an ogre.**

I recall the team that invented Logic Analyzers. In 2001, these tools were voted by the world’s top engineers to be one of the two most important 20th century tool inventions. Sounds great, huh? Here’s the rest of the story. I had worked 2 years with a team of four– and we thought we had a ‘winning idea’. I persuaded my boss’ boss to build a group; we got 18 folk to build it.

And the winning idea prototype? It died, and so did the next three ideas. It took three years and over eighty people to ‘get it right’ – and THIS is why you need RESILIENCE.

GREAT THINGS don’t come easily. Success only comes from hard work and dedication. *Worlds Apart* had one four-second sequence with nine footsteps when the aliens burst into the demolished home. To get the footsteps absolutely correct took Tim Duncan’s DAT team six weeks.

Let me cite Ana Acosta, a graduating senior from Bogota, Colombia. She is the first person in her large extended family to graduate from a United States college. Her parents and brother traveled from Bogota for this graduation ceremony. She won two Fusion awards in two years, telling me that “there were very talented students” and she was thrilled to win. She cited her professors Reid Winfrey and Thomas Applegate as her inspiration.

We have thirty-five new engineering students next fall, virtually doubling our engineering student body. I was meeting with the current students, and said that we could add some courses with a larger student body. The question: “**WHAT WOULD YOU LIKE US TO ADD?**”

A lengthy list ensued, and then one young woman said: “**I’d like to have more math courses.**”

I asked, “**WHAT WOULD YOU LIKE TO SEE?**”

She: “**CONFORMAL MAPPING and CONVOLUTION INTEGRALS**”

My guess is that no more than five of us in this room took Convolution Integral Calculus ever – this is a third year course in a college math major. Ironically, though, as we walked away, the Dean mentioned to me and our Chairman of the Trustees that this same student, three years ago, needed remedial work for our entry mathematics. She’d come a very long way.

So, the question is **WHY DID SHE WANT THAT COURSE?** There is a scene in *Worlds Apart* where the boy has given his teddy bear a fishing pole. A fish pulls the teddy bear into the water, and the boy leaps in after him. In the first compositing, the boy’s shirt stayed on the bench.

Well, CONFORMAL MAPPING is the mathematics to have the shirt fit the boy’s avatar body, and CONVOLUTION INTEGRALS are the mathematics of making two conforming math statements stay conforming when they are ‘convoluted’ or simply moved. So, she really didn’t want to become a mathematician; she just wanted the shirt to fit and the boy to stay clothed.

“Gainful employment” is a big buzzword in Washington D.C. these days. What it means is “did your graduates get a job, and will it allow them to pay off their student loans?” Cogswell students not only get some great job offers – in addition, many of our students have the confidence and desire to start their own studios. Those who join existing companies progress rapidly into leadership positions. **Our students have GAINFUL EMPLOYMENT for a lifetime.**

With that thought in mind, let me read you our new VISION and MISSION for Cogswell → developed while working with these wonderful graduates sitting in front of you.

OUR VISION – *Cogswell will be globally renowned for educating passionate, creative, entrepreneurial graduates who shape the future of culture and media*

OUR MISSION – *With a Cogswell Community* committed to hands-on, student-centered learning, Cogswell educates practical, imaginative, and entrepreneurial leaders who excel in a dynamic, creative global economy.*

To the graduates:

- 1. Do you feel PASSIONATE?**
- 2. Have you been CREATIVE here?**
- 3. Are you ENTREPRENEURIAL?**
- 4. Do you want to shape the future of culture and media?**

So, graduates, you’ve learned a lot here. You’ve learned tools, techniques, and teamwork. You’ve made friends, worked with them at all hours, had fun together. And now you’re moving on. To an unknown, uncertain future. Actually, none of us know the future, but we do know that preparing for it helps. And preparing for it with a core set of values – the values of the Cogswell culture – will help you as you move to your next adventure.

Your studies have equipped you for careers none of us can yet describe. 21st century skills will be different than anything we've seen before. **Teamwork and collaboration** will be far more important. **International competition** will be fierce, **international awareness** will be at a premium. **Attention spans will be far shorter**, demanding new media communication skills.

Congratulations to each of you, and to all of the family members and loved ones who helped you reach this moment. This country and this planet need your considerable talents, your creative skills, your entrepreneurial energy, and your capacity to bring innovation to every new challenge. You will see the world with new eyes, revealing opportunities that were invisible or ignored, and seizing those opportunities with all of the determination and decency that you've learned here. You are the risk-takers, the doers, and the unique creators of your (future) success. Thank you in advance for all that you're about to accomplish. CONGRATULATIONS!

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