Extreme Human Factors

Thom Whalen

A Campfire Tale from the Stone Age

- This is the story of helping to start a startup.
- Once upon a time, I was a government scientist.
- In 2000, I wanted to do something in the real world…
- …but keep my nice government job.
- I was introduced to Geoff, a nationally-acclaimed high school teacher.
- We decided to collaborate.

An Unequal Partnership

- What I Brought to the Table
  - Web servers, programming skill, access to expertise
  - A promise that I would not desert him
  - Product had to be CGI scripts…
  - …that were small enough for one person to write
  - I would only produce an "operational prototype"
- What Geoff brought to the table
  - An understanding of modern education
  - Drive to win
  - Willingness to listen

I Wore Three Hats

- There is no specialization in small business
  - Project Manager
  - Product Developer
  - System Administrator
- Plus a couple:
  - Had to keep doing research, and
  - Managing my lab.

Inventing a Business

- Geoff targeted teachers because he had credibility.
- Courseware was obvious product.
- It was a crowded field.
- We narrowed our focus to target professional development…
- …and charged ahead, regardless.

Sell a Service, Not a Product

- The software would stay on our servers
- Minimized costs
- Gave me full control
  - Allowed agile product development
  - Gave instant access to data at the keystroke level

User-Centred Development

- Struck a focus group
- Conducted a formal experiment
- Field tested our beta release

Learned Important Lessons

- Formal methodologies did nothing for us
- Everything I needed to know,

  I learned from users' emails
- There was no market for the product

Needed a New Product

- Spent the summer of 2001 creating web-based support for curriculum design
- Unattractive product with limited marketability
- It was never used again
- At the time, it felt like a waste of my time

Time to Get Serious

- We had not wasted our time
  - Geoff was talking to the right people
  - We were comfortable working with each other
  - Geoff had a better understanding of the technology
- People said they needed "Web-Based Portfolios"
  - Paper-based portfolios were limited
  - The education community was under pressure to conform to national standards
- Geoff changed his company name…
- …and we charged, full-speed ahead

MORAINE PARK
TECHNICAL COLLEGE

Introduction

Program Learning Outcome

General Education Learning

CORE ABILITIES

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Done

High School

Bruce Ward

Portfolio

with believing that they are

Justin Pitcher
e-Portfolio

Education

Professional Skills

Honors

Activities

Comment

Portfolio Home | Professional Information | Personal Information | About this Portfolio

Activities:

* Resident Assistant, UT Department of Residential Life
*   General Member, UT Alumni Association
*   Rower, UT Crew Team

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Internet   100%

Internet   100%

Low-Level Development

- Today I would use php and MySQL
- But not back then
  - Wrote CGI scripts in C
  - Created a hierarchical data base manager
  - Implemented my own scripting language: PLOW
- My motto was: "Anything is possible"
- Went live as soon as a minimal set of features was working
- Geoff was a brave man; I was scared stiff.
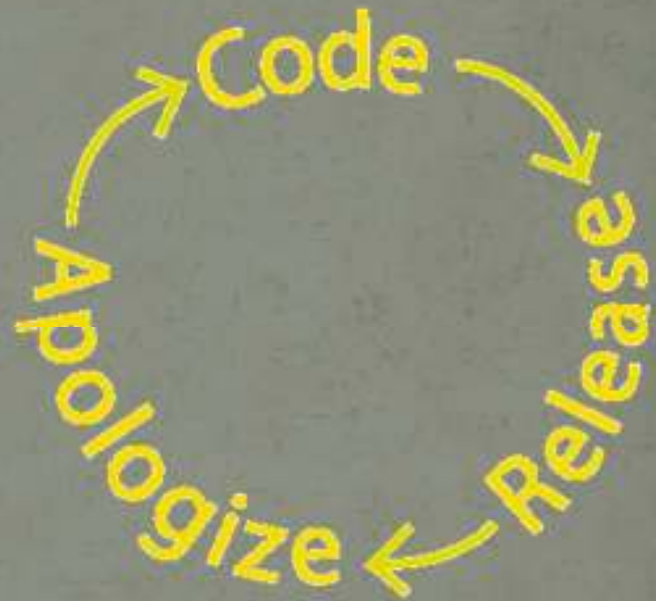
Permanent Beta

- Released new features constantly
- New versions were released instantly
- Changes were small and incremental
- I had no downtime

Usability Came First

- Priority One: Squash bugs
- Priority Two: Correct user errors
- Priority Three: Implement new features
- Prime Directive: Never lose a user's work

Whiners Were My Best Friends

- Everyone is a beta tester
- You can't fix a problem until someone complains
- Not, "real soon, now," but "right now!"
- Only one person ever sees a bug
- No one ever lost his work
  - Our competition couldn't say the same
- I was on a first-name basis with our clients

Fix the Software, Not the User

- Training, FAQs, and support lines are a poor substitute for well-designed software
- If an error is not a bug, then it is a design error
- When I wore all the hats, I couldn't shift the blame

Feature Creep was My Friend

- The software was not designed, it evolved
- What users wanted trumped what "experts" said they wanted
- Anything is possible. But not everything.

Who's Our Customer, Anyway?

- Students and Professors are the users
  - Want ease of use
  - Want aesthetics
- Administrators are the customers
  - Want accreditation
  - Want monitoring
- IT Departments wanted to be the customer
  - Advised the administration
  - Wanted to expand their empires
  - Were the flies in the soup

I Put the Users First

- I put the need of the users ahead of the customers
- Lost sales in the short term
  - People buy according to price and features
  - Usability is not obvious
- Gained sales in the long term
  - Users learned more about what they needed
  - Users became our evangelists

IT Departments Are the Enemy

- Wanted to put the software on their own servers
- Raised every obstacle they could
  - American Disabilities Act
  - Interoperability
- The playing field was level

Supported Accreditation

- Universities needed to be accredited
- Web-based ePortfolios made accreditation easier
- Geoff's expertise was critical
- We had the right first clients

The Company Grew

- A little bit of business expertise goes a long way
- System administration – keeping the servers running and online
- Moved the servers out of the lab
- Attracted more clients
- Working with a contractor
- I wanted out, but was still committed

Ditching the Job

- Exciting but tiring
- Working myself out of the job took three more years
- My "prototype" was serving 50,000 users
- I replaced myself
- Geoff had the software re-written
- The license with the government was terminated
- Failed to make "venture participation" a model of government/industry cooperation

Today

- I'm long gone
- Geoff's company is still growing
- Geoff is diversifying his product by adding more administrative features
- I've declined his offer to re-join his company

What I Learned:

- Extreme programming is perfect for new web-based products
- User-Centered Design methodologies are too bulky for extreme programming
- But guidelines and expertise are worthwhile
- Product developers must talk directly to users
- But above all:

User-Centered design is an attitude!

Thank You

Questions?