Smalltalk and Corporate Cultures

Presented by

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0. What this is all about?

Motivation

Driving Questions

Main Focus

Main Challenges

Disclaimers

0.1 Motivation

- Bewilderment and surprises
- Self-defense
- Trying to systematize experiences

0.2 Driving Questions

- About my tools of trade
  - what is that I *value* when I choose Smalltalk as my favorite tool of trade?
  - what I *share* with others who do the same?
- About using my tools in real life, i.e. corporate reality
  - how can I recognize environments in which I have chance of using my tools sensibly?

0.3 Main Focus

- Smalltalk culture
- Corporate cultures
- Intersections of the above
- Consequences and examples, including a perspective on XP.

0.4 Main Challenges

Cultural viewpoint usually deemed inconsequential or boring or both.

0.5 Disclaimers

In accordance with the *Hollywood Presentation Principle*, it must be stated that this is, in a sense, a work of fiction by a private individual.

Any similarity with persons and organizations, existing or imagined, or their views, may turn out to be purely coincidental.

0.6 Plan of the Game

- Concept of Culture
- Culture of Smalltalk
- Nostalgic Bits
- On two types of corporate cultures
- Intersections
- A point of view on XP

1. Preliminaria

- Concept of *Culture*
- Culture of tools (and tools of culture)
- Culture of *Programming?*
- Culture of *Corporate World?*

1.1 Culture #1

- Humorous

  Culture is what we do on Friday night (American).

  Culture is what differentiates us from apes (Darwinian).

- Pedestrian

  Culture is what makes us behave “correctly”.

- Historical

  Roman *Cultura* originally referred to the cultivation of the soil; later, transferred meaning of *cultura animi* (culture of the soul), as in Cicero. The concept was not widely used in Europe until late 18th c. (Herder, Kant, Hegel, etc.).

1.2 Culture #2

Anthropological

Descriptive, rather than normative, approach.

Focuses more on groups than individuals.

Description of a culture of a group includes:

- shared, learned patterns of behavior, conscious or not;
- repeatable and dominating patterns of thought and perception;
- common value hierarchy.

In some approaches, cultures are described in terms of a structure or as a system.

1.2 Culture of Tools

- Craftsmen tend to choose their favorite tool(s), sometimes for reasons not fully understood by them.
- Attitude towards specific tools creates or enforces group identification. The group shares some convictions and values; often inherits a tradition; also rejects some other convictions, values, traditions.
- Craftsmen's know-how about patterns of usage of a tool creates knowledge; much of it is *tacit* knowledge.

1.3 Programming Culture?

Substitute “programmer” for “craftsman” in the previous slide.

Corollary: dream of mass production of software and replaceable “resources”.

1.4 Musical Metaphor

Programmers are like musicians. They play different instruments (and reportedly choice of instrument follows not only aptitude but also character), and perform different kinds of music (say: classical, jazz, pop, etc).

Programming tools correspond to various musical instruments; programming cultures correspond to different music genres.

There is also a similarity in attitude towards tools.

1.5 Military Metaphor

Most programmers are like soldiers in Soviet Army. They are replaceable, and their tools are be cheap and uncomplicated. Using them is tedious, but deterministic.

Some programmers are like members of special forces: well trained, passionate about what they do, with elaborate tools and need for high adrenaline levels.

In both cases, casualty rates may be high.

1.6 Game Metaphor

Some play *finite* games, towards a specific end.

Some play *infinite* games, for the sake of playing.

Some try to play both.

Actual cultural metaphors: chess, poker and go.

1.7 Corporate Cultures

There is a variety of cultures, but arguably, there are two elements that differentiate corporate cultures in a fundamental way:

- their control mechanisms
- their attitude towards knowledge creation, growing and dissemination.

Both are closely related.

2. Culture of Smalltalk

- Smalltalk Design Principles
- Tradition and Heritage
- Common Threads
- Smalltalk Family Values
- Contrasts

2.1 Smalltalk Design Principles

Paper by Dan Ingalls is a good point of start.

"The purpose of the Smalltalk project is to provide computer support for the creative spirit in everyone."

Is the *creative spirit* merely a figure of speech?

2.2 Idea of *Amplification*

Intellect Amplification Project:

"Our plan is basically to provide human subjects with the best technological aids possible … and to re-design the subjects' way of attacking intellectual problems so as to take advantage of the capabilities provided in these aids." [Engelbart62]

"The thing I've always been interested in is the amplification possibilities when you take something that's already interesting and already part of deep human interest and use some technology to amplify the reach."

A. Kay in [Frenkel94]

2.3 Common Threads

- Extending and amplifying human cognitive capabilities through special tools.

Properties of the tools:

encourage learning, symbol manipulation, ease of use, appeal to many senses; the tool is “transparent”, becomes “intimate”, etc.

- Contrast with using tools merely as means to increase “productivity”, i.e. maximize profit.
- Changing to new forms of cultural discourse: away from the textual.

2.4 Smalltalk Family Values

- Simplicity, uniformity, power, accessibility
- Expressiveness
- Semantic transparency
- *Habitability* (Gabriel)

as facilitators for creation and understanding.

What those values have to do with today's corporate software production?

2.4 Contrasts

Culture of efficiency, the esoteric and arcane.

Culture of correctness.

Culture of marketing in programming.

2.5 Darwinism Again

"Natural Selection: *Languages and systems that are of sound design will persist, to be supplanted only by better ones.*"

[Ingalls81]

Does it really work that way?

3 Nostalgic Bits

Between fortune of one and Fortune 1.

On expectations, surprises and possible causes.

3.1 Great Expectations

- Post-Industrialism
- Technopolis
- Economic rationality
- Technological aggressiveness
- Large budgets

3.2 Surprises

- Authoritarianism
- Factory pattern
- Death march
- Mimicry
- Degenerated pragmatism

3.3 More Surprises

- Functional illiteracy
- Distorted and controlled discourse
- Manufactured consent
- Omnipresent amnesia
- Absence of management *theory*

3.4 Causes?

- Educational System?

"Children should be taught to think. … a bunch of people trying to move curriculum-from some book that they didn't write, about subjects that they don't know anything about-into some poor child's mind. That could not be more ridiculous. Its basically an institutional factory type model. And it just doesn't work." [Frenkel1994]

- Corporate Culture?
- Mass Culture?

"Recent studies [1996] have shown that fewer than 5% of American adults have learned to think fluently in … modern non-story forms." [Kay1996]. (these forms are: logical argument and systemic thinking).

- All of the above?

4. Models of Corporate Cultures

Western-like binary division:

- Sales-centered culture vs.”people”-centered [Rosenbluth94]

or:

- Closed vs. open culture [vaguely K.R. Popper]

4.1 Comparison Criteria

- Dominant Traits
- Focal points of business
- Sources and replication of culture
- Hierarchy of concerns
- Perception of the main asset
- Hierarchy of power
- Management traits
- Workforce
- Decision making

- Information flow
- Motivational instruments
- Training and learning
- Use of technology
- Measurements
- Quality
- Awarding system
- Culture of discussion
- Capability for structural change

4.2 Dominant Traits

Organization unable to learn and innovate	Learning organization
Static, Authoritarian and Closed	Dynamic
Discouraging creativity	Innovating
Short-term perspective	Long-term perspective
Pretending to implement values	Adhering to values
Culture imposed unconsciously	Culture explicitly maintained and grown
Based on defensiveness, denial of reality, fear of responsibility	Confronting issues head-on
Self-denying	Self-conscious

4.3 Sources and Replication of Culture

Big consulting companies Military culture, command and control Either no discrimination in recruitment or a preference for specific sources Culture imposed unconsciously Based on defensiveness, denial of reality, fear of responsibility	No single dominant source Discriminative recruitment process to ensure a cultural fit Culture explicitly maintained and grown Confronting issues head-on

4.4 Hierarchy of Concerns

Sales -> profits

Meeting quotas

Preoccupation with costs, esp. labor costs, rather than productivity; hence:

- People are treated as expendable “resources”
- Availability of cheap resources
- Malleability of resources

People -> service -> profits

Measurable financial effects:

- Revenue per employee
- Return on investment

4.5 Focus and Assets

Focal points of business

Acquiring a contract, a deal Getting away with its realization	Growing culture Servicing needs of people

Perception of the main asset

“Deal” and contract; project Delivery date and bonuses	People, their knowledge and involvement; Shared culture

4.6 Power Hierarchy

Centralized and secretive Elaborate Inflexible Hierarchy *creates* tasks	Decentralized and public Shallow Flexible Hierarchy is *adjusted* to tasks

4.7 Information Flow

Thwarted

Single routes or no routes

Actual discouragement of feedback

Feedback not processed

Delayed, partitioned, twisted

Fear of the written

Documents not signed

Oral exchanges: face to face, meeting, voice mail are main forms of communication

Open

Multiple routes

Encouraging feedback

Processing feedback

Cross-pollination

Written documents produced and signed

Asynchronous, remote, written forms of communication also present

4.8 Decision Making

Centralized	Distributed
controlled by specific persons;	controlled by process and culture rather that specific people;
Informal;	public
secretive	
Attached to forms and appearances rather than issues to be solved	
Outcomes not openly criticisable	Outcomes criticisable
Authorship and responsibilities vague or hidden	Responsibility clearly assigned
Meetings as a way to diffuse responsibility for a decision	

4.9 Discourse

Arguments ex-authority are the main kind of argumentation augmented by personal attacks

Pseudo-logical argumentation is acceptable and accepted

Discussion is either superficial or irrelevant; often manipulative; if it fails, discussion authority imposition

Basic rational forms uphold, e.g.:

Arguments ex-authority, *ad personam* are rejected

4.10 Motivational Instruments

Punishment and staying out of trouble rather than positive amplification

Position in the hierarchy, in the inner circle

Financial

Tacit, closed doors promotion policies

Whole spectrum of motivational instruments

Satisfaction

Development

Belonging to a culture

Financial

Clear routes to advancement and promotion

4.11 Award and Punishment

Obedience

Loyalty

Passivity

Ousting individuals as *trouble-makers, non-team payers, arrogant*, and similar forms of character attack

Professionalism

Productivity

Creativity and ability to innovate

Merit

4.12 Management Traits

No observable self-reflection	Self-examination and reflection
Self defense & denial	
Self-delusional image	
Megalomania	
Inability/unwillingness to delegate power	Ability to delegate power to solve problems
Sticking to fossilized bureaucratic forms	Recognition of and breaking away from the outdated rules and fundamental assumptions
Motivated by and motivating with mainly financial rewards	

4.13 Workforce Traits

Unhappy or resigned

Very high turnover (e.g. 75% per year)

Forced to work overtime to solve trivial but entangled and mismanaged issues

Adopting defensive measures against excessive and arbitrary load

Mostly happy

Natural turnover (<10%)

Productive in terms of income produced and return on investment

4.14 Working Environment

From bleak to depressing

Small or overcrowded cubes

Location reflects status

Too hot or too cold

Often items of group identification displayed

Mixed floor plans

Adjusted so it is not a hindrance

Working air conditioning

4.15 Learning and Training

Ad-hoc training and not learning

No idea of investment present

Training happens only when resources idle or management desperate (cannot get trained resources cheaply enough)

Continuous learning

Learning is a fundamental investment

Learning is culture-supported

4.16 Technological Consequences

Technology is imposed	Technology is evaluated
Following the crowd as minimization of risk	Not following the crowd as maximization of opportunity
Choice criteria absent, incoherent, or ignored	There are explicit criteria for choice

4.17 Tools

Weak use in internal operations because of the focus on projects and unwillingness to invest

Project-imposed

Used in products

Used in internal operations

Assessed, revised

5. Overlaps

- The dominating type of culture is sales-based, closed culture.
- What does it have to do with Smalltalk culture?
- Features of organizations where Smalltalk functioned well

6. Examples

Visual Programming Smalltalk style.

Dropping Smalltalk

7. A Perspective on XP

- Programming methodologies as cultural utopias
- XP and big M's
- Main features of XP
- XP's in a cultural context

7.2 Methodology & Utopia

Methodologies can be treated as cultural utopias.

They prescribe a tacit value system without going to deeply (if at all) in areas like:

- what are the real preconditions of their success;
- who is and who is not the main audience;
- whose interests they serve.

(that may be a reason why they fail so often).

7.3 XP and BIG M's

Facet	Big M	XP
Scope	All-encompassing	Minimalist
Applicability Constrains	None?	Small, medium size teams; Changing requirements.
Main Audience	"Technologists"	Programmers, Project Managers
Main Motivation	Positive: Realization of OO promises	Negative: risk minimization, Failure avoidance; Sanity of programmers.
Main solution	Imposing and executing a process	Effort to introduce a few known practices, practiced jointly and thoroughly.

7.4 Statement of the Problem

"The basic problem of software development is risk" [Beck00]

This is a valid view, but within a limited perspective;

typically shared by contractors and project managers.

From a distance, most types of risk are consequences of troubled knowledge flow. These risks are not unavoidable; they are typical for closed cultures.

7.5 The Goal

"What we need to do is to invent a style of software development that addresses these risks" [Beck00]

7.5 Applicability of XP

"... developing software in the face of vague or rapidly changing requirements" [Beck00]

Rapidly changing requirements are very rare.

(financial instruments?) Vague requirements are common.

Also: small to medium size teams.

7.6 The XP Solution

- Code as the main artifact
- Coding as the central activity
- Pair programming as combined knowledge sharing mechanism and a quality gate
- Refactoring, unit and integration testing

7.7 Minimalism in XP

- Stress on oral communication
- Metaphor serves as architecture
- Refactoring replaces (re-)design
- Tight tracking of the goal using continuous integration testing.

These are *defensive* measures.

7.8 XP in Context

XP as a self-defense reaction against contamination of development by corporate culture.

In that context, XP has an important role to play and introduces practices that are usually absent.

7.9 XP Outside Context

Outside that context, XP's viability is problematic:

- Risk is not the main problem.
- Oral communication is not an acceptable way of sharing knowledge in software development.
- Code is not the main artifact.

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10. The End