

Managing Project Teams



Dr. Mark C. Paulk
SE 4381, Software Project Planning and Management

Management Topics

1. Modern project management

PMBOK

2. Organization strategy and project selection → **11. Teams**

3. Organization: structure and culture

4. Defining the project

5. Estimating times and costs

6. Developing a project plan

7. Managing risk

8. Scheduling resources and cost

9. Reducing project duration

10. Leadership

12. Outsourcing

13. Monitoring progress

14. Project closure

15. International projects

16. Oversight

17. Agile PM

Critical chain project management

“Our people are our greatest asset.”

Any manager who reads the literature

“We really are considered assets – to be used, abused, burnt up, and discarded when the company can’t make an adequate profit off us any more.”

All too many workers

Treat People as the Most Important Resource

Software Program Managers Network #6: People-Aware Program Management

- **A primary program focus should be staffing positions with qualified personnel and retaining this staff through the life of the project.**
- **The program should not implement practices (e.g., excessive unpaid overtime) that will force voluntary staff turnover.**
- **The staff should be rewarded for performance against expectations and program requirements.**
- **Professional growth opportunities such as training should be made available to the staff.**
- **All staff members need to be provided facilities, tools, and work areas adequate to allow efficient and productive performance of their responsibilities.**
- **The effectiveness and morale of the staff should be a factor in rewarding management.**

Positive Synergy (“working together”)

The team shares a sense of common purpose.

- Each member is willing to work toward achieving project objectives.

The team identifies individual talents and expertise and uses them, depending on the project’s needs at any given time.

- At these times the team willingly accepts the influence and leadership of the members whose skills are relevant to the immediate task.

Roles are balanced and shared to facilitate both the accomplishment of tasks and feelings of group cohesion and morale.

The team exerts energy toward problem solving rather than allowing itself to be drained by interpersonal issues or competitive struggles.

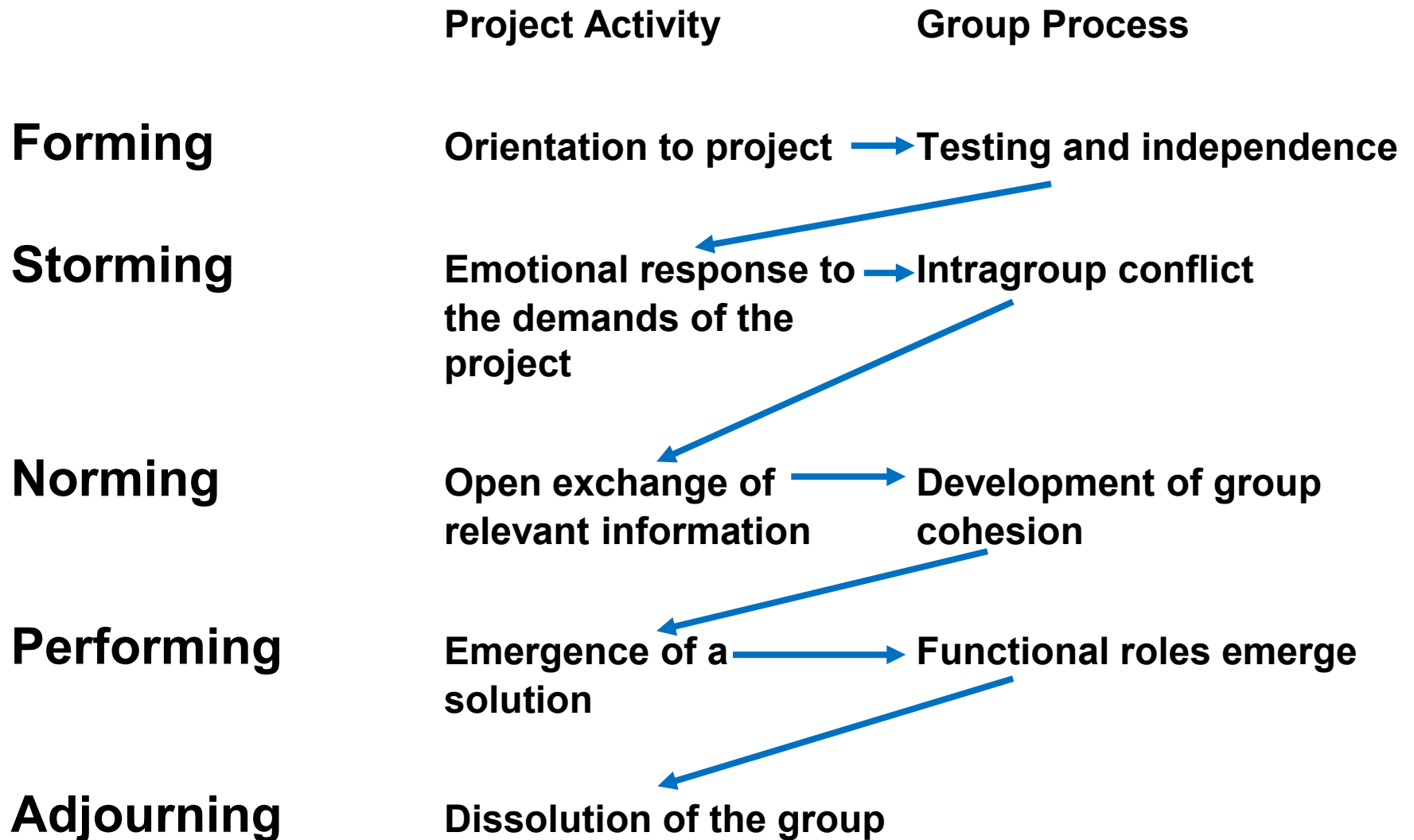
Differences of opinion are encouraged and freely expressed.

To encourage risk taking and creativity, mistakes are treated as opportunities for learning rather than reasons for punishment.

Members set high personal standards of performance and encourage each other to realize the objectives of the project.

Members identify with the team and consider it an important source of both professional and personal growth.

Five Stage Team Development Model



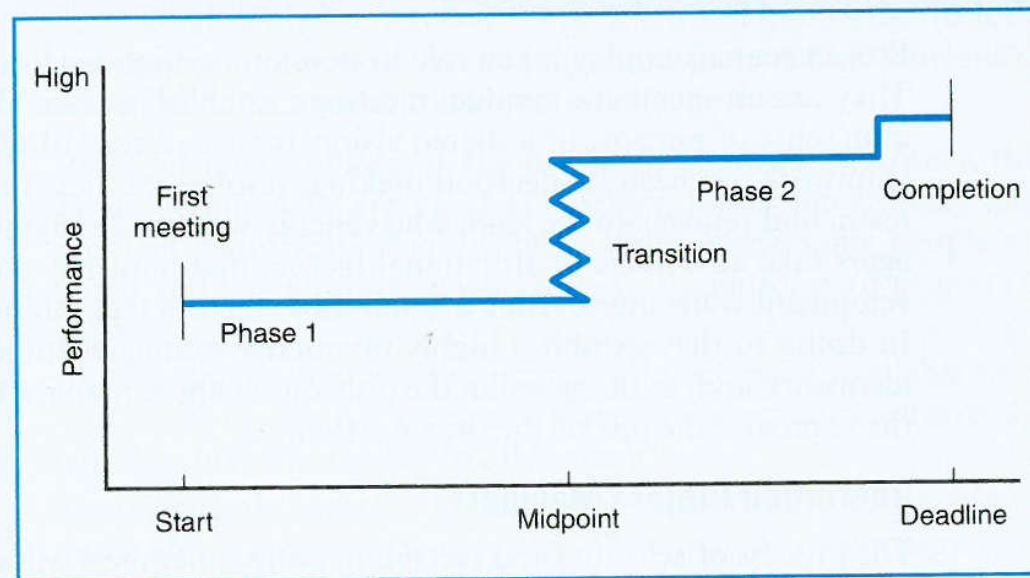
Punctuated Equilibrium Model

(Gersick 1988 and 1989)

Each group begins with a unique approach to accomplishing its project.

**About half-way to completion, a major transition occurs
→ increased progress**

- **dropping of the old norms and behavior patterns**
- **emergence of new behavior and working relationships**



High Performance Project Teams

(Larson and Gray)

There are ten or fewer members per team.

Members volunteer to serve on the project team.

Members serve on the project from beginning to end.

Members are assigned to the project full-time.

Members are part of an organization that fosters cooperation and trust.

Members report solely to the project manager.

All relevant functional areas are represented on the team.

The project involves a compelling objective.

Members are located within conversational distance of each other.

Effective Teams

Group thinking is usually better, less variable, and more precise than individual thinking.

- *L.B. Hare, R.W. Hoerl, J.D. Hromi, and R.D. Snee, “The Role of Statistical Thinking in Management,” ASQ Quality Progress, February 1995.*

Range of team performance, rather than being an order of magnitude, tends to be between 85% and 115% of the norm.

- *T. DeMarco and T. Lister, Waltzing with Bears: Managing Risks on Software Projects, 2003.*

Team Basics

J.R. Katzenbach and D.K. Smith, The Wisdom of Teams, 1993.

“Real” teams

- **small in number**
- **complementary skills**
- **common purpose**
- **specific goal or goals**
- **clear working approach**
- **mutual accountability**

High performance team – a “real” team that has members who are also deeply committed to one another's personal growth and success.

The First Project Team Meeting

Provide an overview of the project

- scope and objectives
- general schedule, method, and procedures

Address interpersonal concerns captured in the team development model

- who are the team members?
- how will I fit in?
- will I be able to work with these people

Begin to model how the team is going to work together

- role model for future meetings
- reflect the leader's style

Establishing Ground Rules

Planning decisions

- how will the project plan be developed?
- what are the deliverables of the planning process?

Tracking decisions

- how will progress be assessed?
- at what level of detail will the project be tracked?

Managing change decisions

- who will have change approval authority?

Relationship decisions

- what departments/organizations will the team need to interact with?
- how will involved parties be kept informed?

Project Team Pitfalls

Groupthink

Bureaucratic bypass syndrome

Team spirit becomes team infatuation

Going native

Peopleware

The major problems of our work is not so much technological as sociological in nature.

In some companies, the project team has veto power over delivery of what they consider a not-ready product.

What is the replacement cost of an experienced worker?

- **about 0.4 person years (4-5 months)**
- **a common feature of companies with low turnover is widespread training**

T. DeMarco and T. Lister, Peopleware, 2nd Edition, 1999.

Individual Variation

Count on the best people outperforming the worst by about 10:1.

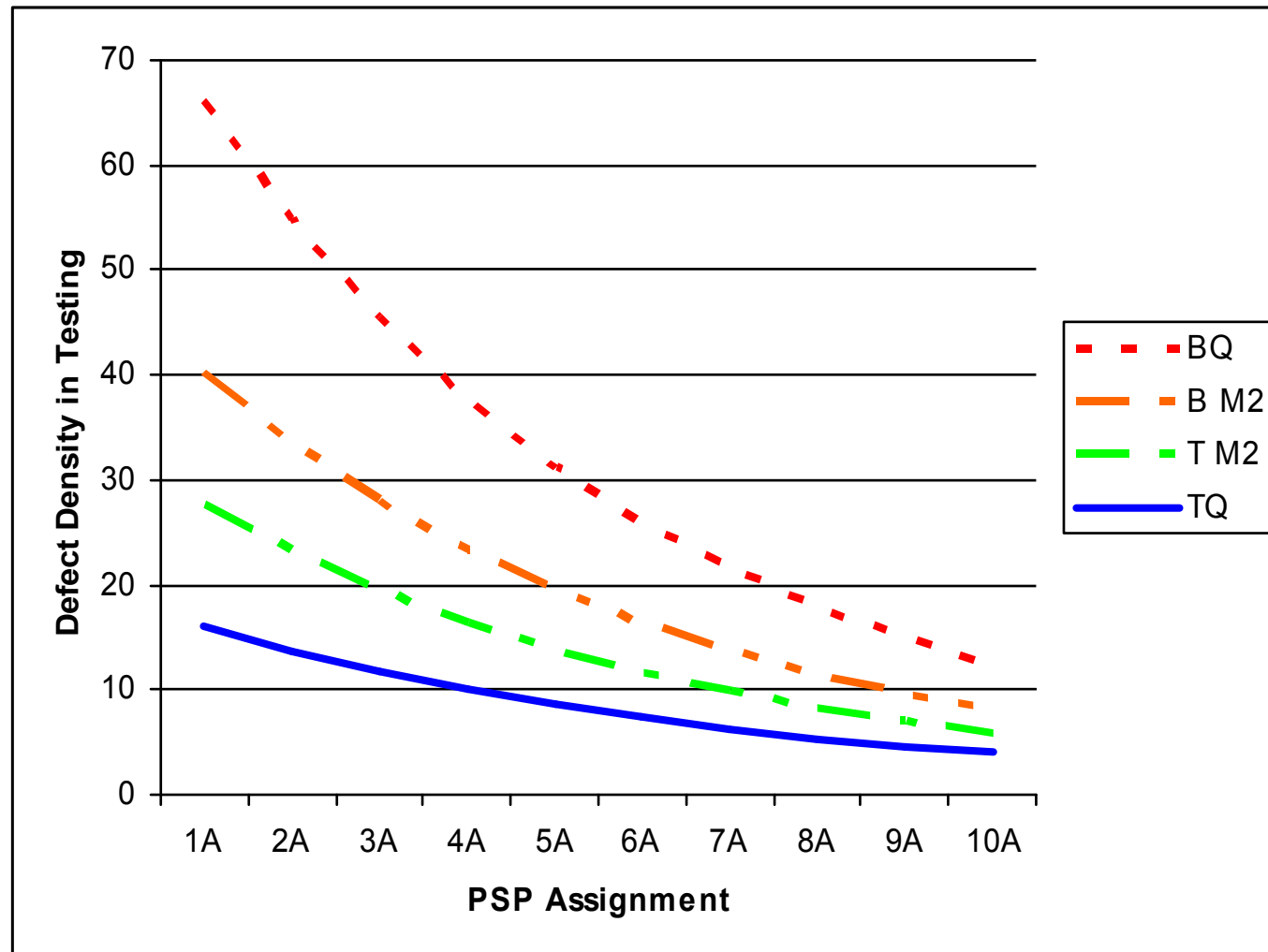
Count on the best performer being about 2.5 times better than the median performer.

Count on the half that are better-than-median performers outdoing the other half by more than 2:1.

Two people from the same organization tend to perform alike.

T. DeMarco and T. Lister, Peopleware, Second Edition, 1999.

Trends in Quality Within Ability Rankings (Paulk 2005)



PSP C

Meyers-Briggs Preference Types

Extraversion vs Introversion
interacting with the world

Sensing vs iNtuition
gathering data

Thinking vs Feeling
making decisions

Judging vs Perceiving
orienting your life

O. Kroeger with J.M. Thuesen, Type Talk at Work, 1992.

Using MBTI

Extraverts like to talk things through with other people; Introverts prefer to reflect and contemplate internally.

Sensors trust the facts and evidence; iNtuitives consider the alternatives and the bigger picture.

Thinkers are objective; Feelers look at how the change affects people.

Judgers are solution oriented – come to a conclusion and implement it (may come to premature solutions!); Perceivers tend to overwork solutions.

Strengths and Weaknesses

NFs (iNtuitive Feelers) – INFP, INFJ, ENFP, ENFJ

- **persuade and cooperate, team builders**
- **overpersonalization of organizational problems and tendency to carry grudges**

NTs (iNtuitive Thinkers) – INTP, INTJ, ENTP, ENTJ

- **natural analysts, think systematically and strategically**
- **tend to make things more complex than necessary, impatient with incompetency**

SJs (Sensing Judgers) – ISFJ, ISTJ, ESFJ, ESTJ

- **strong sense of responsibility and duty, organization's backbone**
- **rigid and narrow focus on meeting rules and regulations**

SPs (Sensing Perceivers) – ISFP, ISTP, ESFP, ESTP

- **organizational troubleshooters, able to do a variety of tasks with ease, sense of urgency when the situation demands it**
- **disinterest in routine, lack a sense of the big picture**

Tendencies

Note the use of “likely!”

Preferences – like all psychological and sociological models – show tendencies.

These models suggest preferences and tendencies.

People can acquire skills more natural to other temperaments and types.

Rational Decision Making

A perfectly rational person is one who always has a good reason for what he does.

Man is not a rational animal, he is a rationalizing animal.

- Robert A. Heinlein

We will never find a process that allows us to design software in a perfectly rational way. The good news is that we can fake it.

- *D.L. Parnas and P.C. Clements, "A Rational Design Process: How and Why to Fake It," IEEE Transactions on Software Engineering, February 1986.*

Human Biases and Fallacies

Sizeable body of literature on rational decision making and the systematic biases in how people make decisions

“An accumulating body of recent research on clinical judgment, decision making, and probability estimation has documented a substantial lack of ability across both individuals and situations.”

Einhorn and Hogarth

R. Hastie and R.M. Dawes, *Rational Choice in an Uncertain World: The Psychology of Judgment and Decision Making*, 2001.

Optimistic Denial

People tend to be overly optimistic about what they can do.

- **unrealistically positive self-evaluations**
- **unrealistic optimism about future events and plans**
- **an illusion of control**

Managers tend to ignore possible events that are very unlikely or very remote, regardless of their consequences.

“Optimistic denial” rather than “bold acceptance.”

Intuitive Judgments

Managers are more comfortable with verbal characterizations of risk than with numerical characterizations.

Studies demonstrate that simple statistical models based on human judges are more often correct than the human judges they are based on.

- **critical question is whether to use an “inside view” or an “outside view”**

Learning from Experience

Einhorn and Hogarth suggest that the difficulty of learning from experience is traceable to three main factors

- **lack of search for and use of disconfirming evidence**
- **lack of awareness of environmental effects on outcomes**
- **the use of unaided memory for coding, storing, and retrieving outcome information**

“Superstitious learning” happens....

Fixed vs Growth Mindsets

People with a fixed mindset believe their abilities are basically static.

People with a growth mindset believe abilities are like muscles – they can be built up with practice.

If you want to reach your full potential, you need a growth mindset.

Egoless Programming (Weinberg 1971)

Restructure the social environment

Restructure programmers' values

Encourage team members to find faults in code

A fault must be considered a normal and accepted event

The team as whole will develop an ethos, a group identity

Modules will “belong” to the team as whole

A group of up to 10 egoless programmers constitutes a *democratic team*

Is “Teamicide” Practiced?

Defensive management

- manager protecting himself against his own people's incompetence...

Bureaucracy

- mindless paper pushing...

Physical separation

- separating people expected to interact closely...

Fragmentation of people's time

- excessive multi-tasking...

Quality reduction of the product

- the typical steps we take to deliver in less time (at lower cost) result in lower quality

Phony deadlines

- we absolutely must be done by...

Clique control

- break up teams, “de-staff smoothly”

T. DeMarco and T. Lister, Peopleware, 2nd Edition, 1999.

National Culture

Hofstede's factors characterizing value systems in different national cultures

- **power distance**
- **individualism vs collectivism**
- **confrontation vs compromise**
- **uncertainty avoidance**
- **long-term vs short-term orientation (Confucian dynamism)**
- **indulgence vs restraint**

G. Hofstede, *Cultures and Organizations, Software of the Mind*, 1996.

Power Distance

The extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally.

Cultures that endorse low power distance expect and accept power relations that are more consultative or democratic.

Power Distance Index

The way to change the system is by changing the people at the top.

County	PDI
Brazil	69
South Korea	60
Japan	54
USA	40
Australia	36
Germany	35

The way to change the system is by changing the rules.

Individualism vs Collectivism

The degree to which individuals are integrated into groups.

In individualistic societies, the stress is put on personal achievements and individual rights.

In collectivist societies, individuals act predominantly as members of a lifelong and cohesive group or organization.

Individualism Index

Self-actualization by every individual is an ultimate goal.

County	PDI
USA	91
Germany	67
India	48
Japan	46
Brazil	38
South Korea	18

Harmony and consensus are ultimate goals.

Uncertainty Avoidance

A society's tolerance for uncertainty and ambiguity.

Reflects the extent to which members of a society attempt to cope with anxiety by minimizing uncertainty.

People in cultures with high uncertainty avoidance tend to

- be more emotional**
- minimize the occurrence of unknown and unusual circumstances**
- proceed with careful changes step by step planning and by implementing rules, laws and regulations**

Low uncertainty avoidance cultures

- **accept and feel comfortable in unstructured situations or changeable environments**
- **try to have as few rules as possible**

People in these cultures tend to be more pragmatic and more tolerant of change.

Uncertainty Avoidance Index

Many and precise laws and rules.

County	PDI
Japan	92
South Korea	85
Brazil	76
Germany	65
Australia	51
USA	46

If rules cannot be respected, they should be changed.

Confrontation vs Compromise

*(aka Masculinity vs Femininity;
Quantity of Life vs Quality of Life)*

The distribution of emotional roles between the genders.

Masculine cultures' values are competitiveness, assertiveness, materialism, ambition and power.

Feminine cultures place more value on relationships and quality of life.

Masculinity Index

Conflicts should be resolved by a show of strength or fighting.

County	PDI
Japan	95
Germany	66
USA	62
Australia	61
India	56
Brazil	49

Conflicts should be resolved by negotiation and compromise.

Long-Term vs Short-Term Orientation

(aka Confucian Dynamism)

Describes societies' time horizon.

Long term oriented societies attach more importance to the future.

- **foster pragmatic values oriented towards rewards, including persistence, saving and capacity for adaptation**

In short term oriented societies, values promoted are related to the past and the present, including steadiness, respect for tradition, preservation of one's face, reciprocation and fulfilling social obligations.

Indulgence vs Restraint

The extent to which member in society try to control their desires and impulses.

Indulgent societies have a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun.

Restrained societies have a conviction that such gratification needs to be curbed and regulated by strict norms.

The Culture Map

Erin Meyer, *The Culture Map: Breaking Through the Invisible Boundaries of Global Business*, 2014.

You have two eyes, two ears, but only one mouth. You should use them accordingly.

- A Chinese mother (Mrs. Chen)

Cultural patterns of behavior and belief frequently impact our perceptions, cognitions, and actions.

Eight Scales of Culture

Communicating: low-context vs high-context

Evaluating: direct negative feedback vs indirect negative feedback

Persuading: principles-first vs applications-first

Leading: egalitarian vs hierarchical

Deciding: consensual vs top-down

Trusting: task-based vs relationship-based

Disagreeing: confrontational vs avoids confrontation

Scheduling: linear-time vs flexible-time

Communicating

Low-context

- **Good communication is precise, simple, and clear.**
- **Messages are expressed and understood at face value.**
- **Repetition is appreciated if it helps clarify the communication.**

High-context

- **Good communication is sophisticated, nuanced, and layered.**
- **Messages are both spoken and read between the lines.**
- **Messages are often implied but not plainly expressed.**

Low-Context

A low level of shared context, few shared reference points and comparatively little implicit knowledge linking speaker and listener.

The United States has only a few hundred years of shared history – shaped by enormous inflows of immigrants from around the world.

“Say what you mean and mean what you say.”

“Tell them what you are going to tell them, then tell them, then tell them what you’ve told them.”

High Context

It's not necessary, it's often inappropriate, to spell out certain messages too explicitly.

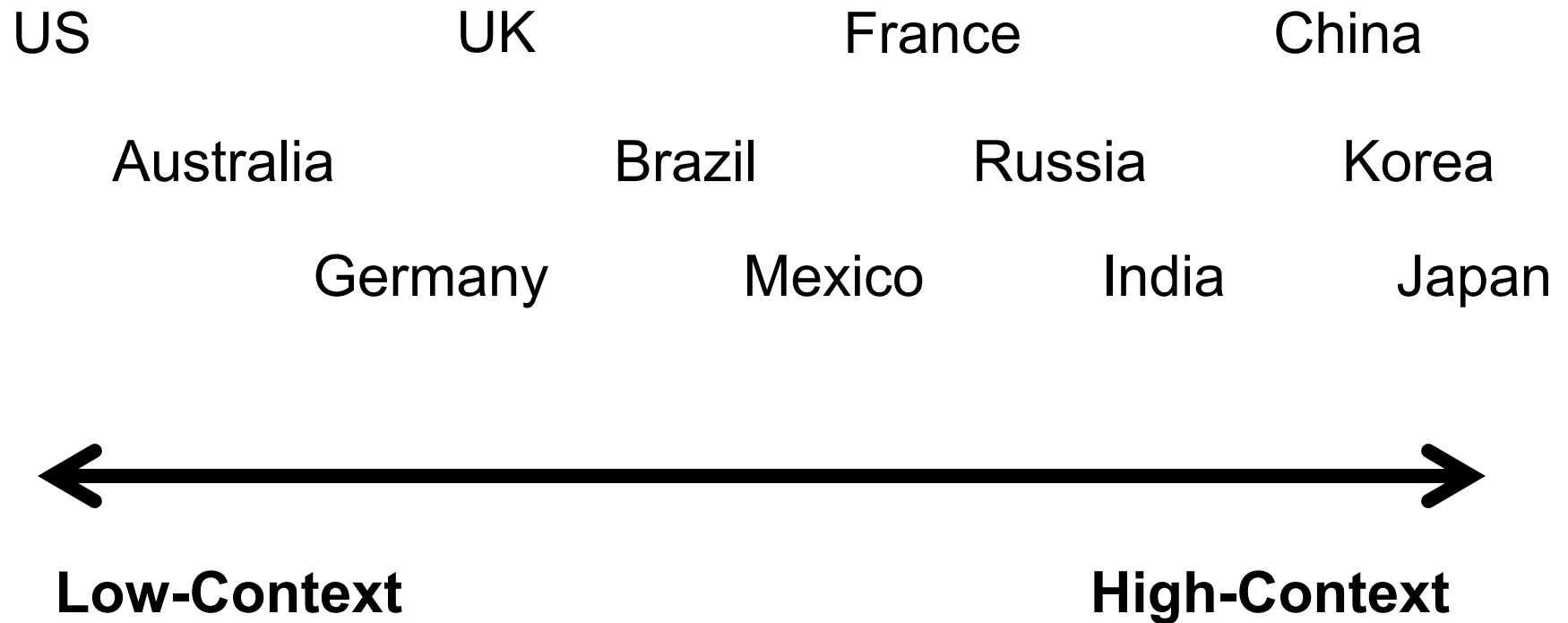
High-context countries tend to have a long shared history.

in Japanese and Hindi, a relatively high percentage of words can be interpreted in multiple ways based on how and when they are used.

In Japan we implicitly learn to communicate between the lines and to listen between the lines when others are speaking.

→ *kuuki yomenai* “one who cannot read the air”

Countries on the Communicating Scale



Evaluating

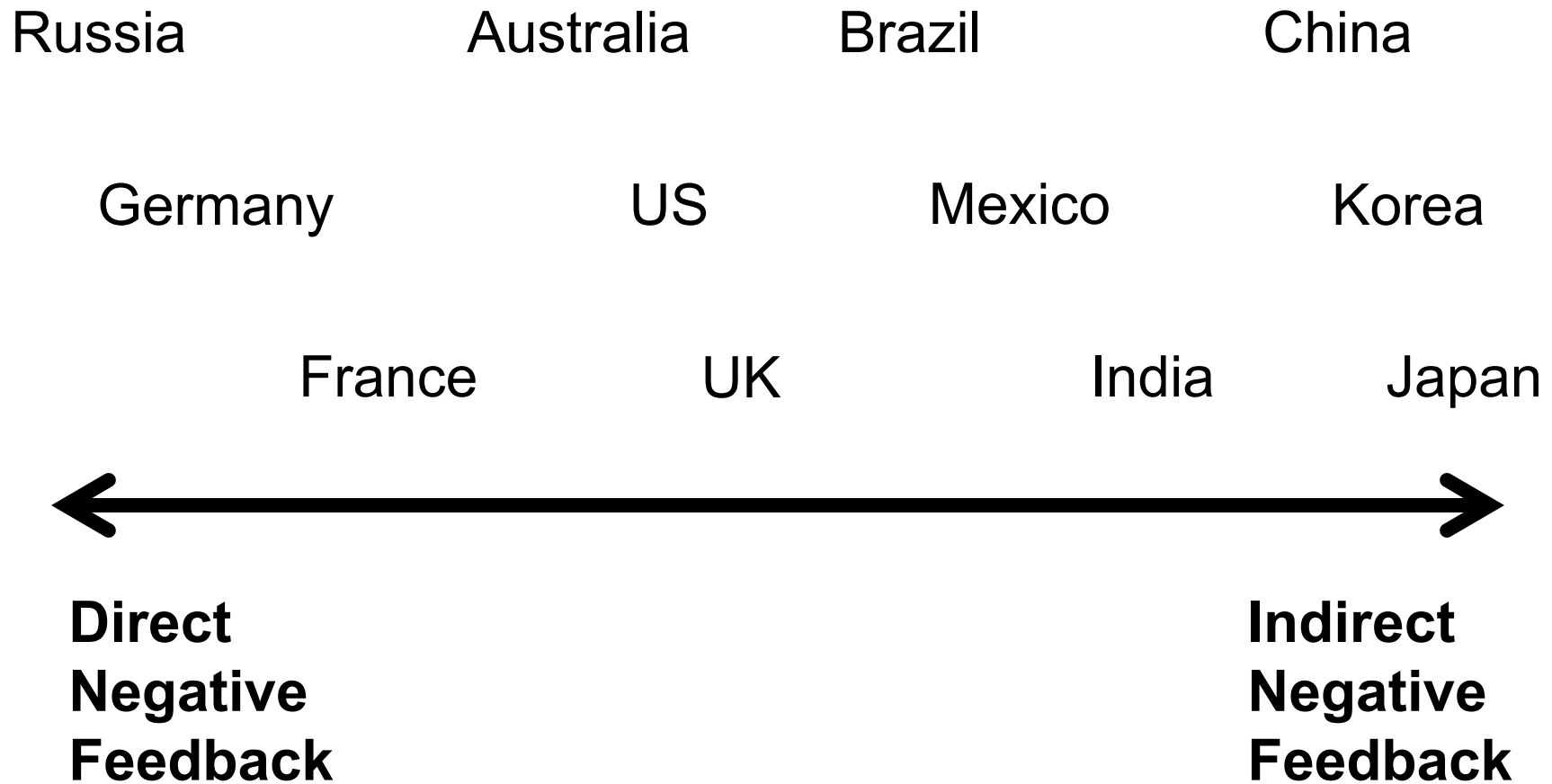
Direct negative feedback

- Negative feedback to a colleague is provided frankly, bluntly, honestly.
- Negative messages stand alone, not softened by positive ones.
- Absolute descriptors are often used (totally inappropriate, completely unprofessional) when criticizing.
- Criticism may be given to an individual in front of a group.

Indirect negative feedback

- Negative feedback to a colleague is provided softly, subtly, diplomatically.
- Positive messages are used to wrap negative ones.
- Qualifying descriptors are often used (sort of inappropriate, slightly unprofessional) when criticizing.
- Criticism is given only in private.

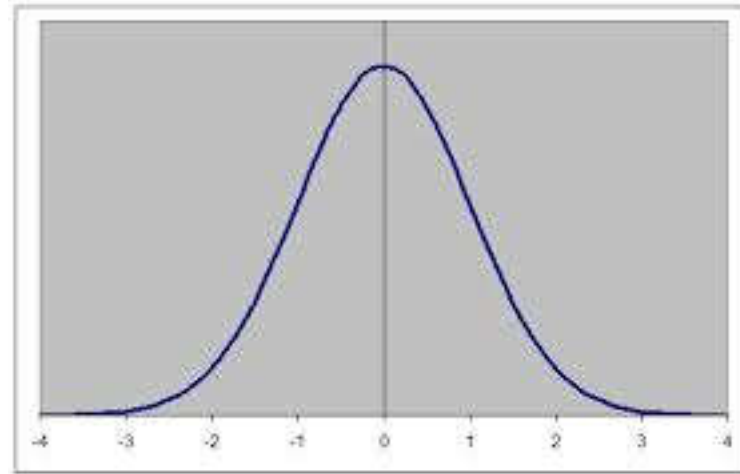
Countries on the Evaluating Scale



Objections to the Scales

Don't give adequate weight to cultural variations among individuals, subcultures, regions, and organizations.

Variation happens...



A country position represents the normative midpoint of a range of acceptable or appropriate behaviors for that country's culture.

Cultural Relativity

Where does the culture of another country in comparison to your culture?

What matters is not the absolute position of either culture but rather the relative positions.

The Limits of Models

All models are wrong. Some models are useful.

- George Box

Psychological and sociological models can be useful, but they are not deterministic.

Diversity + openness → change + innovation

Questions and Answers

