http://bit.ly/YtIO6R

Moving beyond a fashion: Likely paths and pitfalls for learning analytics

David Jones (USQ)
Colin Beer (CQU)

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Overview

- Background & Rationale
- Fashion & Fads
- Paths & Pitfalls
- Wrap up

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Overview
Background & Rationale
Fashion & Fads
Paths & Pitfalls
Wrap up
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2 copy editors
6
desktop publishers
1 multimedia designer
2 e-learning support staff
2 and a bit curriculum designers

Started in 2008

INDICATORS project

http://indicatorsproject.wordpress.com

(Beer, Clark, & Jones, 2010;
Beer, Jones, & Clark, 2012, 200
Clark, Beer, & Jones, 2010)

http://flickr.com/photos/aviatordave/7007033/

GOLD RUSH DAYS
PRESENTED BY WELLS FARGO
http://www.flickr.com/photos/dragnfly78/235652252/

(Johnson, Smith, Levine, & Haywood, 2010)

2010 Oz&NZ Horizon Outlook

No mention of analytics

One year or less

2012 Oz Horizon Oulook

(Johnson, Adams, & Cummins, 2012)

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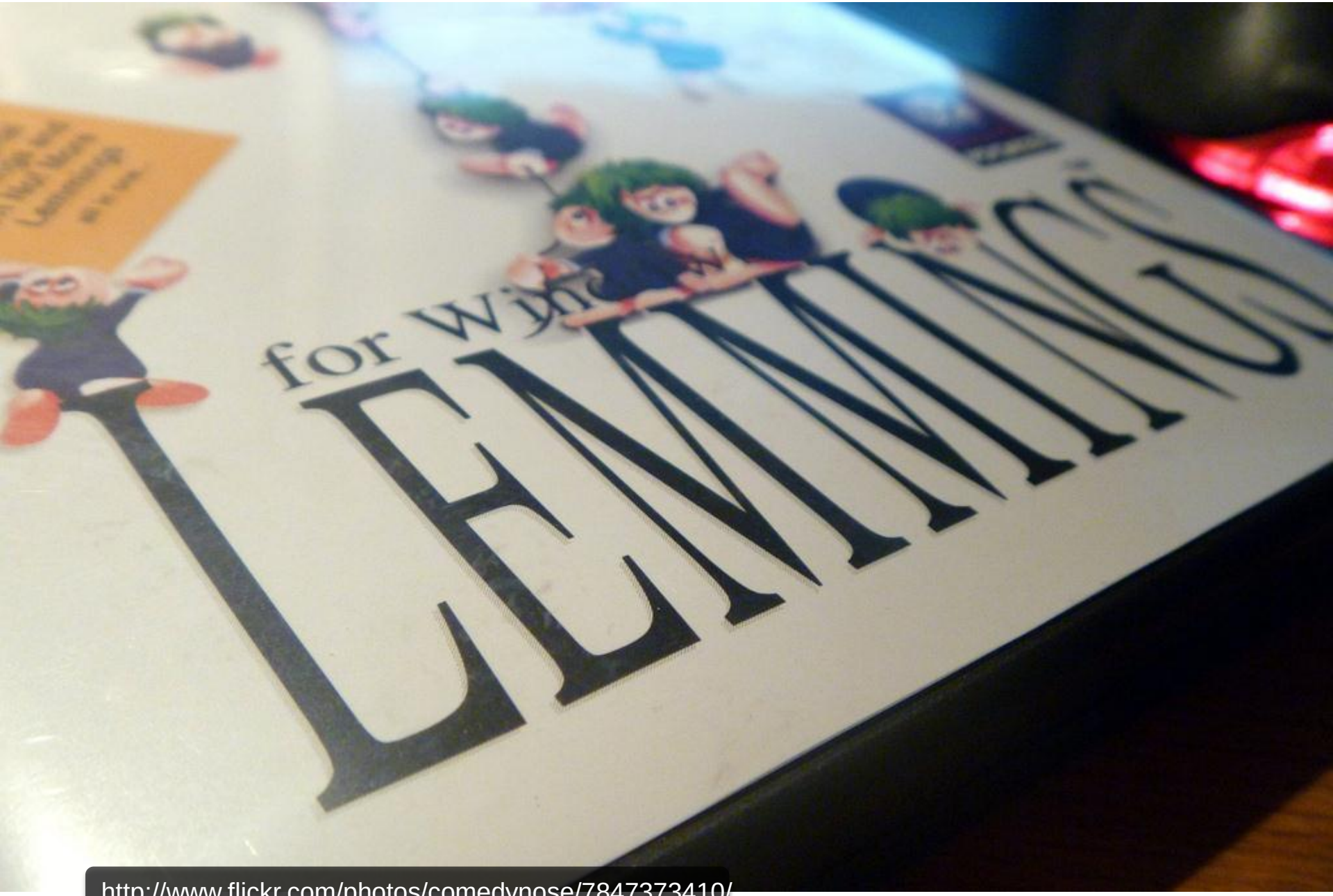

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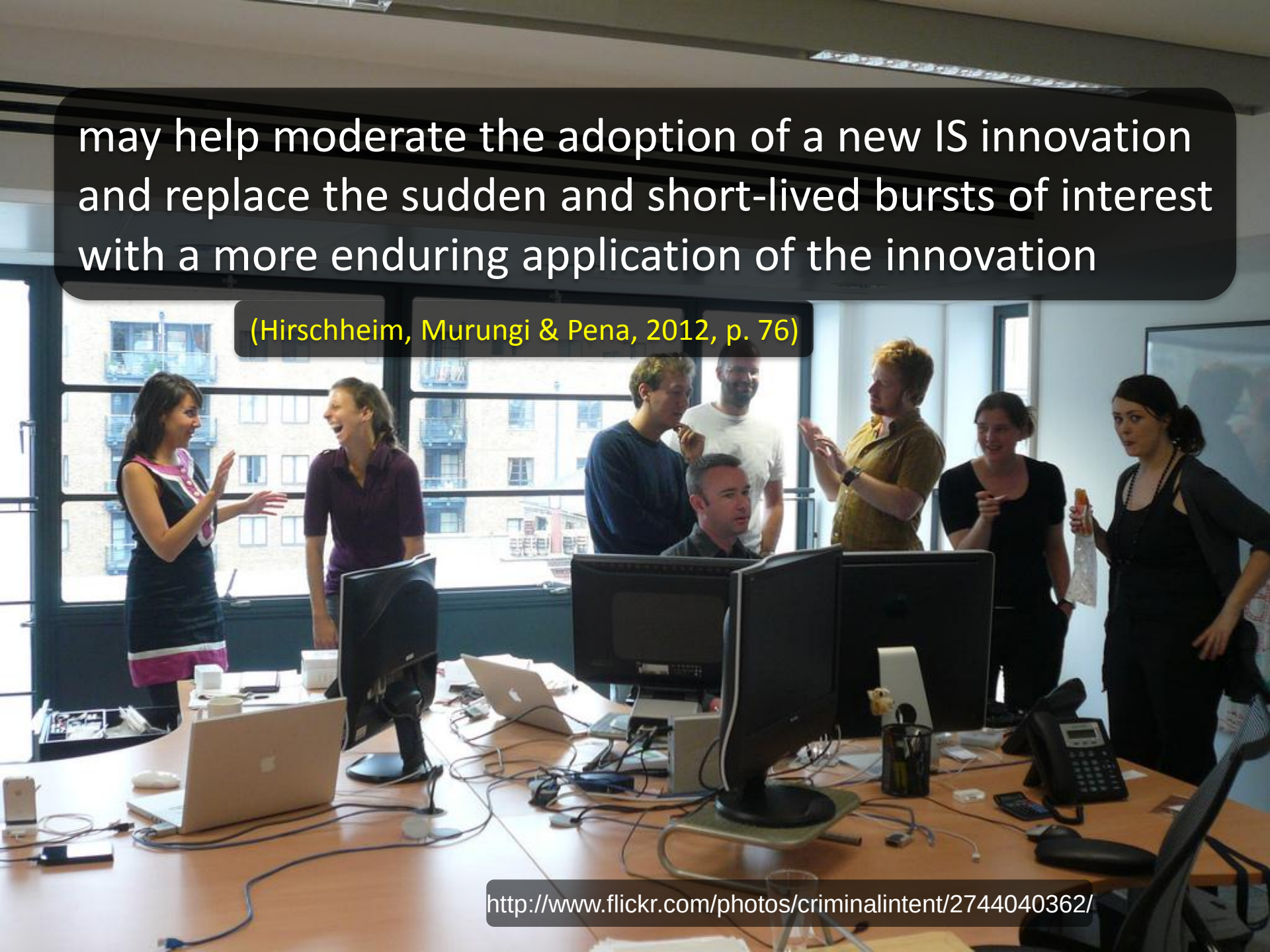

may help moderate the adoption of a new IS innovation and replace the sudden and short-lived bursts of interest with a more enduring application of the innovation

(Hirschheim, Murungi & Pena, 2012, p. 76)

http://www.flickr.com/photos/criminalintent/2744040362/

Learning Analytics
!=

How universities will implement analytics
==

2 copy editors
6
desktop publishers
1 multimedia designer
2 e-learning support staff
2 and a bit curriculum designers

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Background & Rationale
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Wrap up
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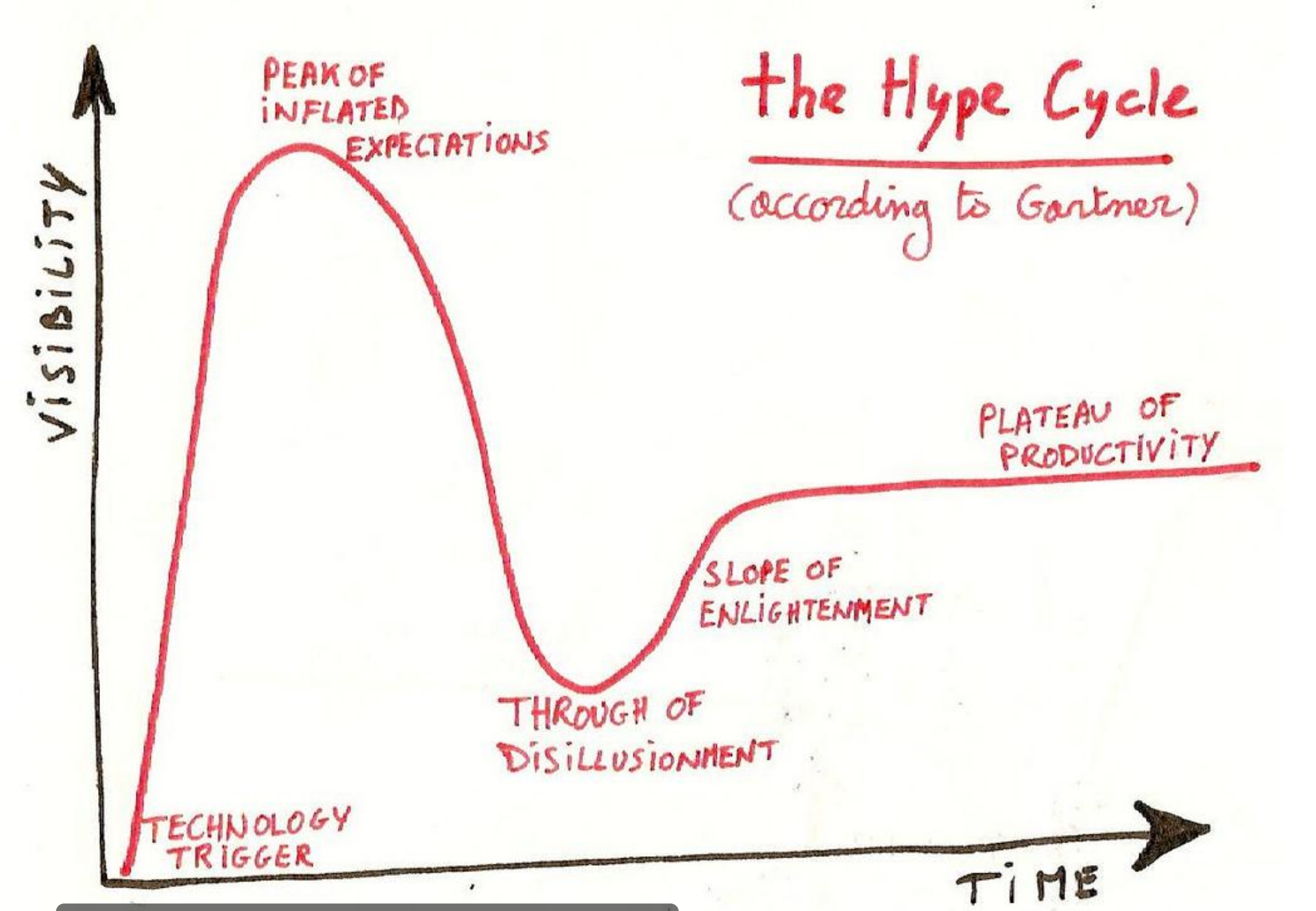

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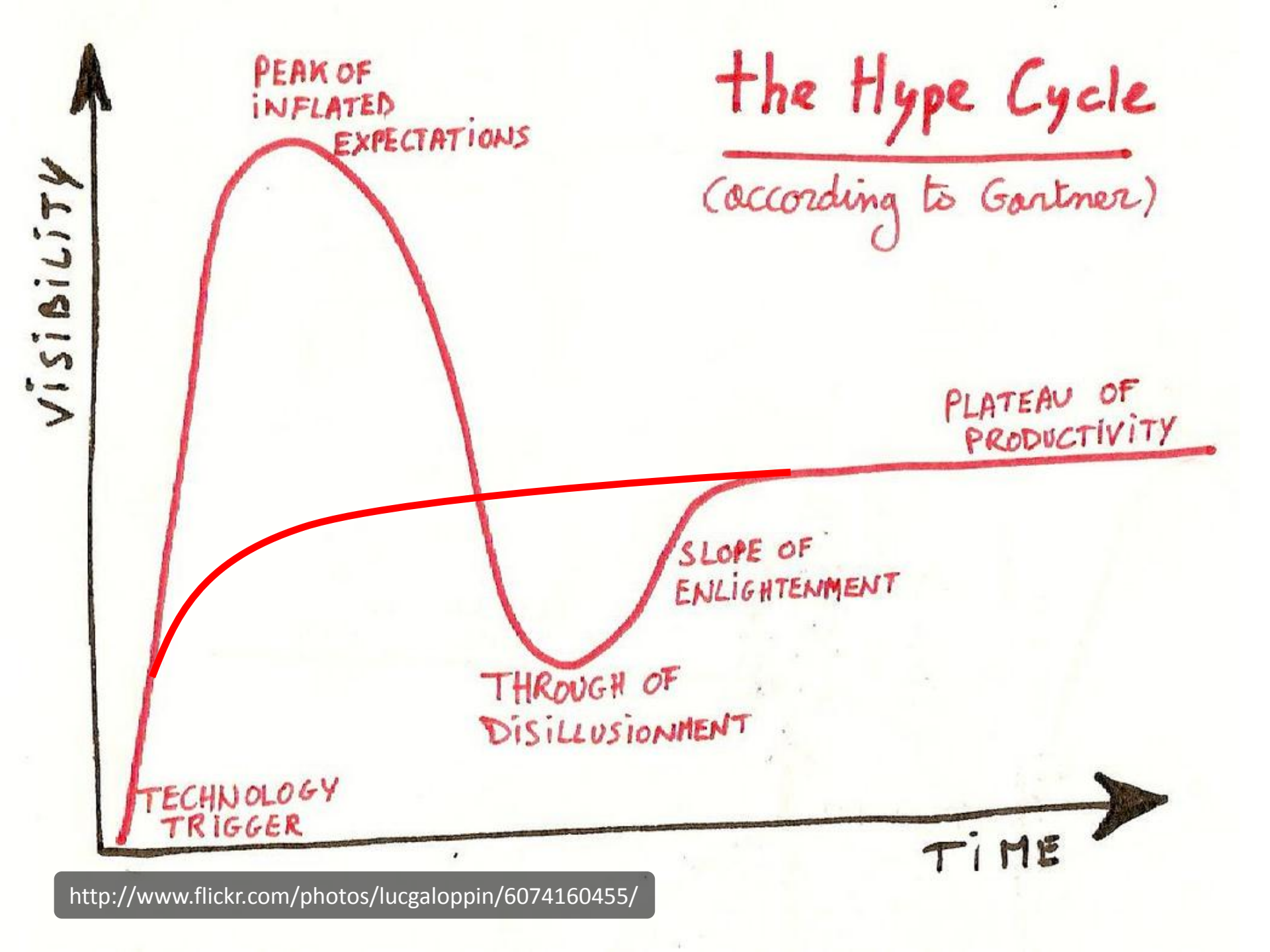
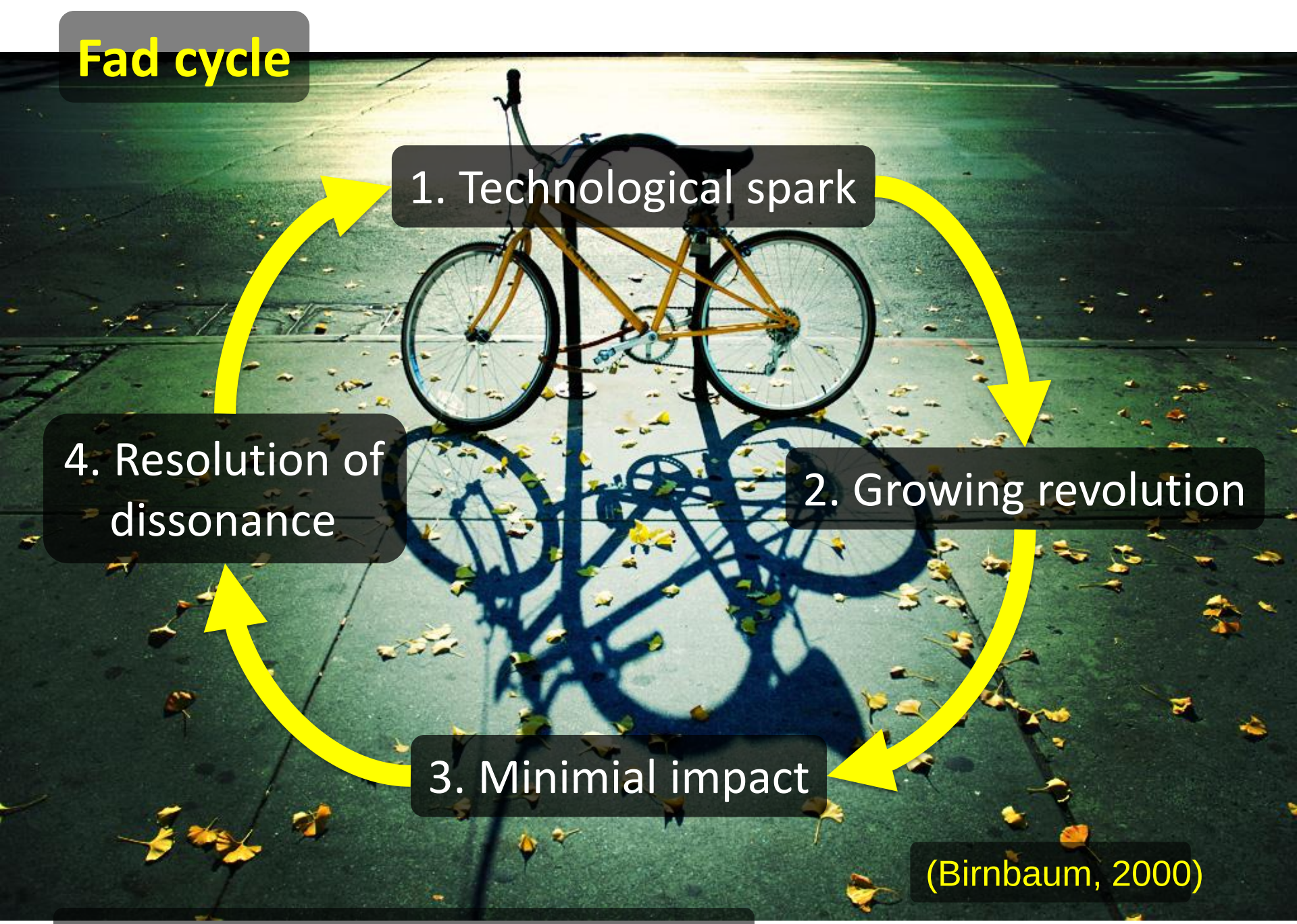


http://www.flickr.com/photos/lucgaloppin/6074160455/

Fad cycle



(Birnbaum, 2000)

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Management fashion is "relatively transitory collective beliefs, disseminated by the discourse of knowledge entrepreneurs, that a management technique is at the forefront of rational management progress”

(Abrahamson and Fairchild, 2003)

Amplified by hyperbole…, the fashionable vision may exert a strong, if transitory, normative pull among managers.

(Swanson and Ramiller, 2004)

http://flickr.com/photos/boskizzi/3241710/

A rationale in favor of adopting will be context-specific, rich in its consideration of local organizational facts, and focused on the innovation's potential contribution to the firm's distinctive competence

(Swanson and Ramiller, 2004)

http://flickr.com/photos/boskizzi/3241710/

Overview

Background & Rationale

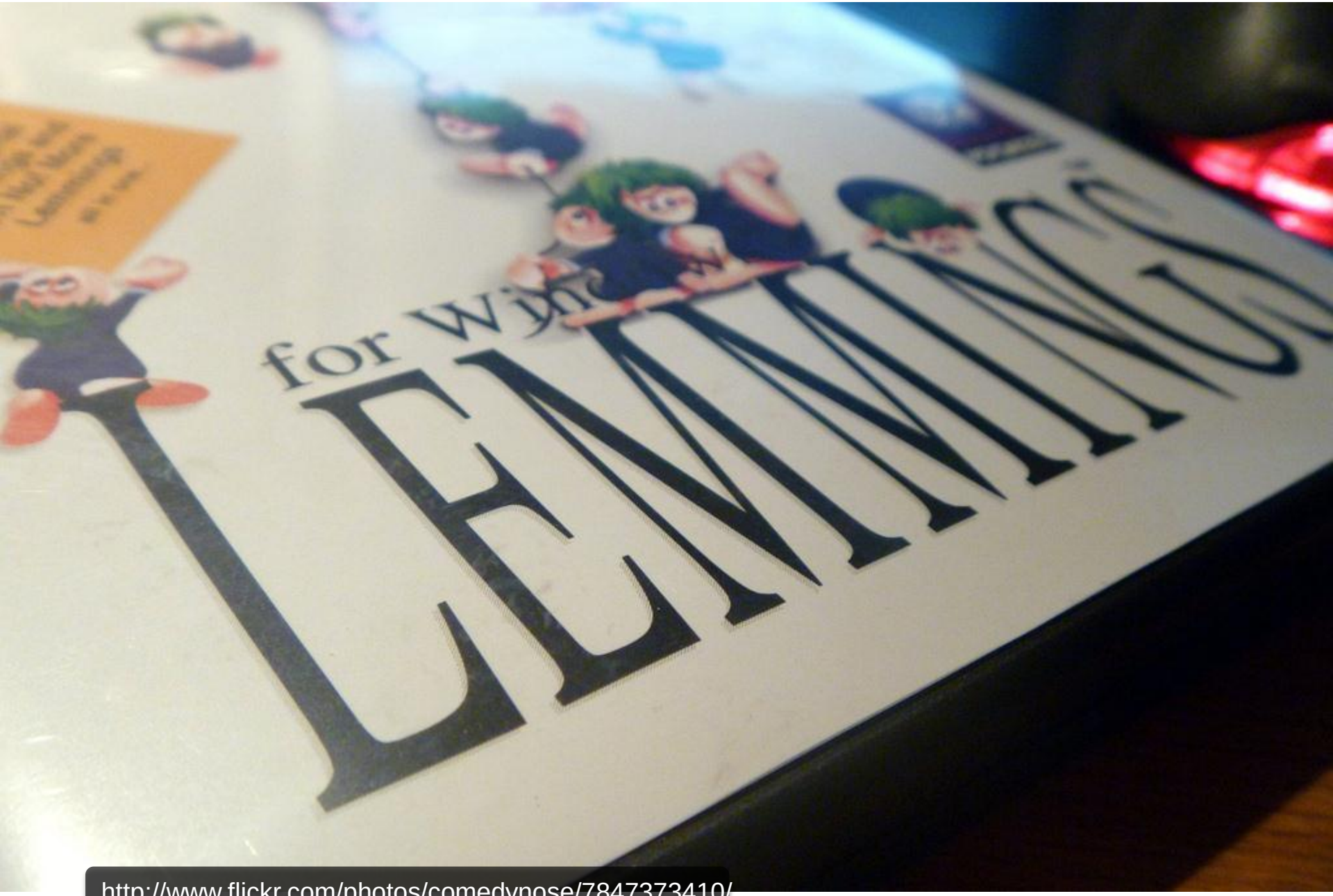
Fashion & Fads

Paths & Pitfalls

Wrap up

http://flickr.com/photos/druclimb/282597447/

Paths through the swamp
http://www.flickr.com/photos/mikelove/2526016742/



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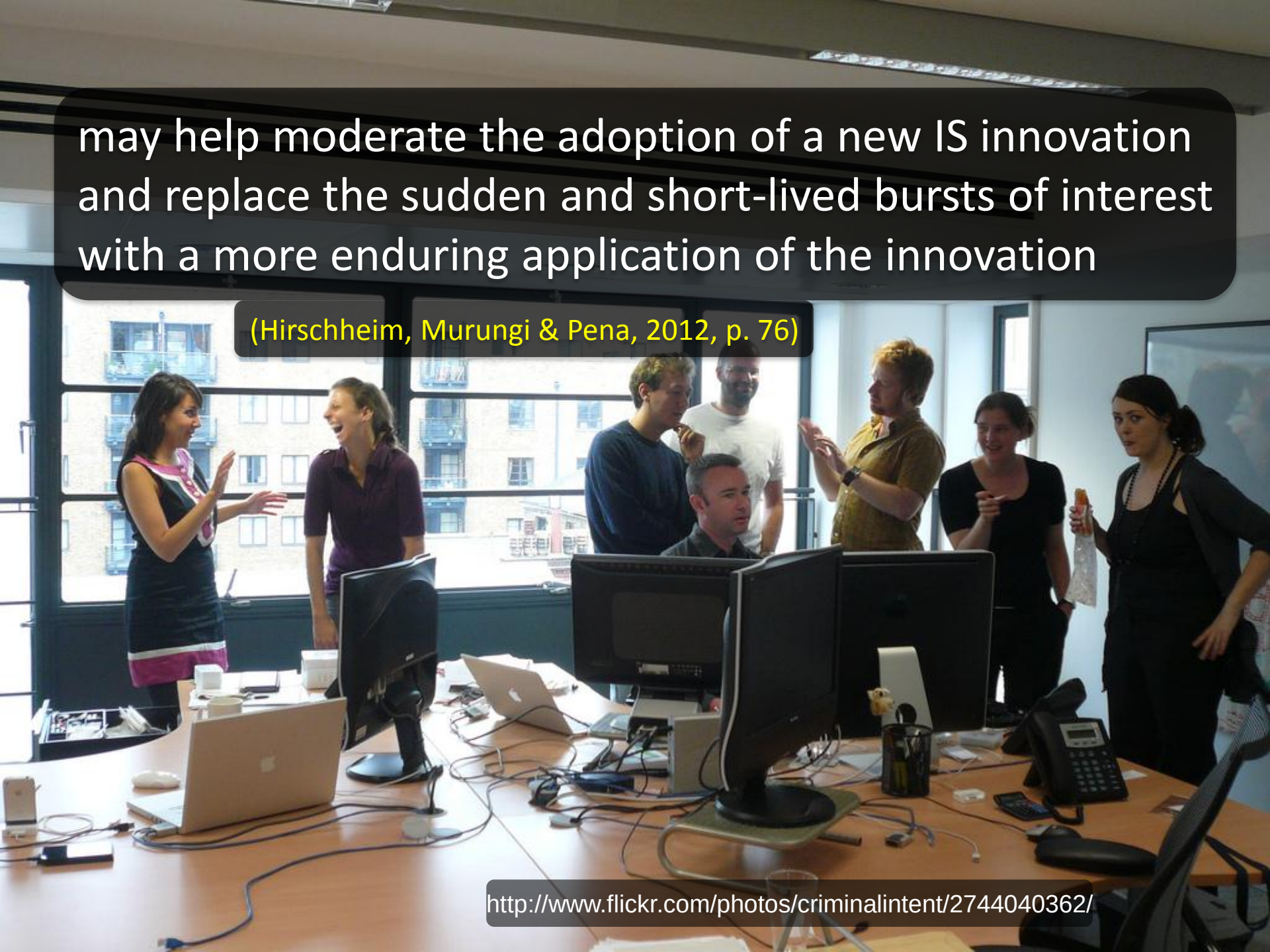

may help moderate the adoption of a new IS innovation and replace the sudden and short-lived bursts of interest with a more enduring application of the innovation

(Hirschheim, Murungi & Pena, 2012, p. 76)

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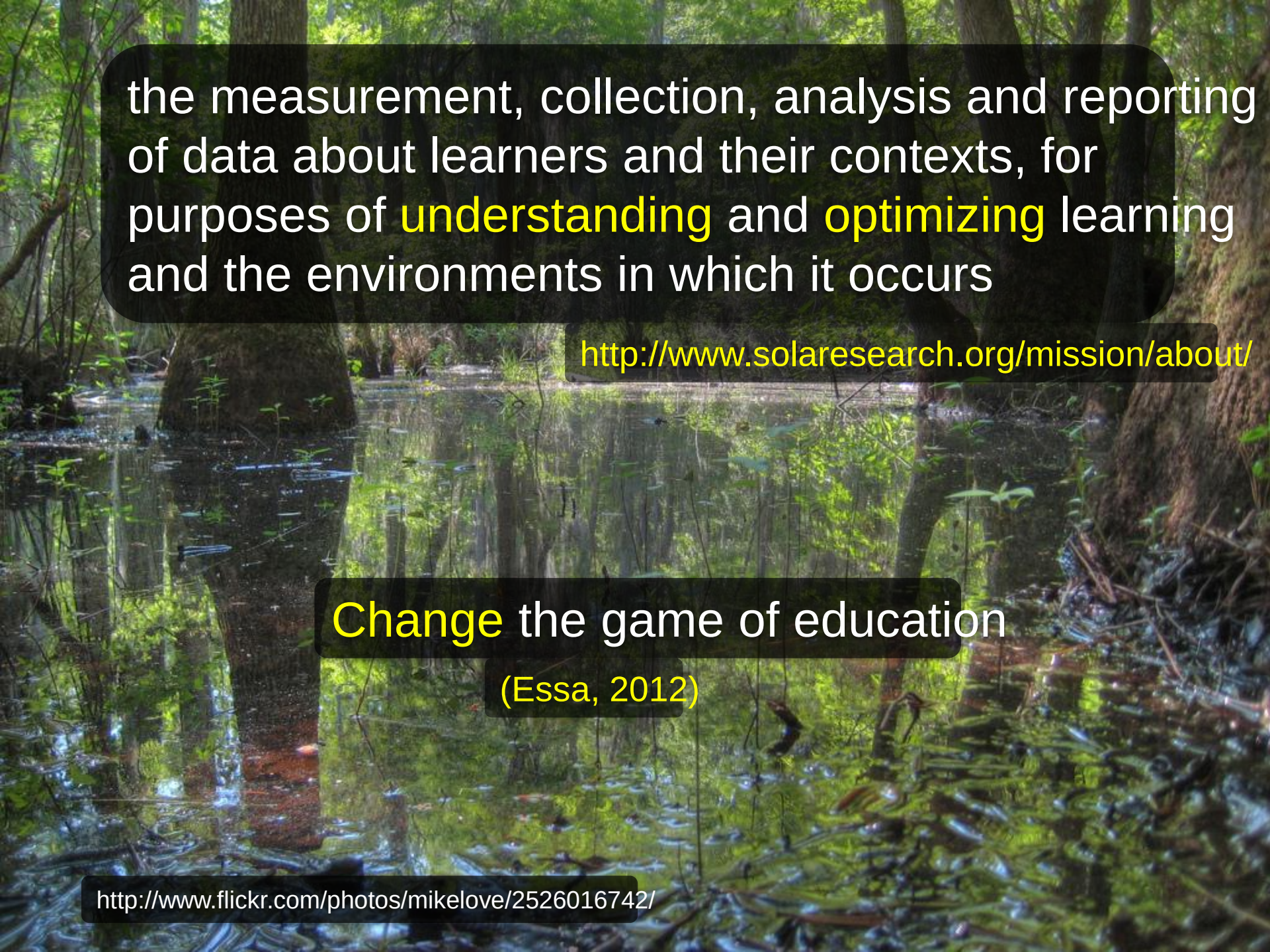

the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs

http://www.solaresearch.org/mission/about/

Change the game of education

(Essa, 2012)

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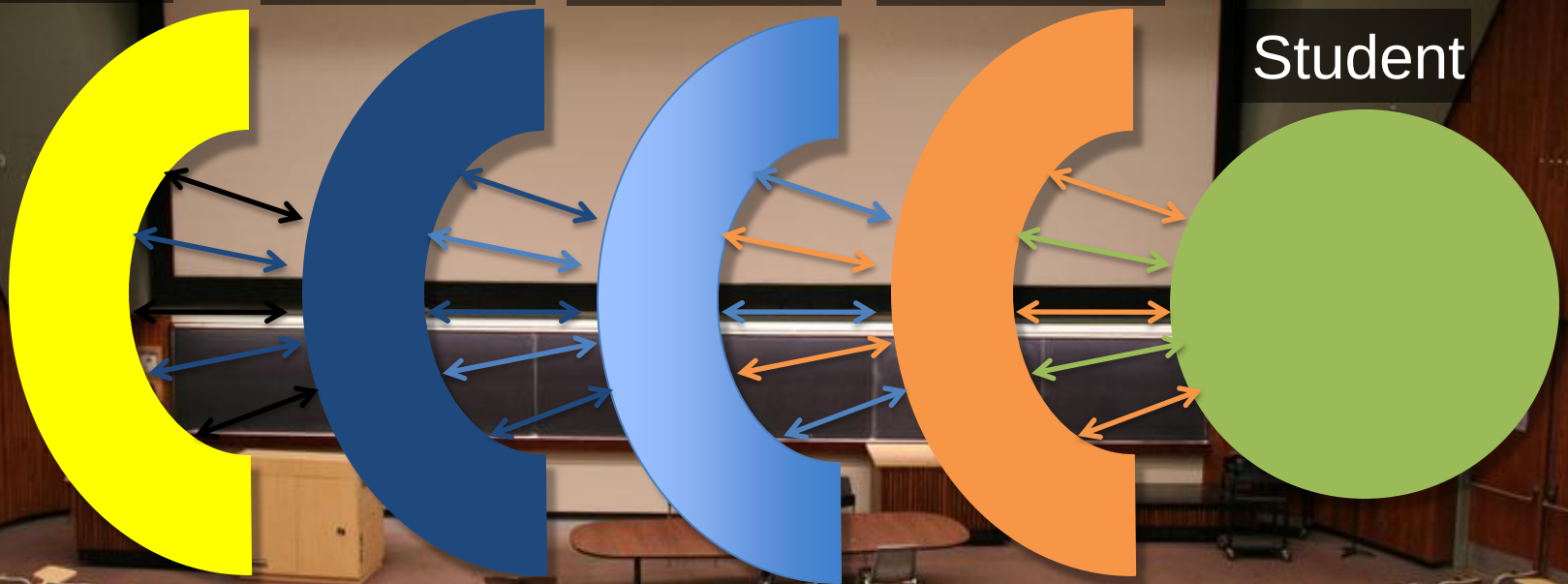
Model of university teaching

(Trigwell, 2001)



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Paths through the swamp
1. Do it to
2. Do it for
academics and students
3. Do it with
http://www.flickr.com/photos/mikelove/2526016742/

1. Do it to
2. Do it for
3. Do it with
academics and students
http://www.flickr.com/photos/mikelove/2526016742/

1. Do it to
Define the path
Describe some pitfalls
2. Do it for
3. Do it with
academics and students
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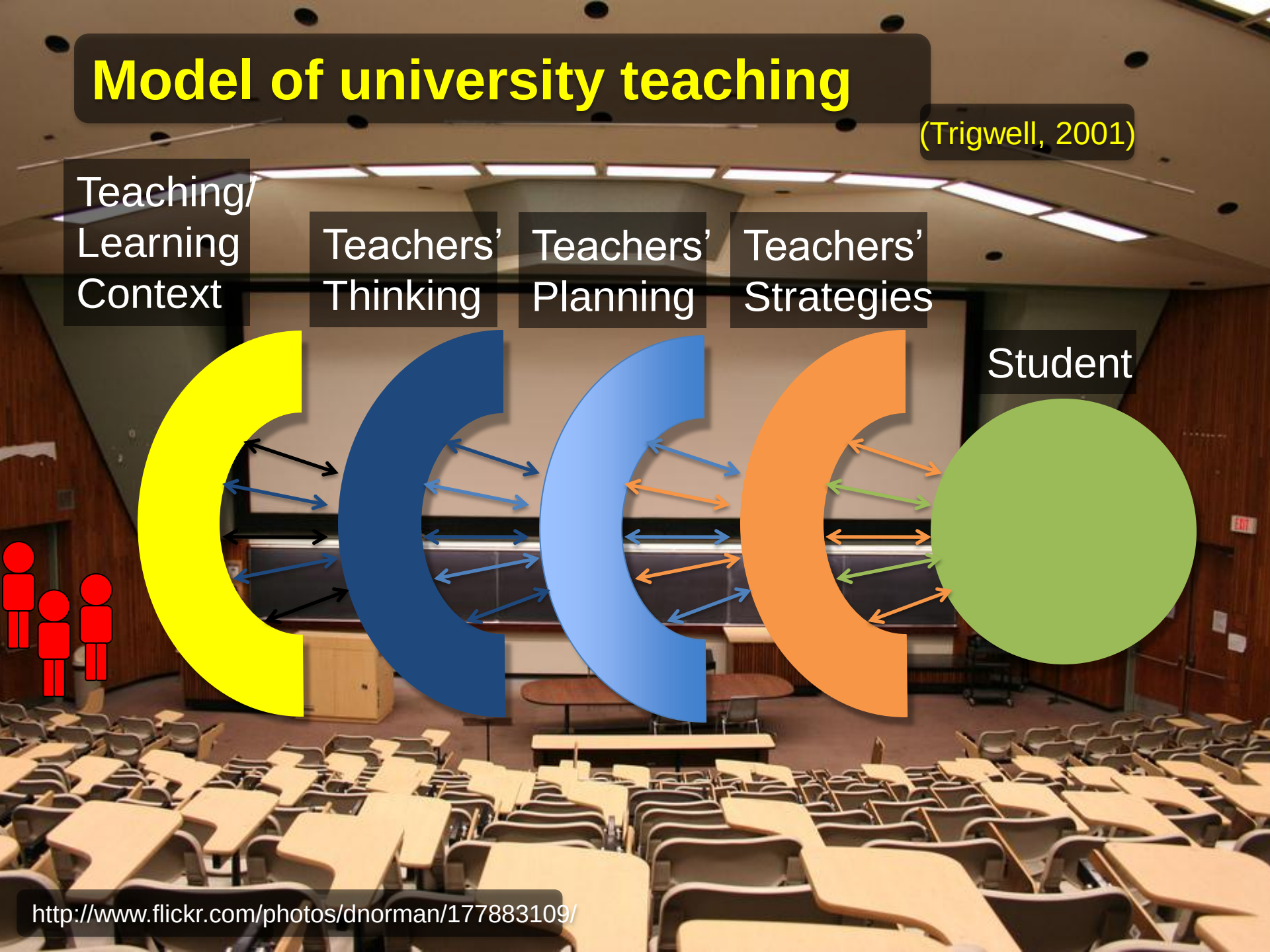
Do it “to”

http://flickr.com/photos/blackbird_hollow/1283140550/

Model of university teaching

(Trigwell, 2001)



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Model of university teaching

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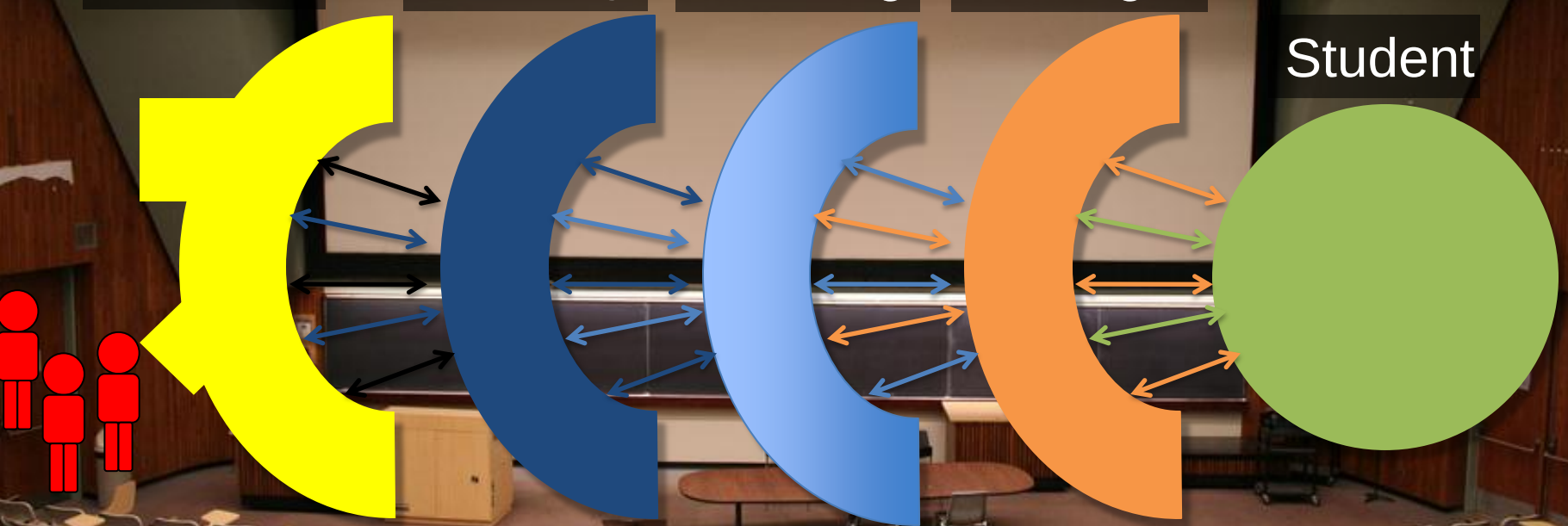

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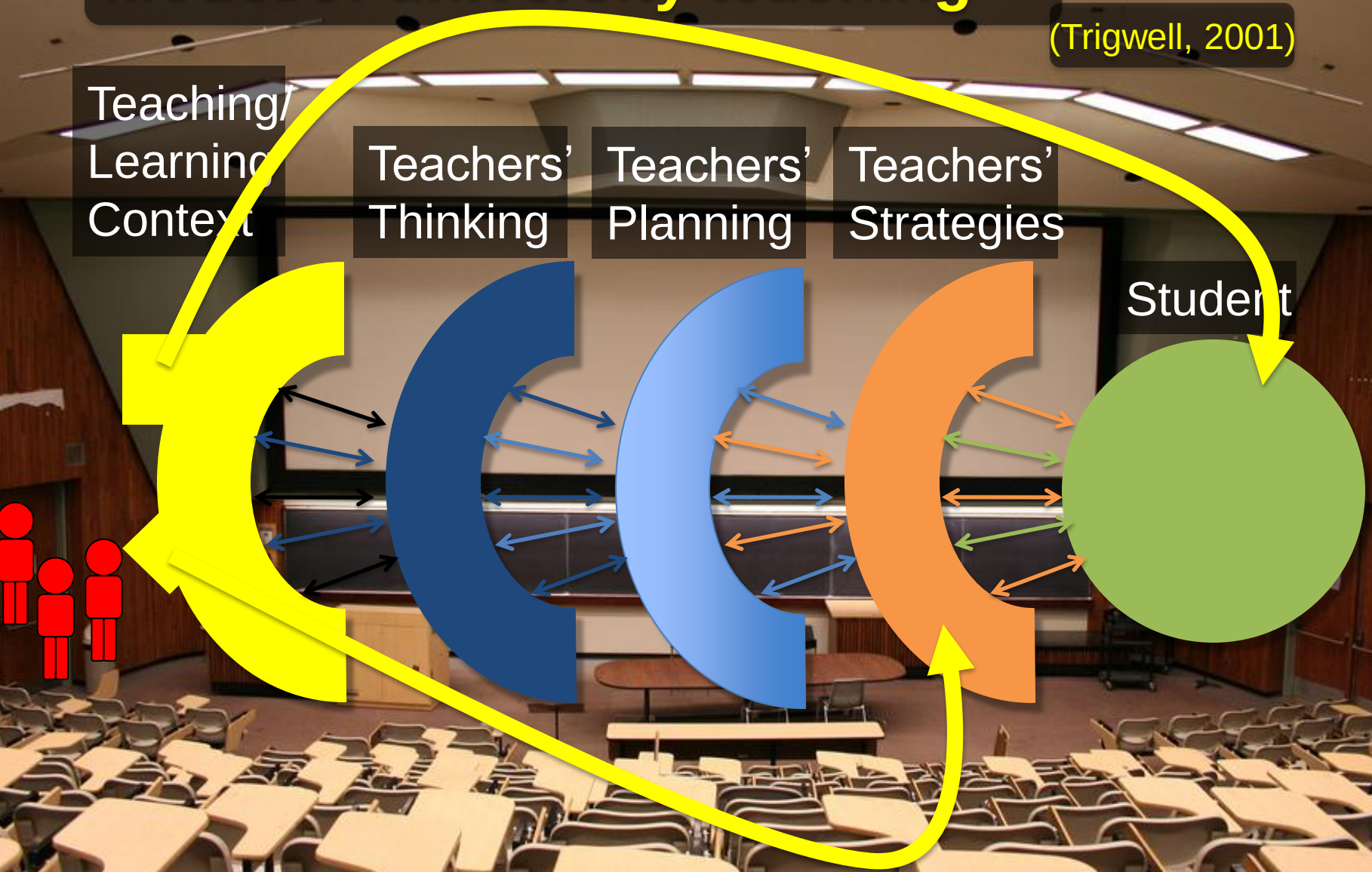

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Pitfalls
Complex and likely to fail
Failures of rationality
Resistance
Compliance
Loss of information
Disappearing data
Tail wagging the dog
http://flickr.com/photos/tonymangan/754511201/

Pitfalls

Complex and likely to fail

data warehouses “have been around for quite som
time, they have been plagued by high failure rates
and limited spread or use

(Ramamurthy, Sen and Sinha, 2008, p. 976)

http://flickr.com/photos/tonymangan/754511201/

Pitfalls

Complex and likely to fail

it also triggers significant conceptual and practical discontinuities within adopting organizations, imposes a heavy knowledge burden, creates enterprise-wide dependencies, and triggers considerable political consequences.

(Ramamurthy, Sen and Sinha, 2008, p. 979)

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Pitfalls

Complex and likely to fail

the vast majority of big data and magical business analy
projects fail. Not in a great big system-won't-work way…
They fail because the users don't use them.

(Schiller, 2012)

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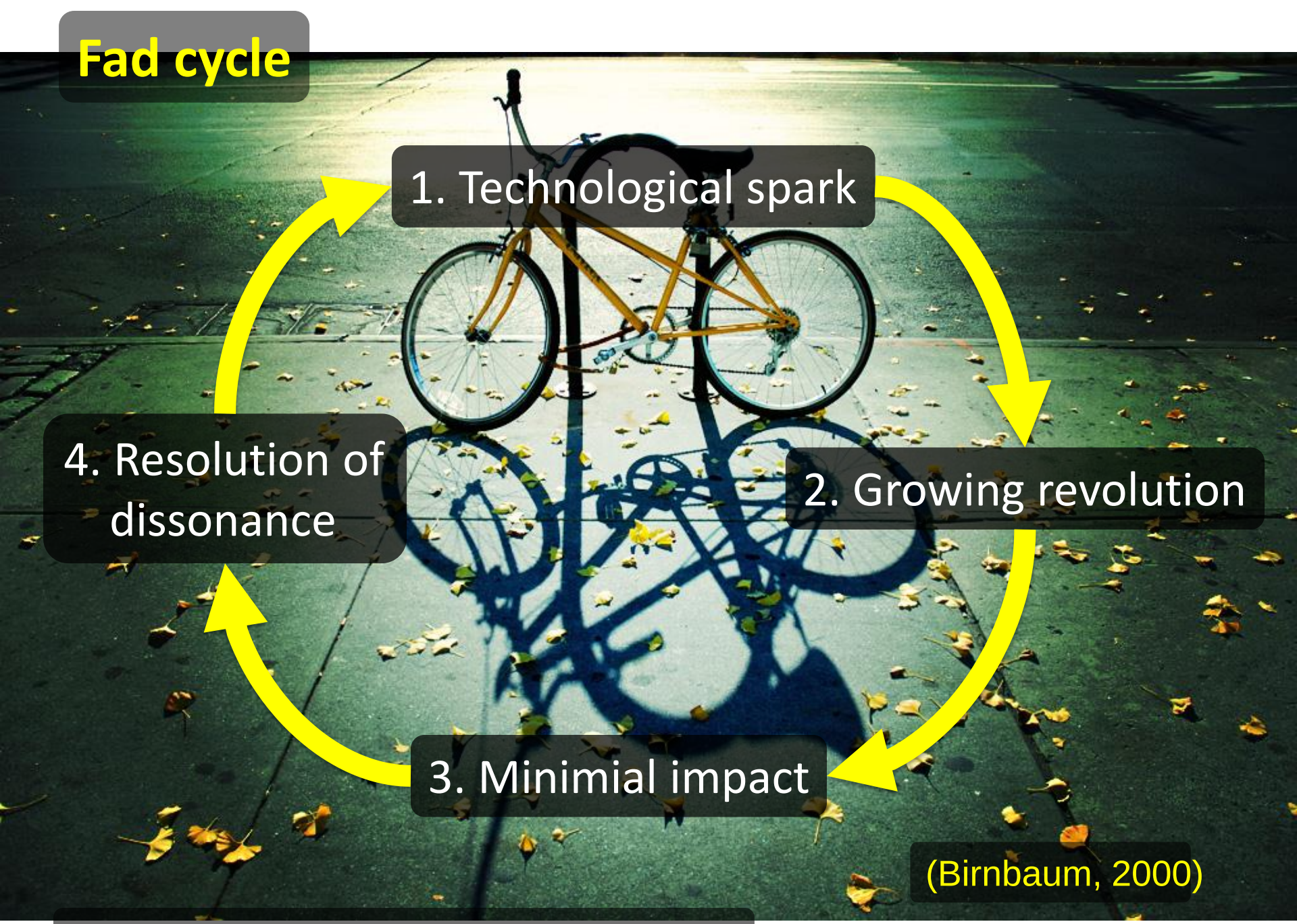
Fad cycle



(Birnbaum, 2000)

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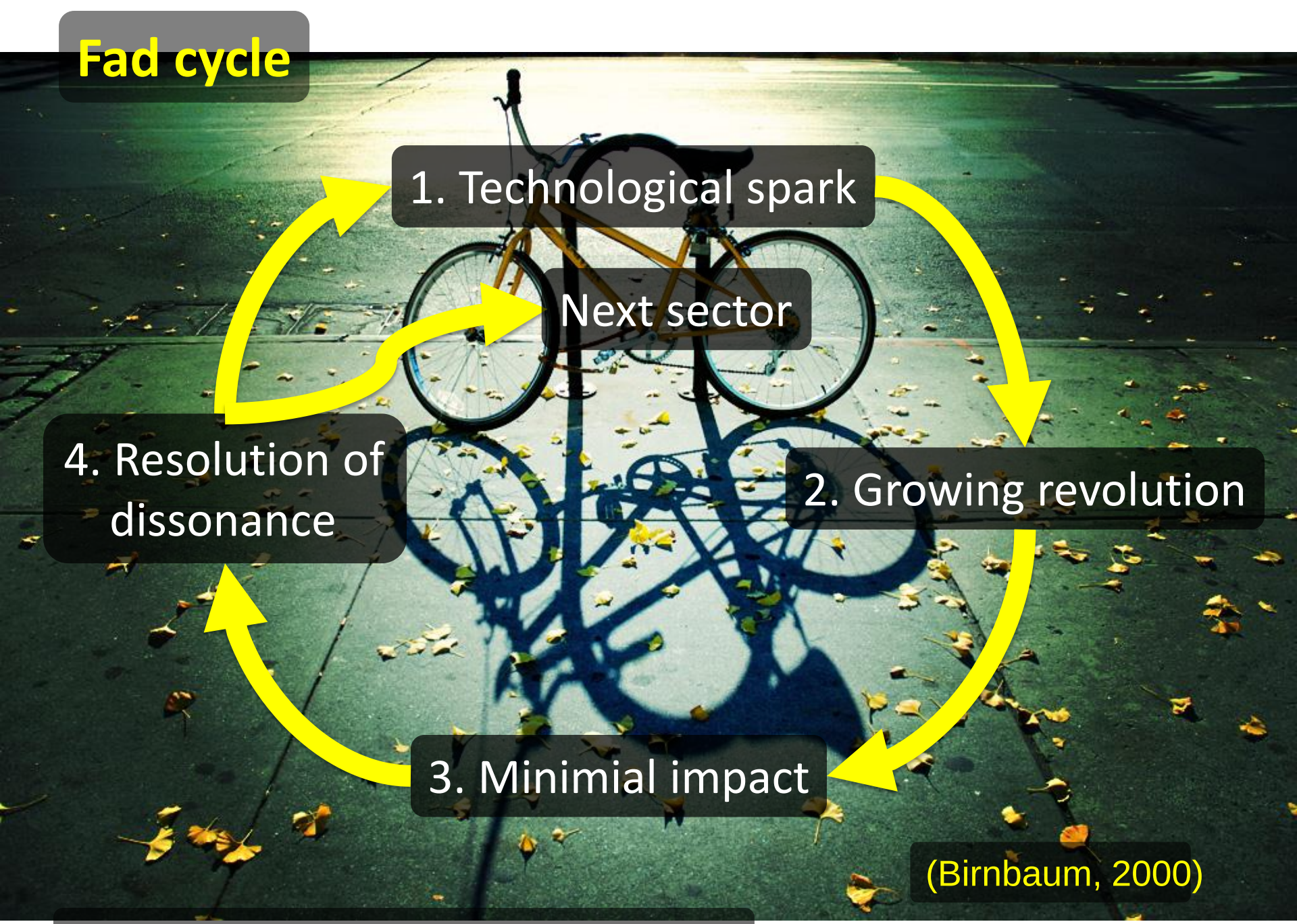
Fad cycle



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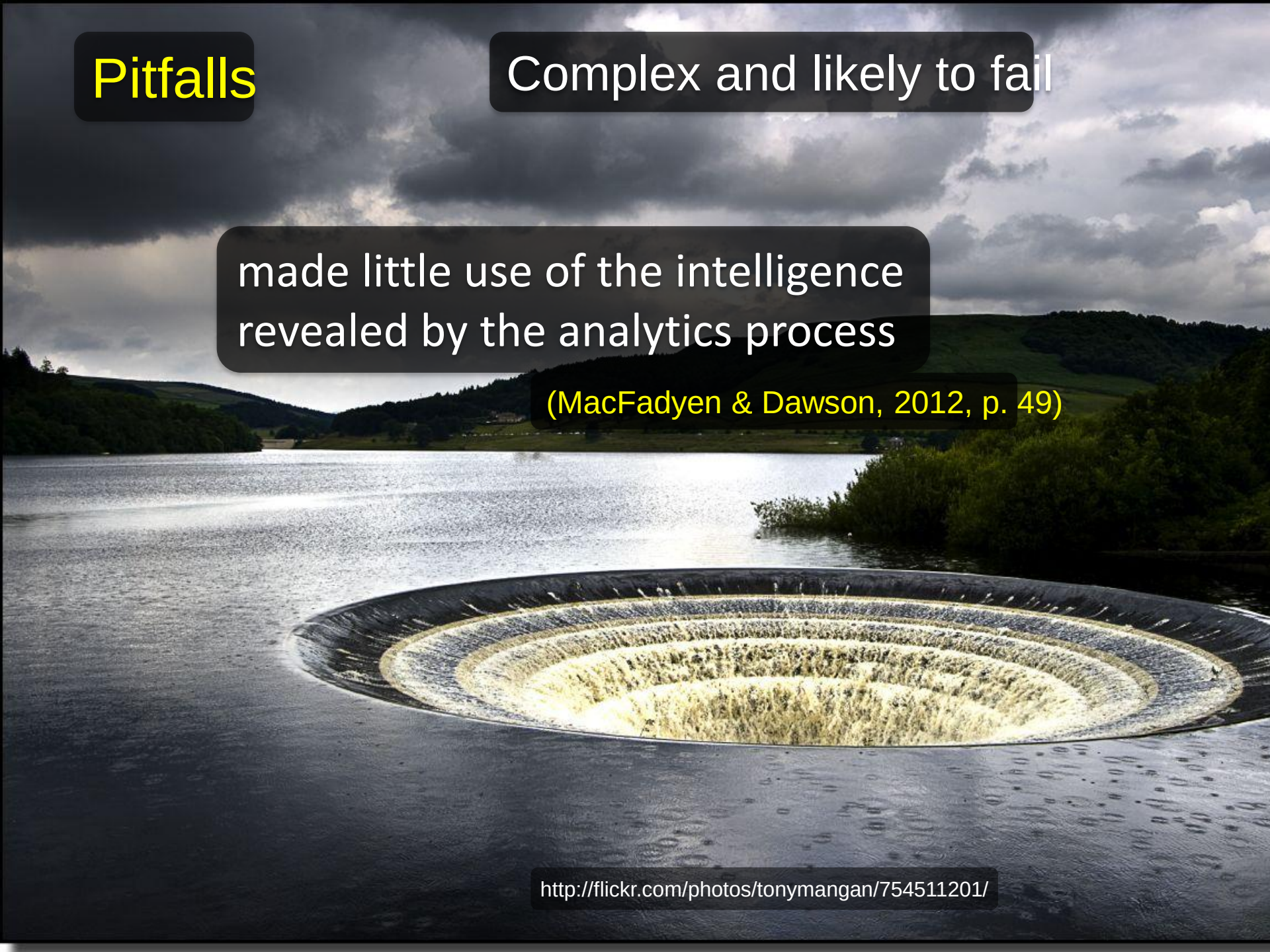
Pitfalls
Complex and likely to fail
made little use of the intelligence revealed by the analytics process
(MacFadyen & Dawson, 2012, p. 49)
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Pitfalls

Complex and likely to fail

data warehouse development is dominated by central IT departments that have little experience with decision support. A common theme in industry conferences and professional books is the rediscovery of fundamental DSS principles like evolutionary development

(Arnot & Pervan, 2005)

3. Do it **with**

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Pitfalls

Failures of rationality

Data-driven decision making does not guarantee effective decision making. Having data does not necessarily mean that they will be used to drive decisions or lead to improvements.

(Marsh, Pane & Hamilton, 2006, p. 10)

http://flickr.com/photos/tonymangan/754511201/

Pitfalls

Failures of rationality

1. National standardised testing

2. National curriculum

Data-driven decision making does not guarantee effective decision making. Having data does not necessarily mean that they will be used to drive decisions or lead to improvements.

(Marsh, Pane & Hamilton, 2006, p. 10)

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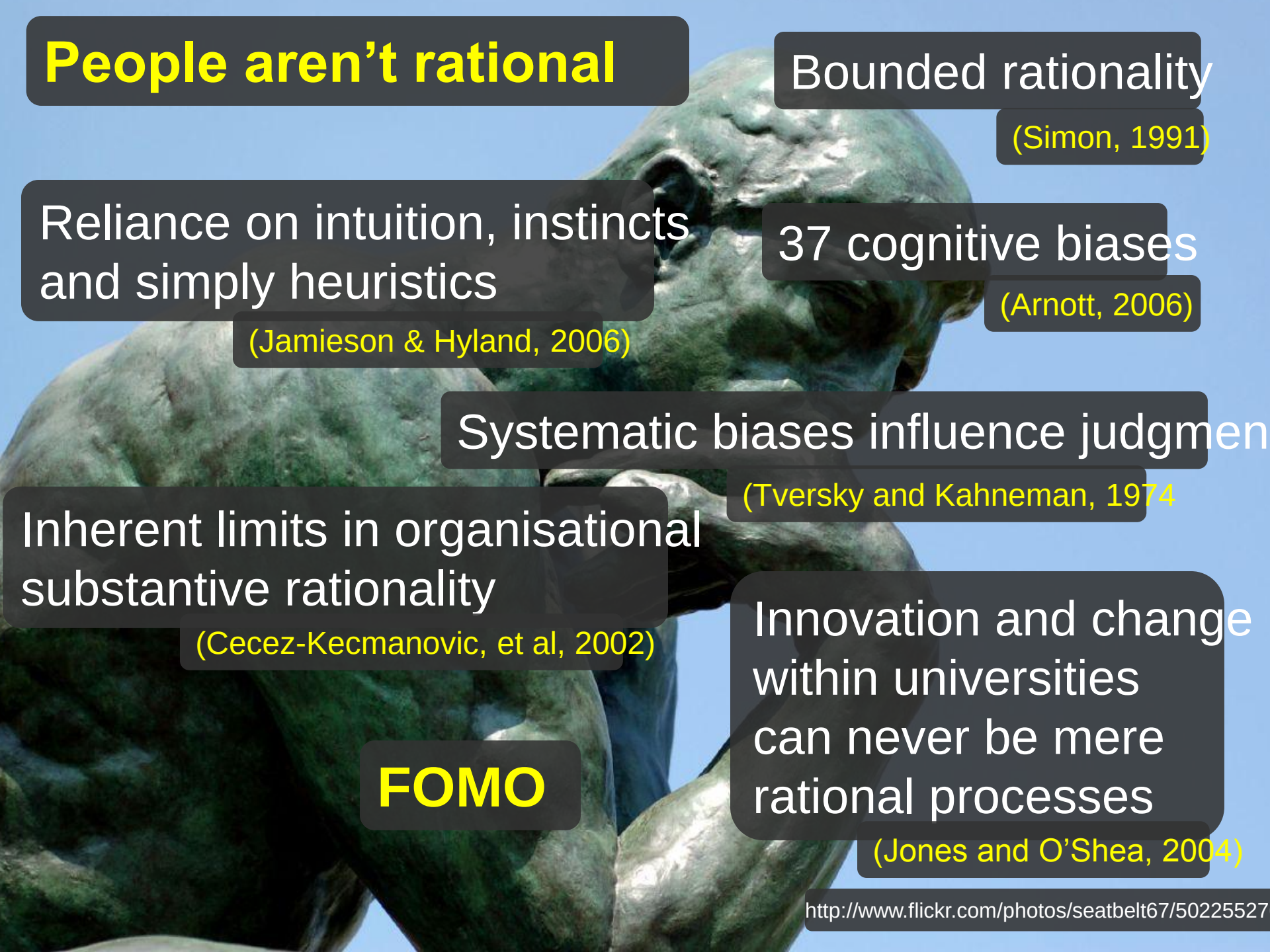
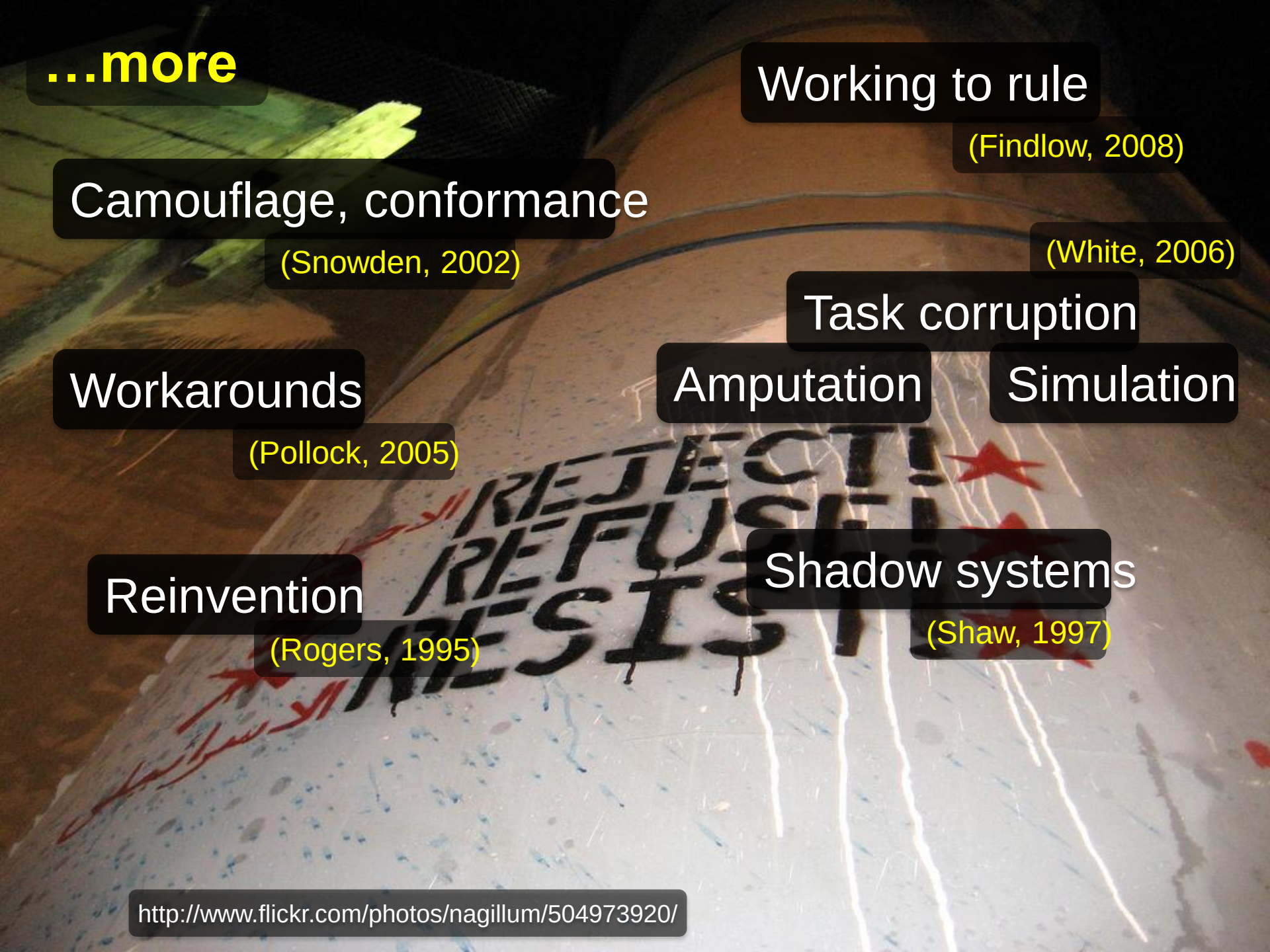
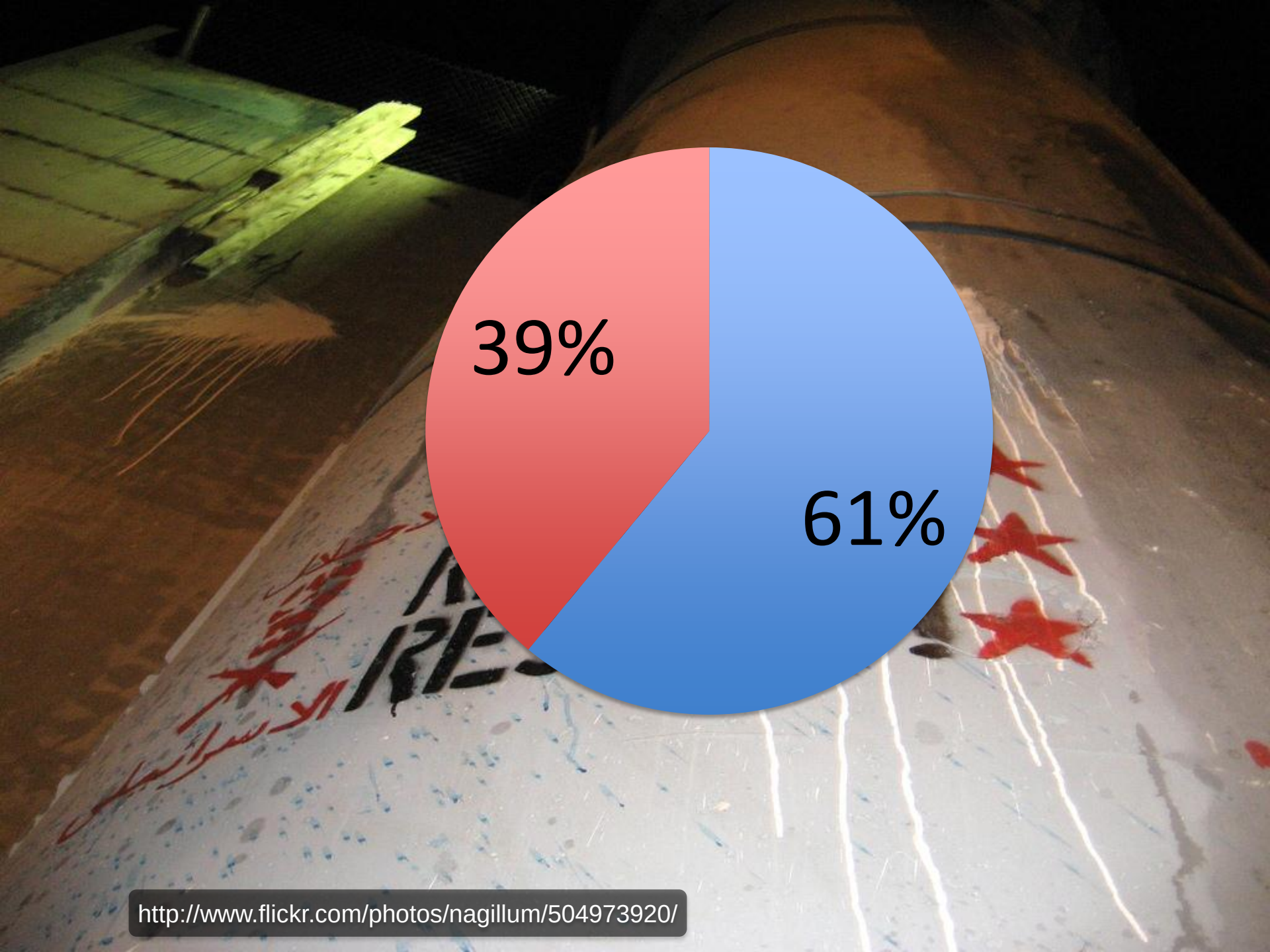

People aren't rational
Bounded rationality
(Simon, 1991)
Reliance on intuition, instincts and simply heuristics
(Jamieson & Hyland, 2006)
37 cognitive biases
(Arnott, 2006)
Systematic biases influence judgmen
(Tversky and Kahneman, 1974
Inherent limits in organisational substantive rationality
(Cecez-Kecmanovic, et al, 2002)
FOMO
Innovation and change within universities can never be mere rational processes
(Jones and O'Shea, 2004)
http://www.flickr.com/photos/seatbelt67/50225527

Pitfalls
Resistance
Compliance
http://flickr.com/photos/tonymangan/754511201/

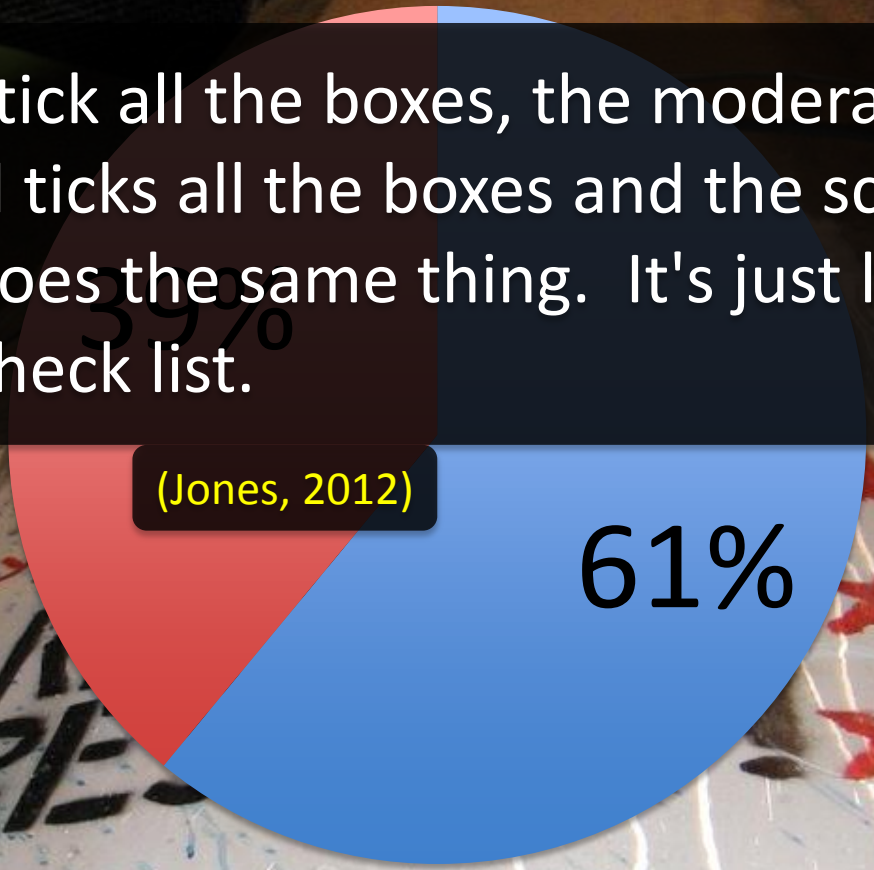
There is, of course, a long tradition of research that highlights the many ways workers resist managerial control
(Fleming and Spicer, 2003)
sabotage
(Mars, 1982)
careful carelessness
(Prasad and Prasad, 1998)
hidden transcripts
(Scott, 1985)
REJECT!
REFUSE!
RESIST!
indirect resistance
(Ong, 1987)
subjective resistance
(Kondo, 1990)
http://www.flickr.com/photos/nagillum/504973920/


…more
Working to rule
(Findlow, 2008)
Camouflage, conformance
(Snowden, 2002)
(White, 2006)
Task corruption
Amputation
Simulation
Workarounds
(Pollock, 2005)
Shadow systems
(Shaw, 1997)
Reinvention
(Rogers, 1995)
http://www.flickr.com/photos/nagillum/504973920/



http://www.flickr.com/photos/nagillum/504973920/

I go in and tick all the boxes, the moderator goes in and ticks all the boxes and the school secretary does the same thing. It's just like the exam check list.



(Jones, 2012)

http://www.flickr.com/photos/nagillum/504973920/

Phillip Dawson
@phillipdawson

Following

MT @catspyjamasnz: Students “faked” collaboration in Bb, 'cause it was requirement #ascilite2012 <learning analytics will be full of fakery!

Reply Retweet Favorite

1 RETWEET | 1 FAVORITE

7:50 AM - 29 Nov 12 · Embed this Tweet

https://twitter.com/phillipdawson/status/273906845301764096

http://www.flickr.com/photos/nagillum/504973920/

Hypothetical

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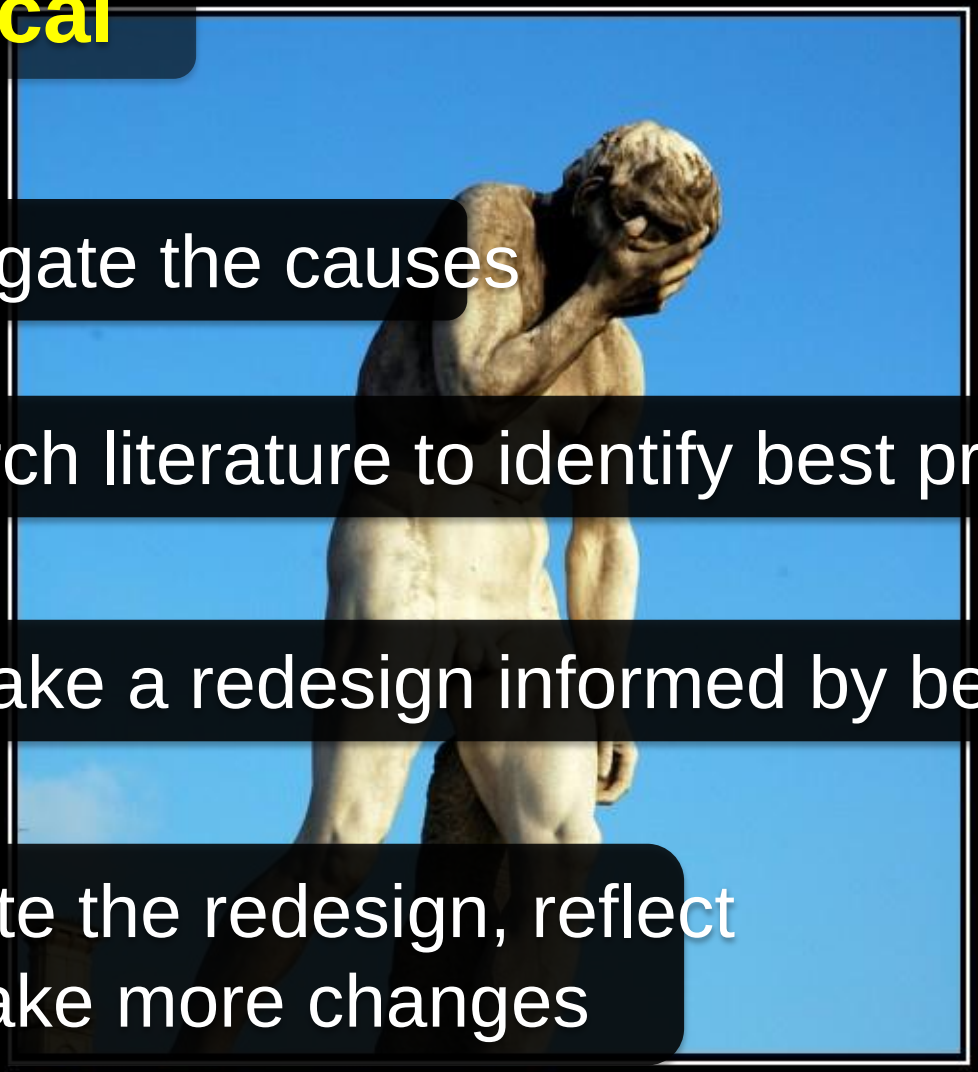
Hypothetical

1. Investigate the causes
2. Research literature to identify best practice
3. Undertake a redesign informed by best practice
4. Evaluate the redesign, reflect and make more changes



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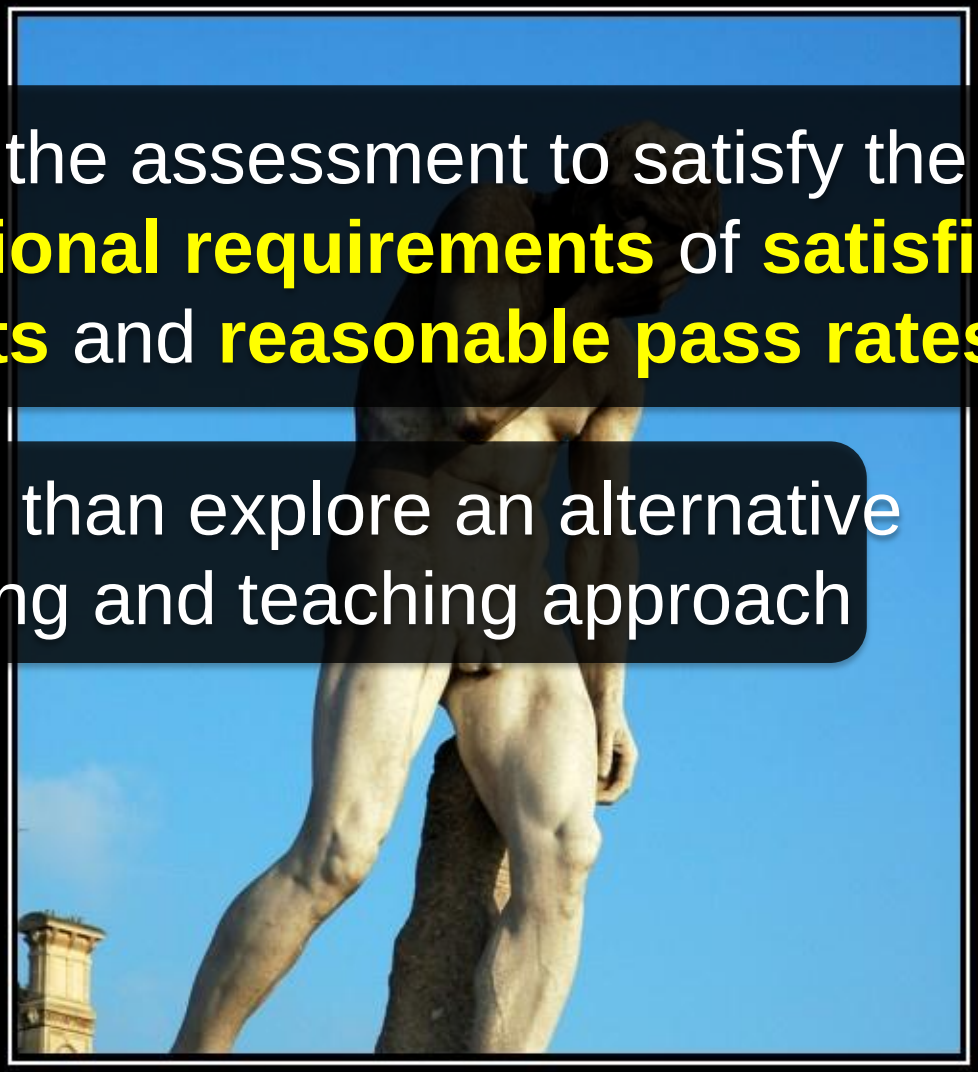
change the assessment to satisfy the **institutional requirements** of **satisfied students** and **reasonable pass rates**

rather than explore an alternative learning and teaching approach



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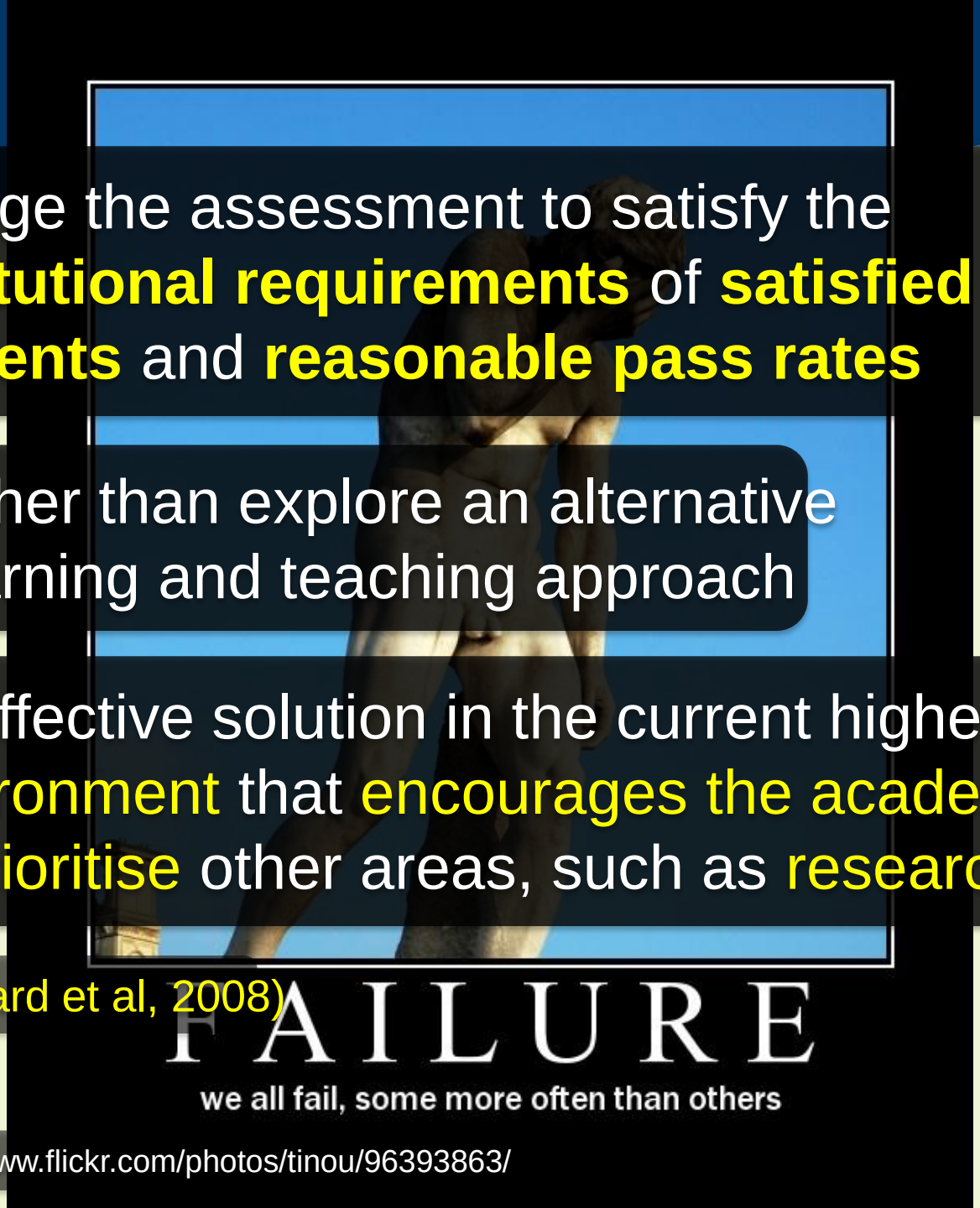
change the assessment to satisfy the **institutional requirements** of **satisfied students** and **reasonable pass rates**

rather than explore an alternative learning and teaching approach

an effective solution in the current higher education environment that encourages the academic to prioritise other areas, such as research.

(Tutty, Sheard et al, 2008)



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The Moneyball Mismatch

Without the availability of high-quality data … data may become misinformation or lead to invalid inferences.

(Marsh, Pane & Hamilton, 2006, p. 3)

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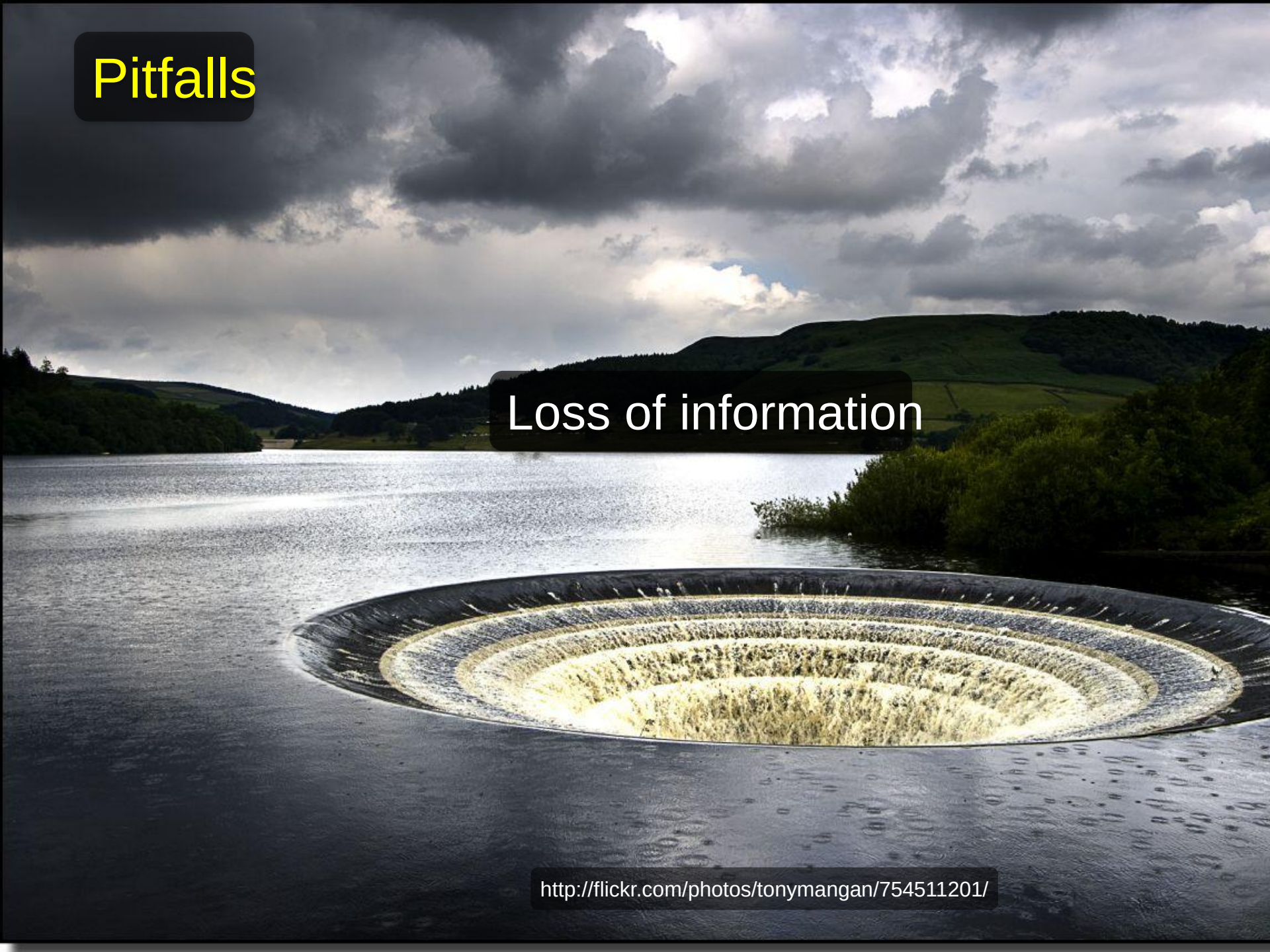
Pitfalls


Loss of information
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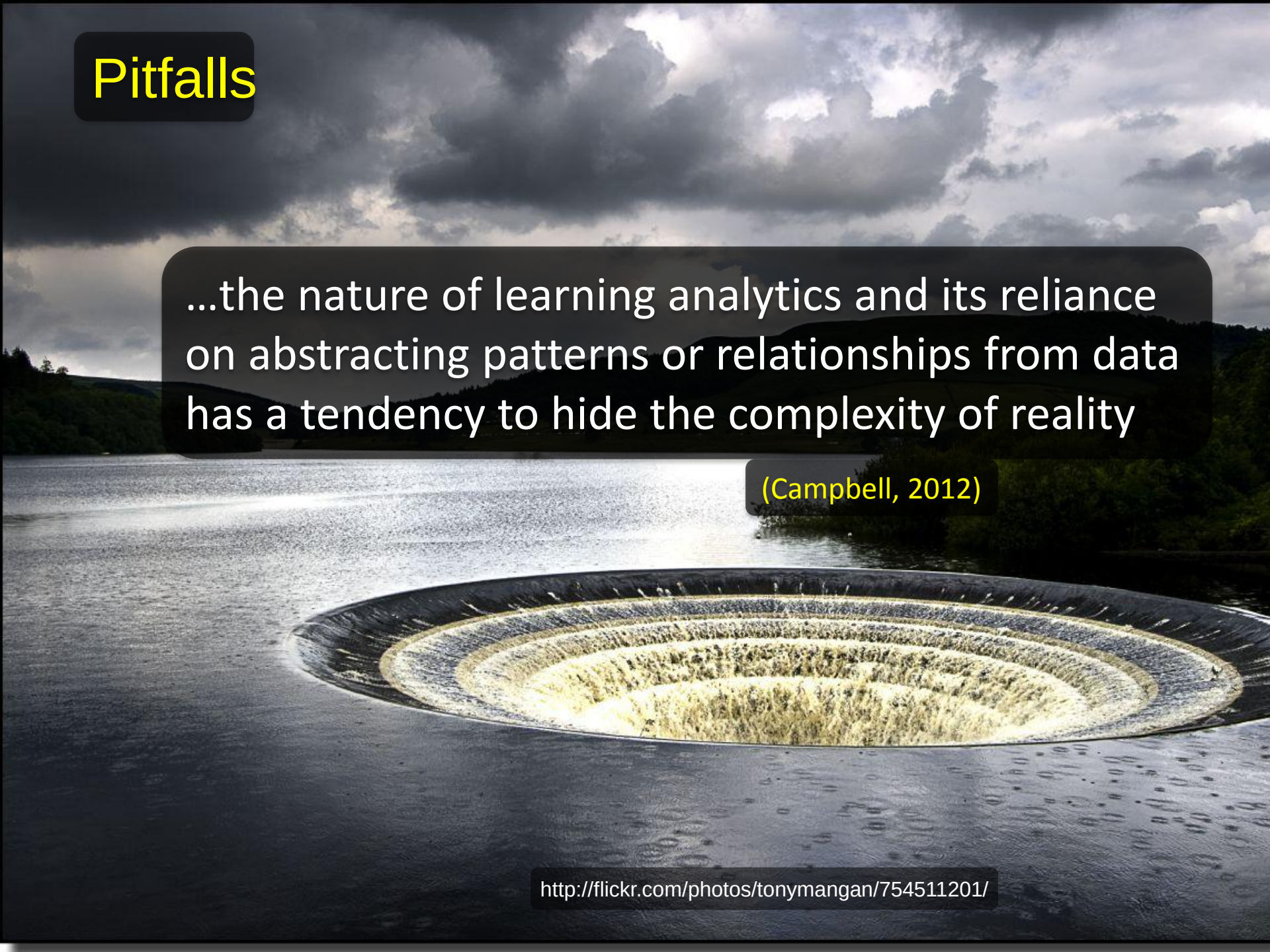
Pitfalls

…the nature of learning analytics and its reliance on abstracting patterns or relationships from data has a tendency to hide the complexity of reality

(Campbell, 2012)



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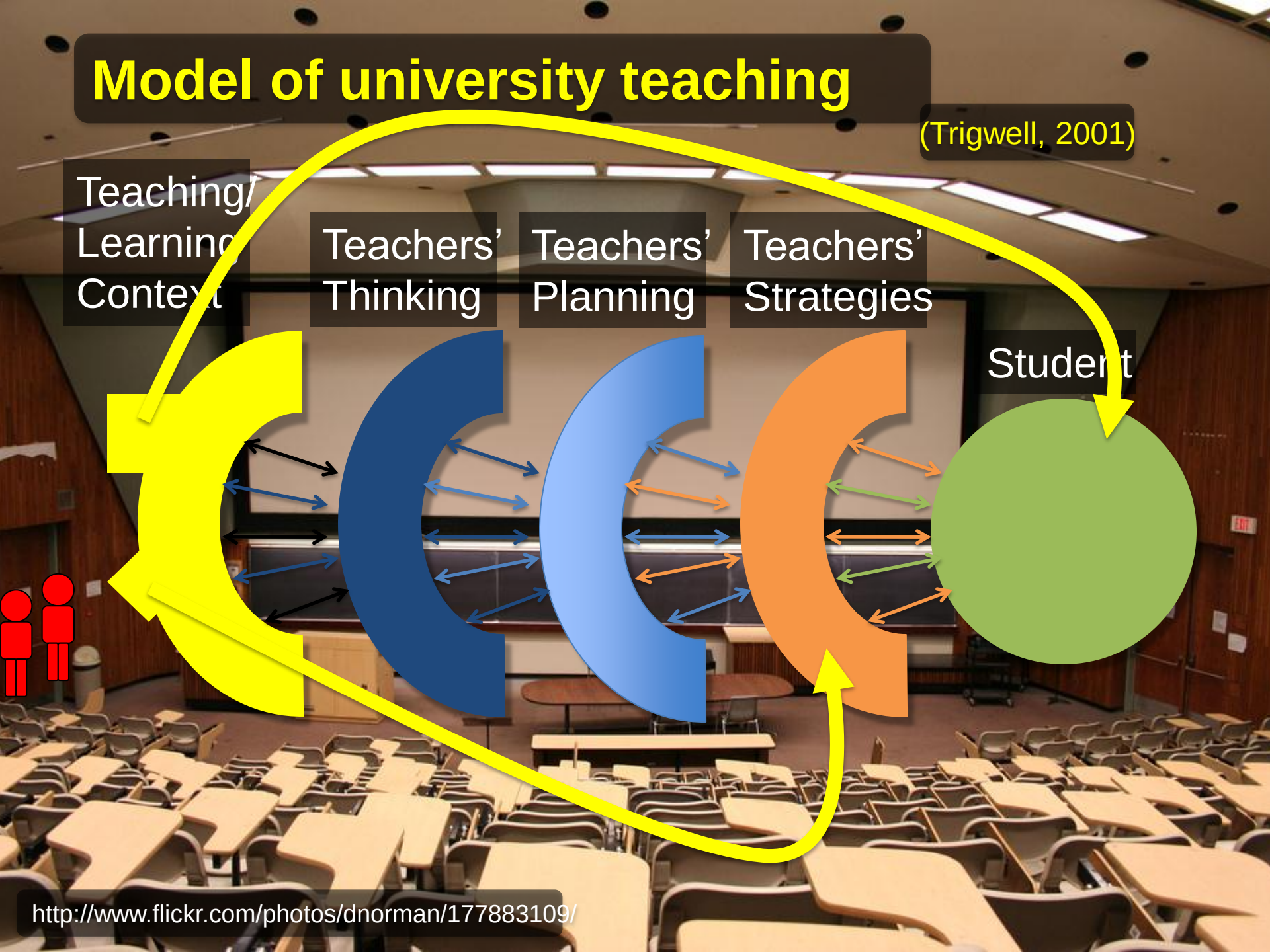
Model of university teaching

(Trigwell, 2001)



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Pitfalls

Disappearing data

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Pitfalls

Tail wagging the dog
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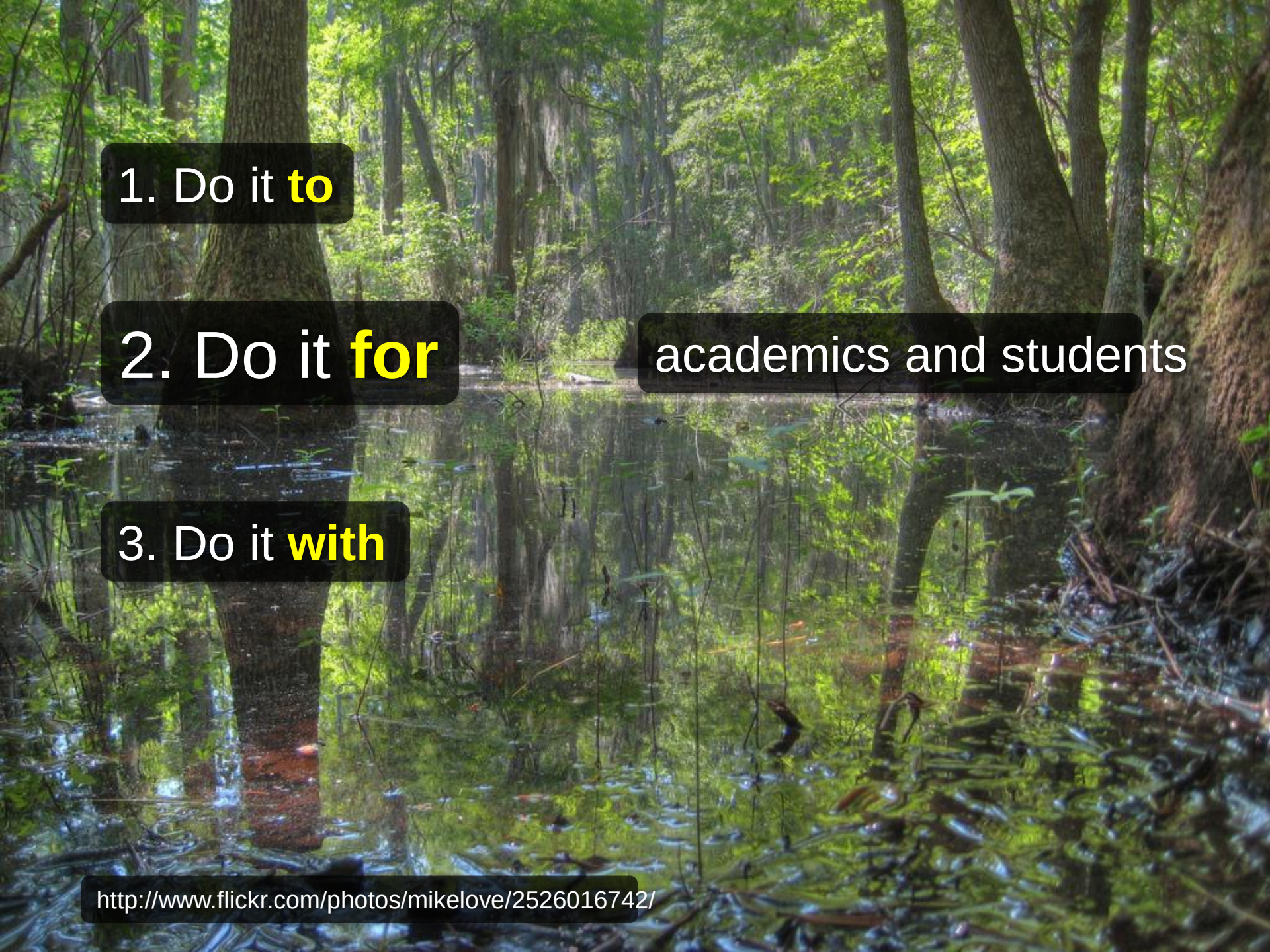
TECHNOLOGY
ASSESSMENT
VOICETHREAD
CURRICULUM
BLOG
EPORTFOLIO
ENGAGING
CLASSROOM
THEORY
PRACTICE SKILLS
REFLECT
LEARN
NEW
CHALLENGE
IMPROVE
EXPERIENCE
DESIGN
DEVELOPMENT
MOODLE
SKILLS
TEAMWORK
CURRICULUM
APPLY
INTERACT
FLEXIBLE
STUDENTS
EVALUATION
THINK
ROTE
VIDEO
TOOL
PEERS
EDUCATION
SEVEN PRINCIPLES
PRESENTATION
ASSESSMENT
STUDY
FLEX
WORK RELATED LEARNING
EFFECTIVE
LEARNING
INSTRUCTIONAL
ONLINE
TRANSACTIONAL
PRESENCE
VISUAL
WEB
DIGITAL
COGNITIVE LOAD
DISCUSSION
QUESTION
COMMUNICATION
AUDIO
MEDIA
TEXT
ORGANISATION
ASSESSMENT
COURSE
METHODOLOGY
FACILITATION
MENTOR
SOCIAL
LIVE
METHOD
COMMUNITY
FORMAL
PUBLIC
QUANTITATIVE
SIMULATE
OPEN
NEEDS
RHETORICAL
PARADOX
NICHE
PLAN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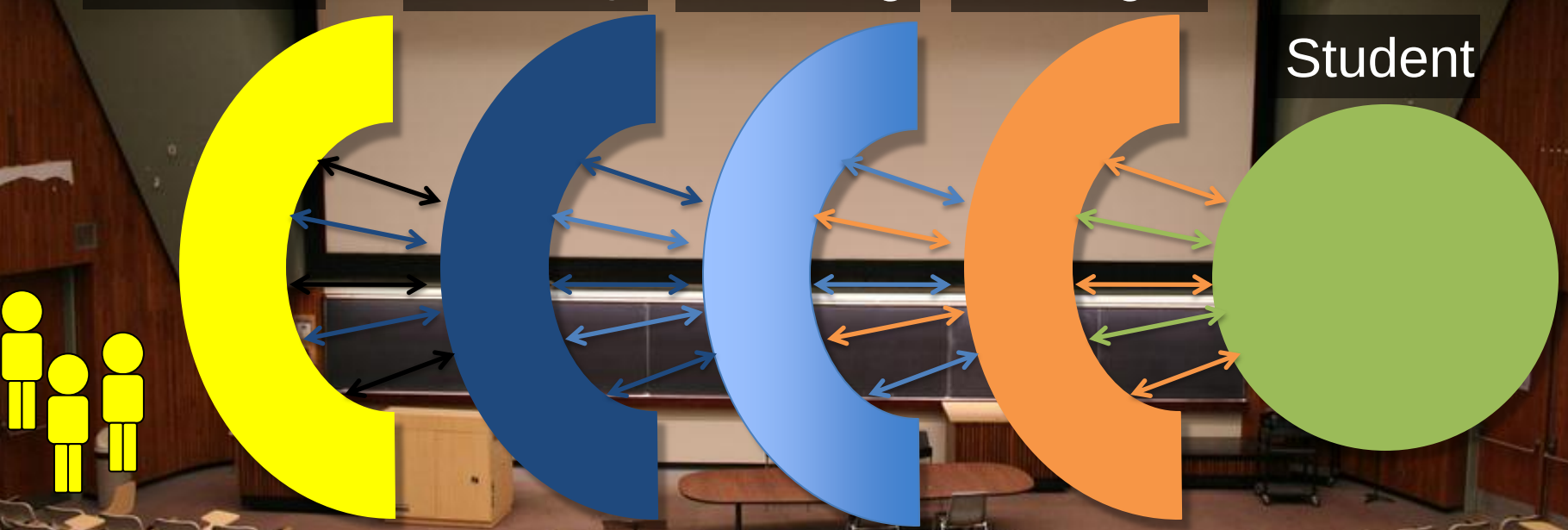

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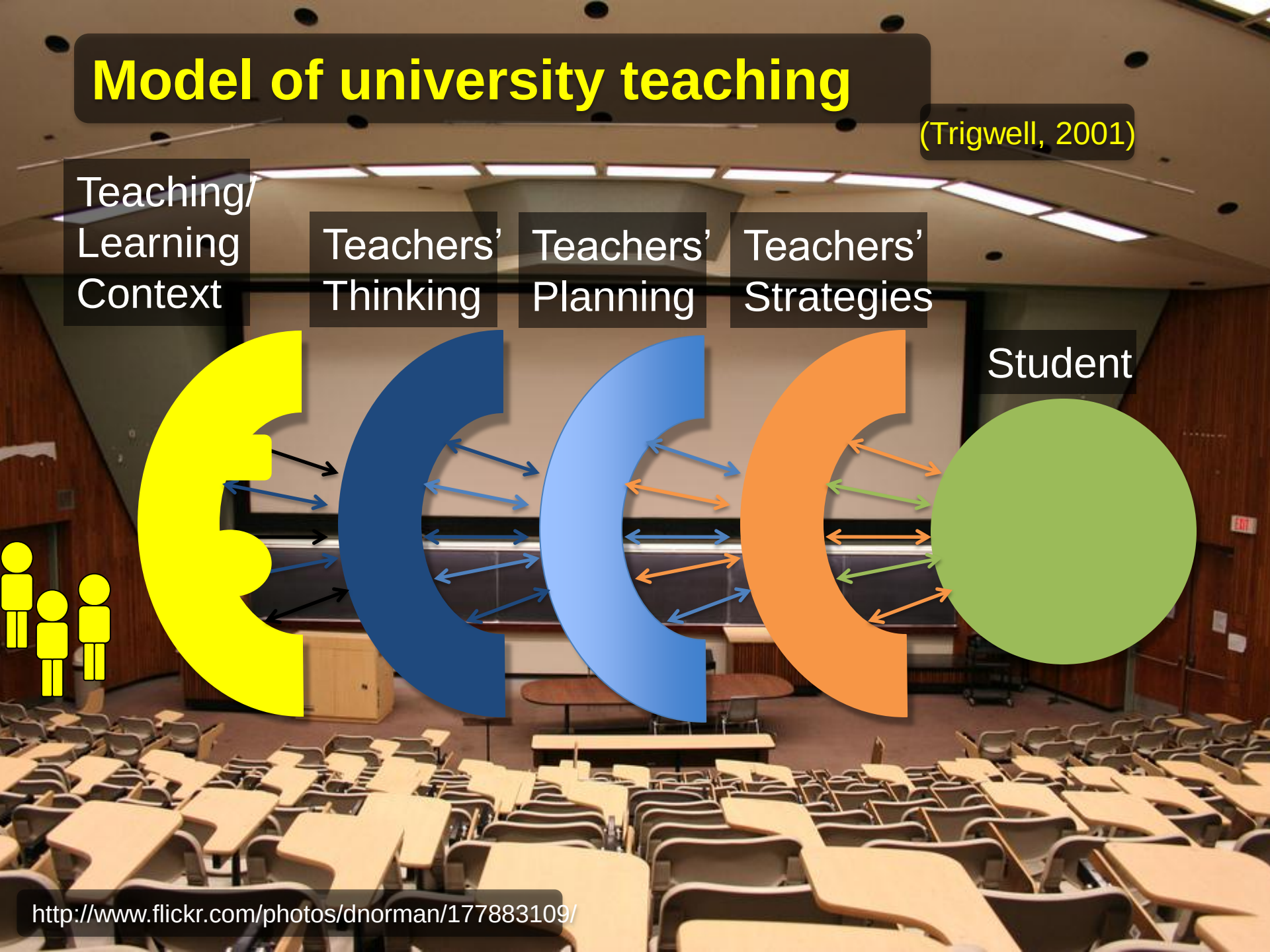

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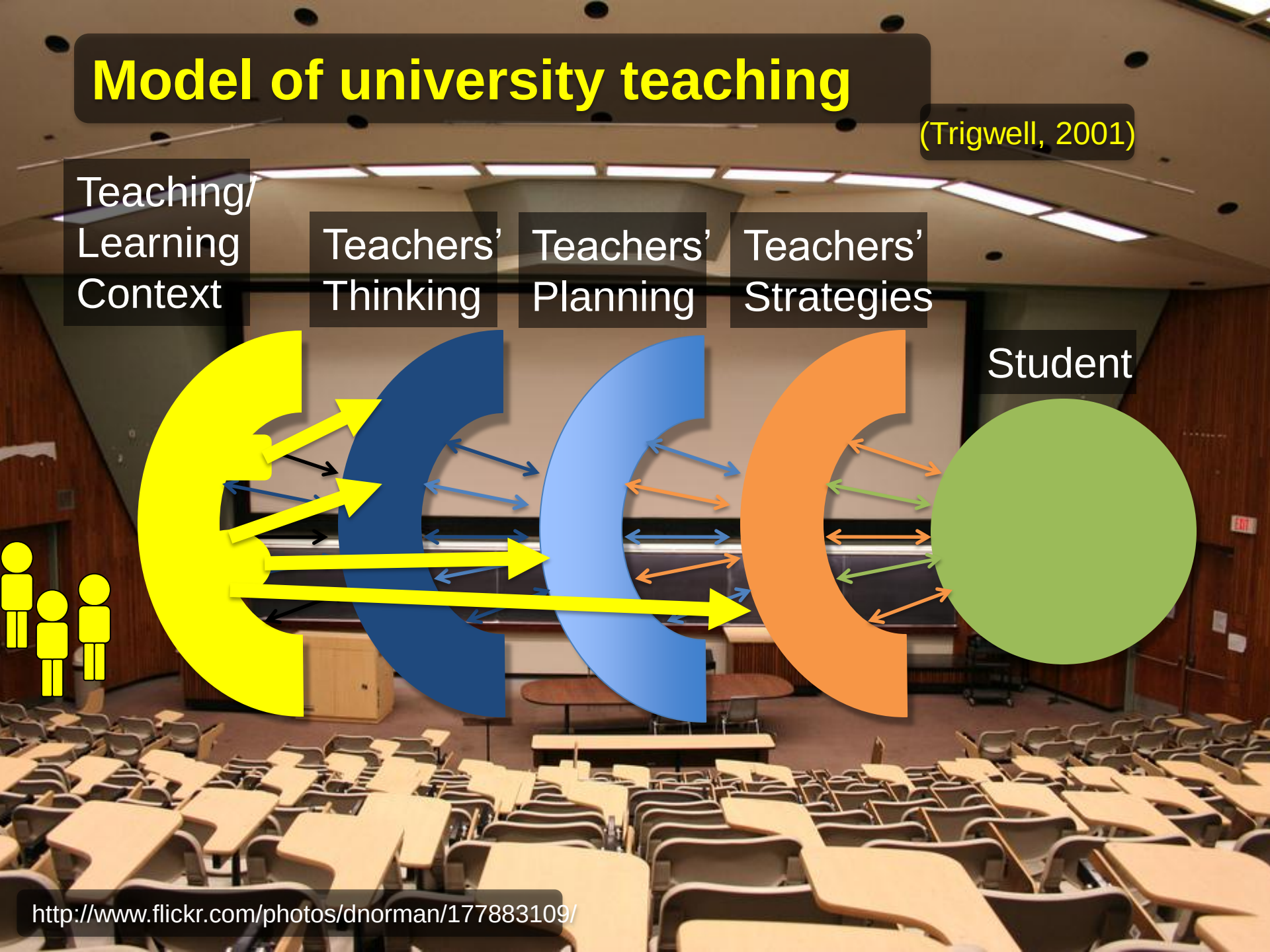

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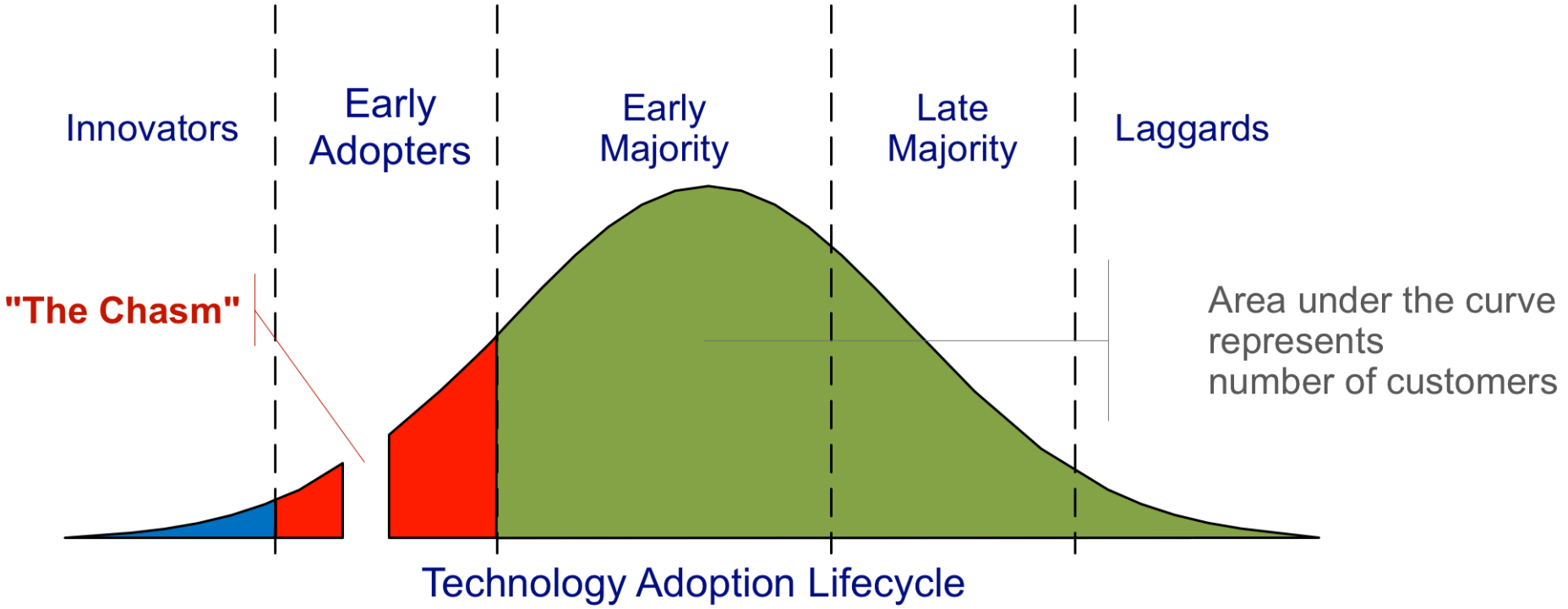
Pitfalls
The chasm
It’s not what they do?
Constraints
We don’t know how?
http://flickr.com/photos/tonymangan/754511201/

Pitfalls

The chasm (Geoghegan, 1994)



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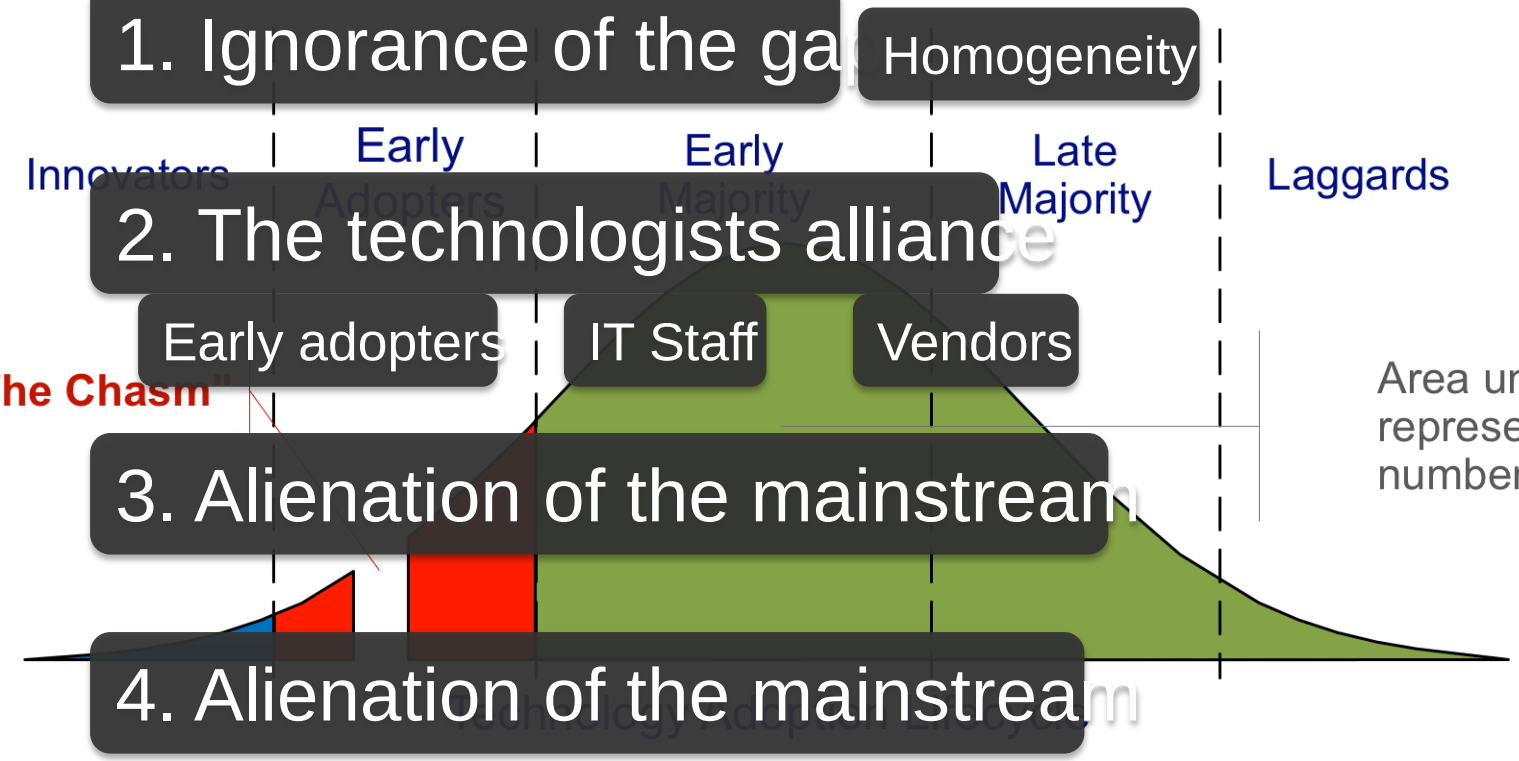
Pitfalls

The chasm

(Geoghegan, 1994)

1. Ignorance of the ga



2. The technologists alliance

3. Alienation of the mainstream

4. Alienation of the mainstream

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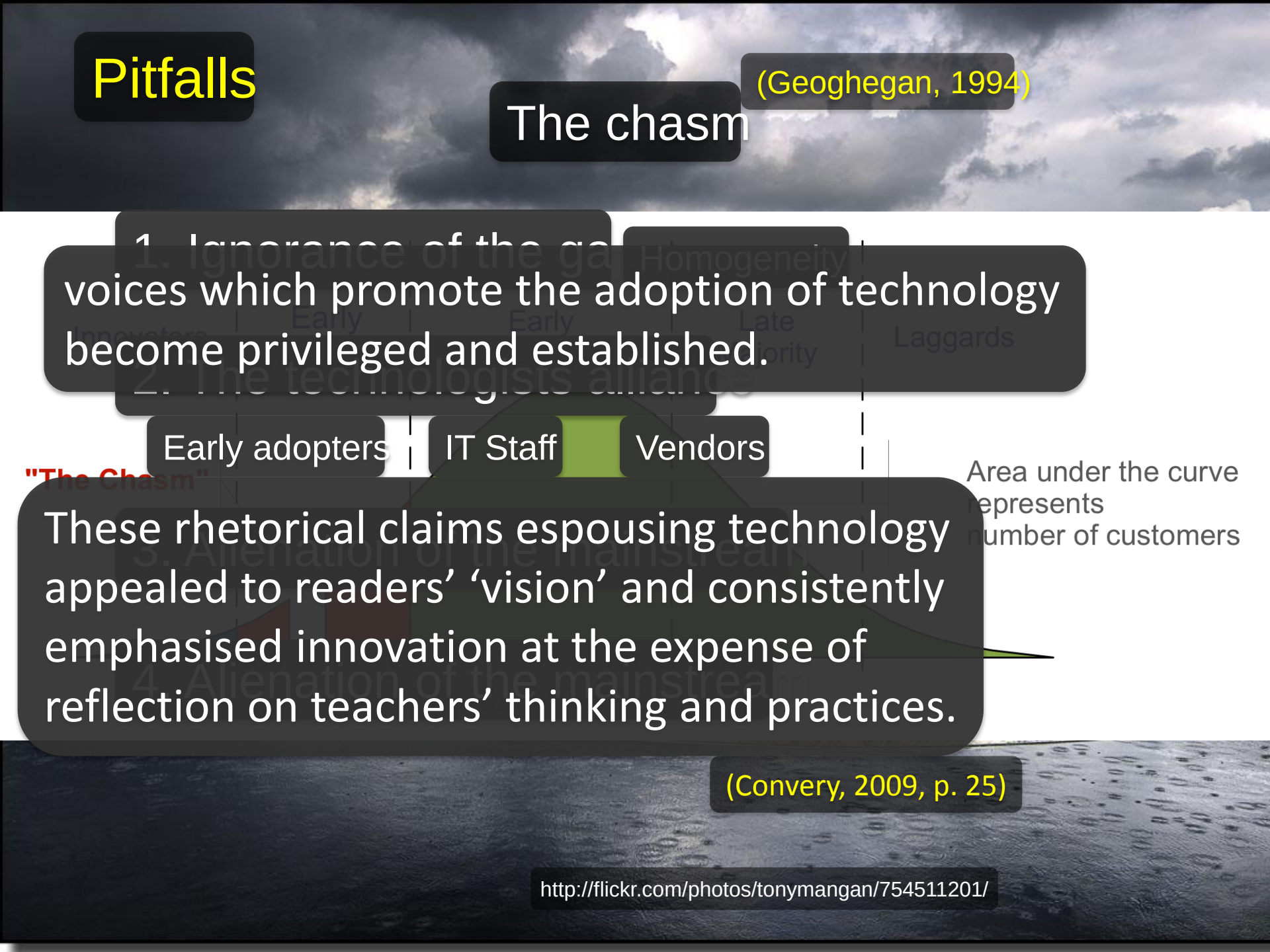
Pitfalls

The chasm

(Geoghegan, 1994)

voices which promote the adoption of technology become privileged and established.

Early adopters | IT Staff | Vendors



These rhetorical claims espousing technology appealed to readers' 'vision' and consistently emphasised innovation at the expense of reflection on teachers' thinking and practices.

(Convery, 2009, p. 25)

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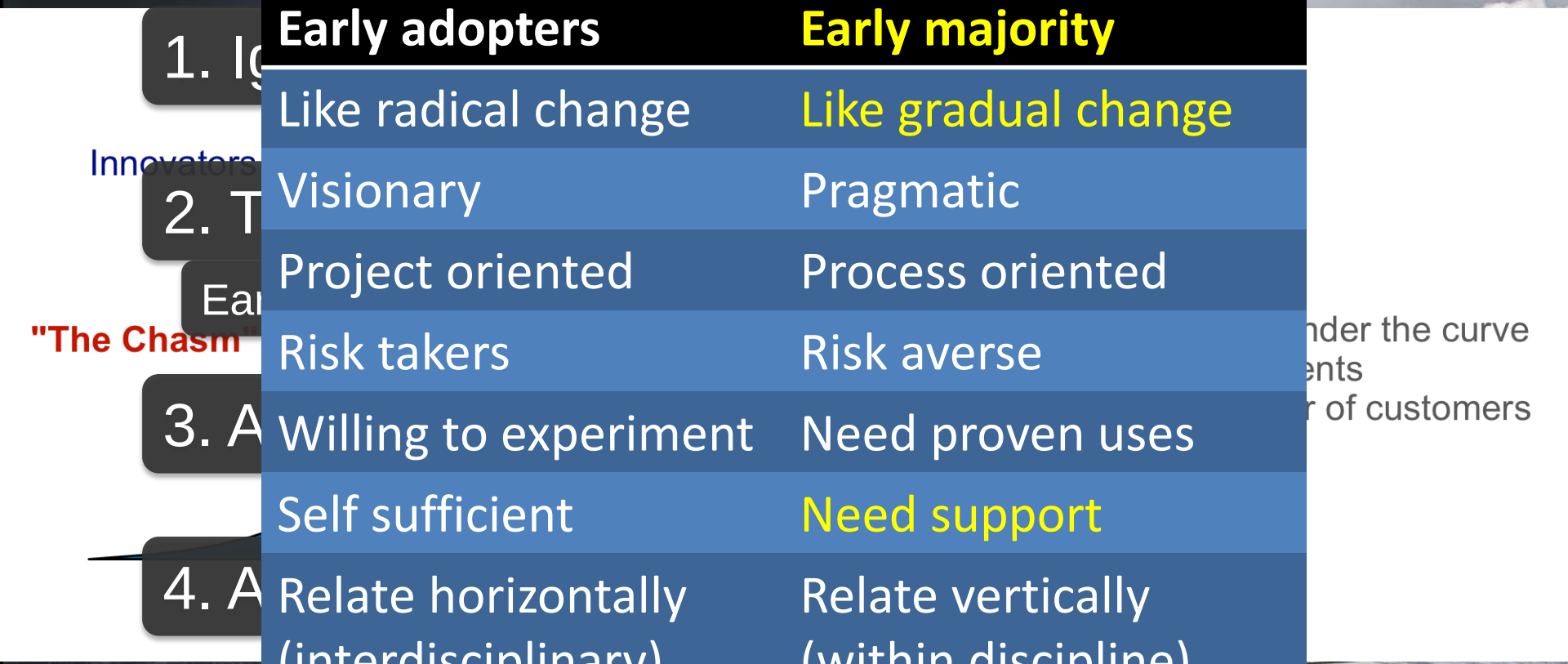
Pitfalls

The chasm (Geoghegan, 1994)

Early adopters	Early majority
Like radical change	Like gradual change
Visionary	Pragmatic
Project oriented	Process oriented
Risk takers	Risk averse
Willing to experiment	Need proven uses
Self sufficient	Need support
Relate horizontally (interdisciplinary)	Relate vertically (within discipline)



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Pitfalls

It’s not what they do?

Usually don’t develop new courses or overhaul existing

(Stark & Lowther, 2000)

Spend most time fine tuning a course

(Stark, 2000)

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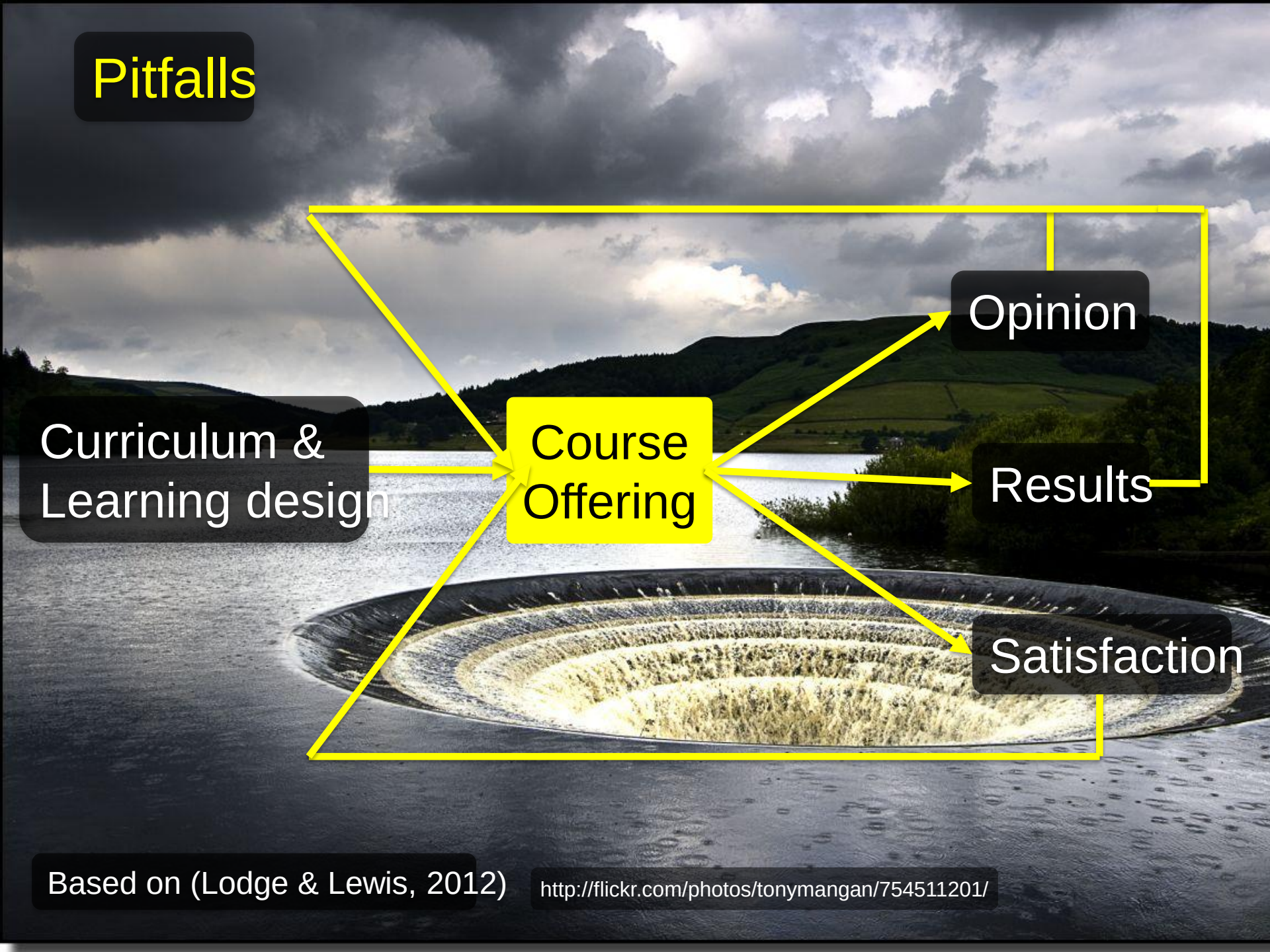
Pitfalls



Based on (Lodge & Lewis, 2012)

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Pitfalls

Constraints

teachers often receive dual messages from district leade
to follow mandated curriculum pacing schedules **and** to
use data to inform their practice.

Without the discretion to veer from district policies such
as pacing schedules, teachers will be limited in their abili
to respond to data, particularly when analyses reveal pro
areas that require time for re-teaching or remediation.

(Marsh, Pane, & Hamilton, 2006, p. 11)

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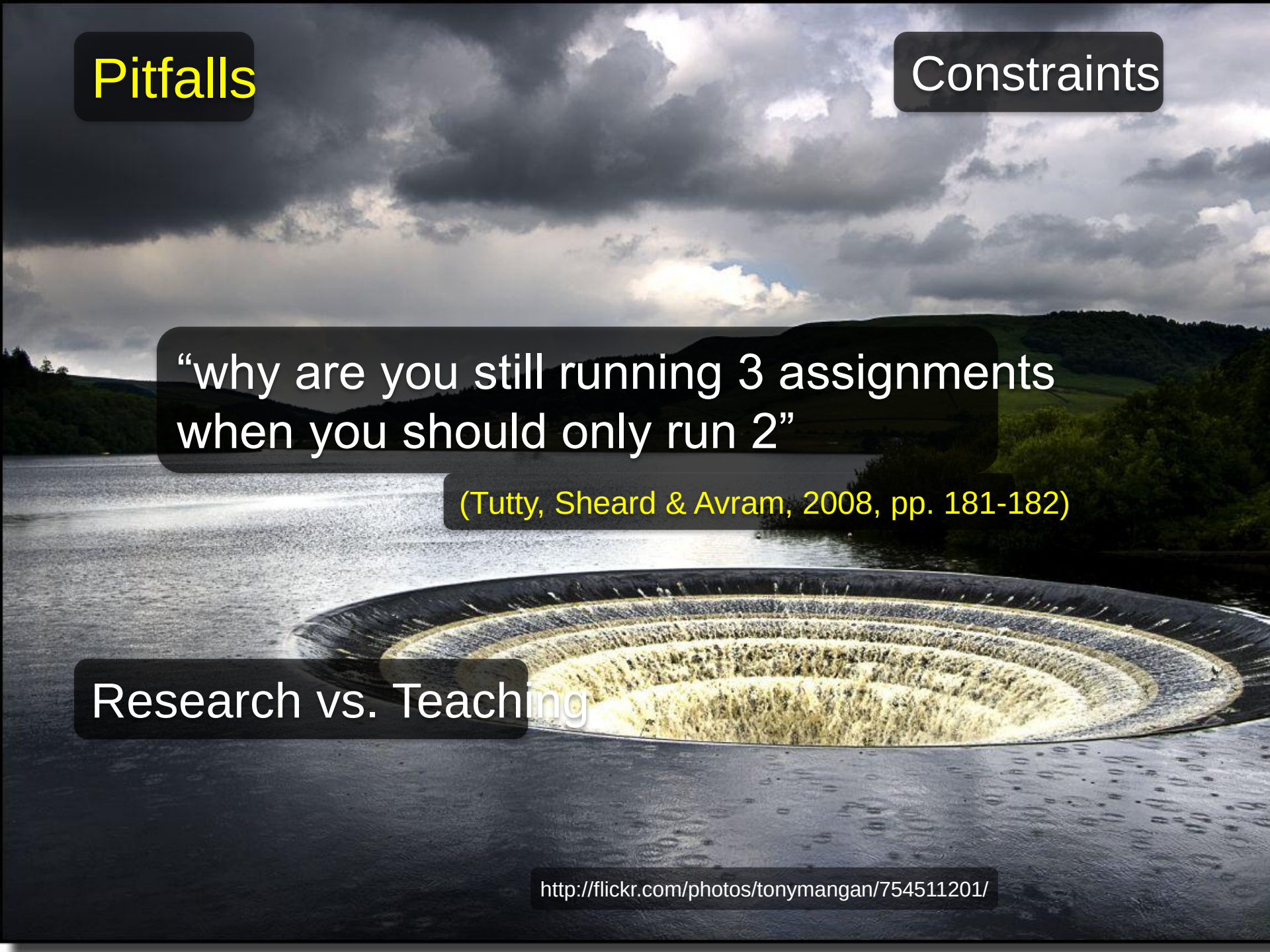
Pitfalls
Constraints
“why are you still running 3 assignments when you should only run 2”
(Tutty, Sheard & Avram, 2008, pp. 181-182)
Research vs. Teaching
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Pitfalls

dearth of studies examining the use and impact of learning analytics to inform the design, delivery and future evaluations of individual teaching practices

(Dawson et al., 2011; Dawson, Heathcote, & Poole, 2010)

We don't know how?

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1. Do it to
2. Do it for
academics and students
3. Do it with
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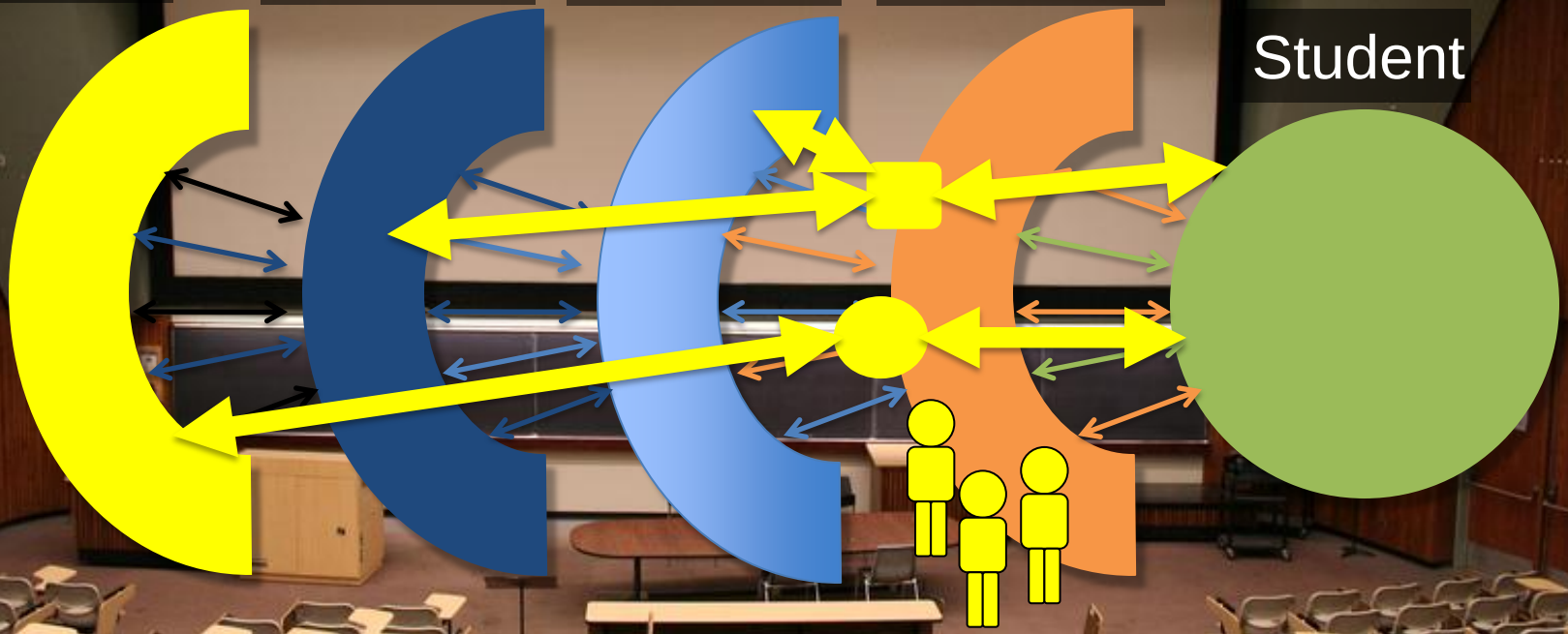
Model of university teaching

(Trigwell, 2001)



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Pitfalls
Starvation
Dealing with the complexity
Inefficiency (perceived and actual)
Changing the unchangeable
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One approach
(Jones, 2012)
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Overview
Background & Rationale
Fashion & Fads
Paths & Pitfalls
Wrap up
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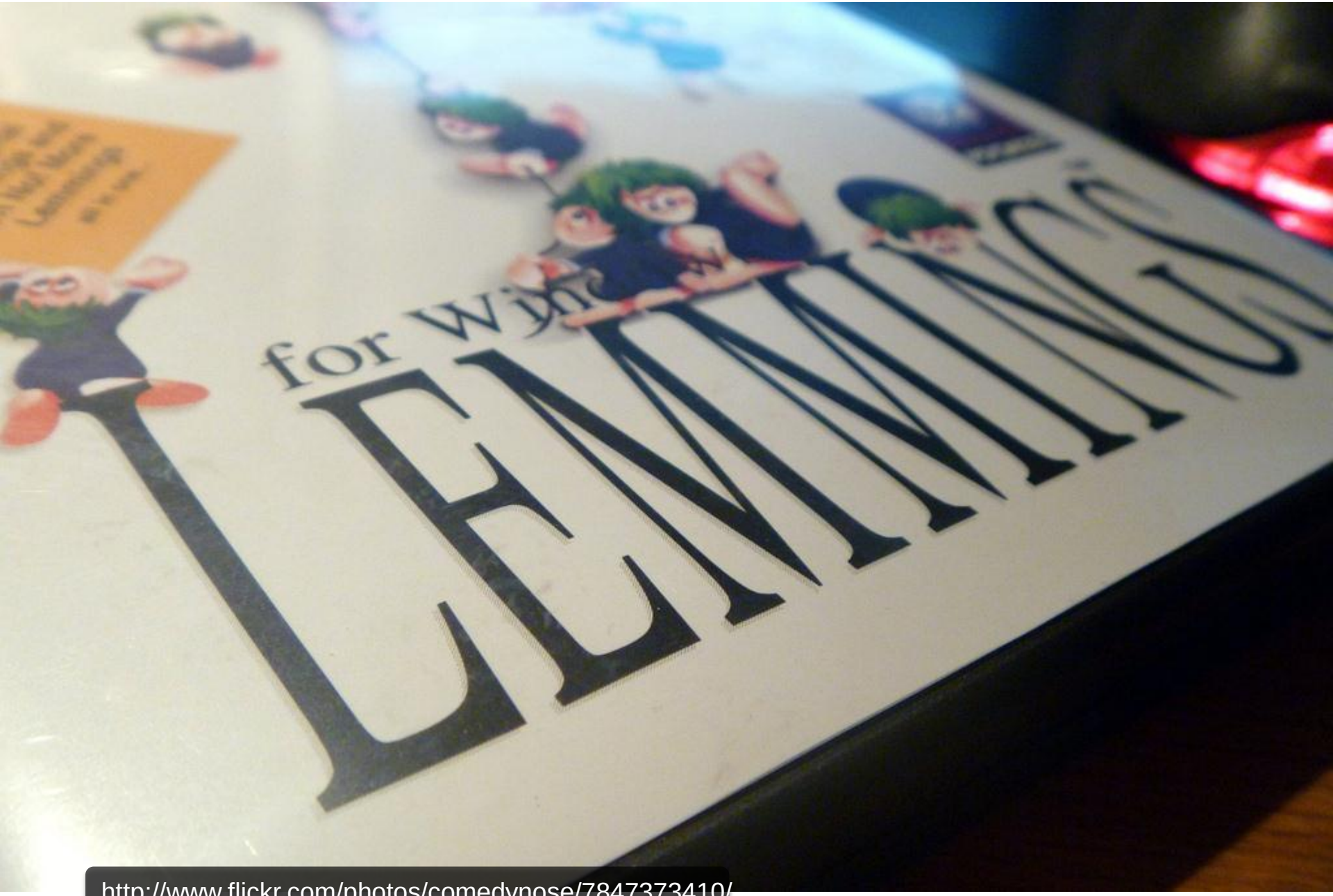
GOLD RUSH DAYS
PRESENTED BY WELLS FARGO



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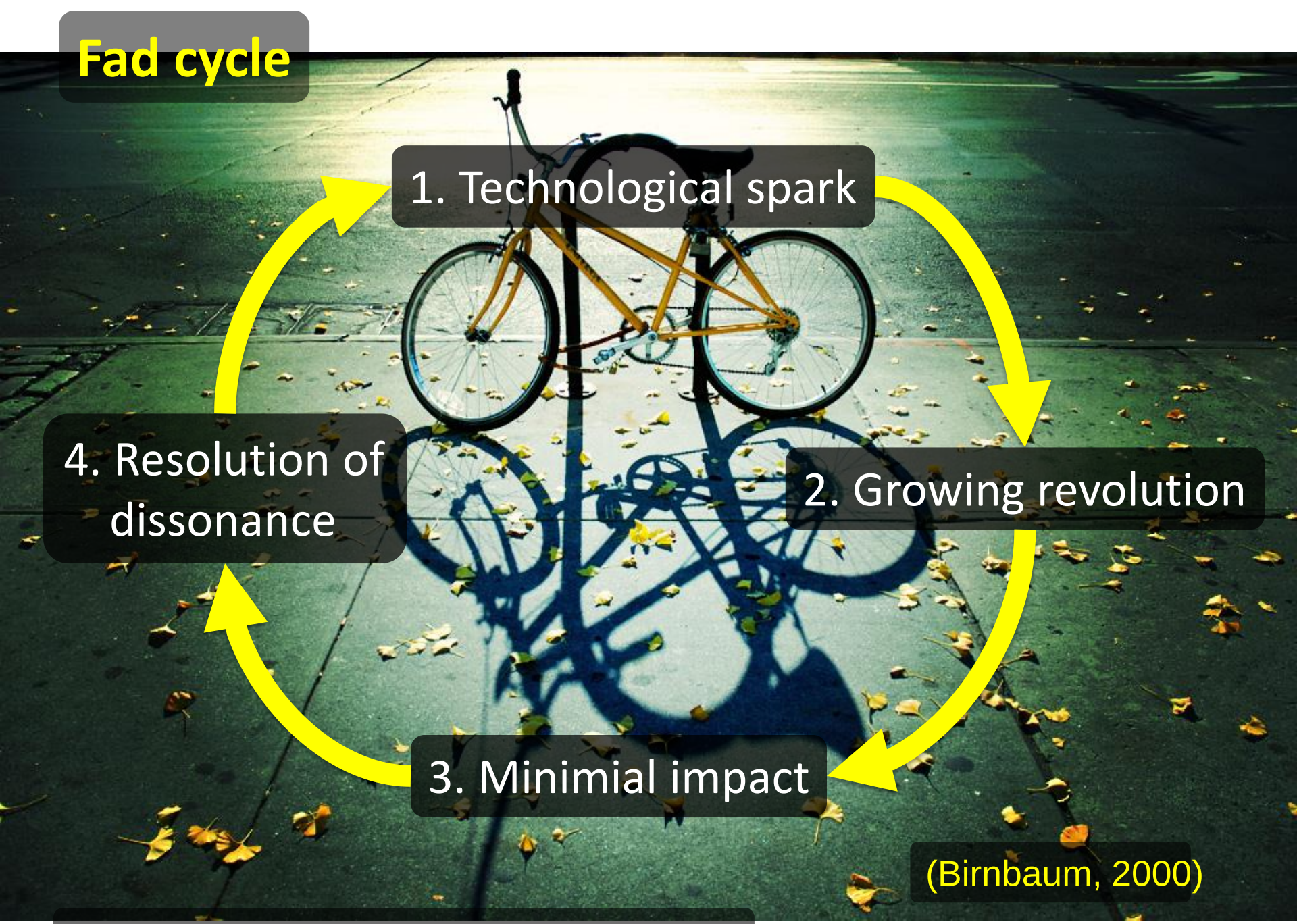
Fad cycle



(Birnbaum, 2000)

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Paths through the swamp
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academics and students
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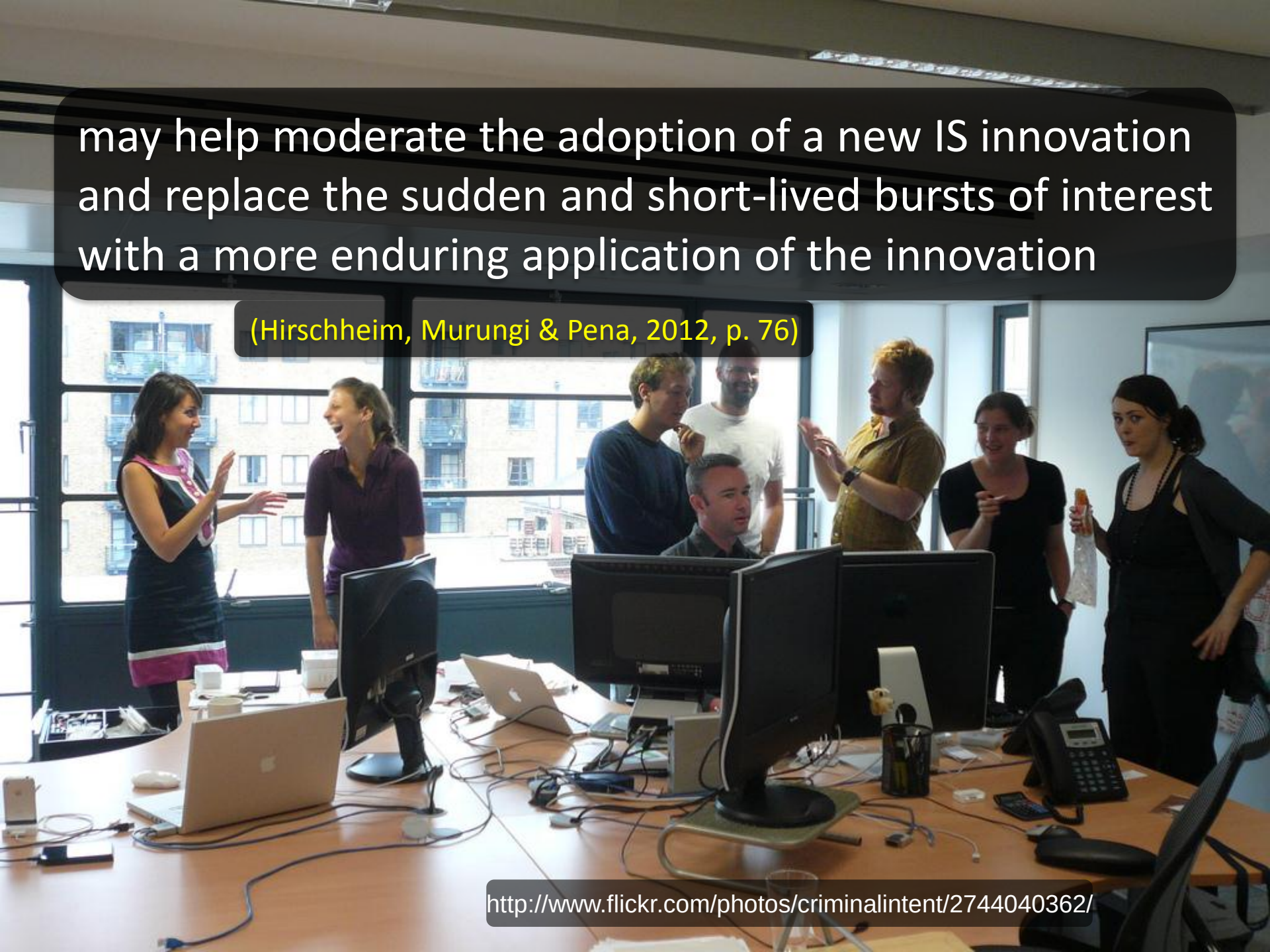

may help moderate the adoption of a new IS innovation and replace the sudden and short-lived bursts of interest with a more enduring application of the innovation

(Hirschheim, Murungi & Pena, 2012, p. 76)

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