Assessment: The Silent Killer of Learning

Mercy College
Dobbs Ferry, NY, 23 May 2017
Assessment: The Silent Killer of Learning

@eric_mazur

Mercy College
Dobbs Ferry, NY, 23 May 2017
kosten
1. die Kosten (pl.)
2. kostbar

krank
1. die Krankheit, —, en

das Kind, —, e(s), —
1. kindisch
2. kindlich

der Kellner, —, s, —
1. der Keller, —, s, —

magnificent
1. magnificent

das Kind, —, e(s), —
1. kindisch
2. kindlich

cow

kennen
1. kennen-gekannt
2. kennen-lernen
3. kennen
4. kennen-gekannt

think of

irreg.
pedantic
adj. ostentatious in one's learning
35% retained after 1 week
we only guarantee they’ll pass the test
assessment focussed on ranking and classifying, not on developing 21st century skills
purposes

problems
purposes

problems

improvements
how many different purposes of assessment can you think of?
1. rate students
2. rate professor and course
3. motivate students to keep up with work
4. provide feedback on learning to students
5. provide feedback to instructor
6. provide instructional accountability
7. improve teaching and learning
1 purposes
2 problems
1 purposes

2 problems

inauthentic tests
what is the meaning/definition of...?
inauthentic problem solving
problem

purposes

problems
1 purposes  
2 problems
problem

outcome

1 purposes

2 problems

EDUCACION

KNOWN
1. purposes

2. problems

known
1. purposes
2. problems
1 purposes

2 problems
1 purposes

2 problems
1. purposes
2. problems

- problem
- solution
- outcome

- problem
- procedure
- answer

KNOWN
UNKNOWN
UNKNOWN
UNKNOWN
1 purposes
2 problems
On a Saturday afternoon, you pull into a parking lot with un-metered spaces near a shopping area. You circle around, but there are no empty spots. You decide to wait at one end of the lot, where you can see (and command) about 20 spaces.
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How long do you have to wait before someone frees up a space?
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How long do you have to wait before someone frees up a space?

Requires:
Assumptions
Developing a model
Applying that model
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How long do you have to wait before someone frees up a space?

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Assumptions
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Applying that model
On a Saturday afternoon, you pull into a parking lot with un-metered spaces near a shopping area. You circle around, but there are no empty spots. You decide to wait at one end of the lot, where you can see (and command) about 20 spaces. **On average people shop for 2 hours.**

How long do you have to wait before someone frees up a space?

**Requires:**

**Assumptions**

Developing a model

Applying that model
On a Saturday afternoon, you pull into a parking lot with un-metered spaces near a shopping area. You circle around, but there are no empty spots. You decide to wait at one end of the lot, where you can see (and command) about 20 spaces. On average people shop for 2 hours.

Assuming people leave at regularly-spaced intervals, how long do you have to wait before someone frees up a space?

Requires:
Assumptions
Developing a model
Applying that model
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Assuming people leave at regularly-spaced intervals, how long do you have to wait before someone frees up a space?

Requires:

Assumptions
Developing a model
Applying that model
On a Saturday afternoon, you pull into a parking lot with unmetered spaces near a shopping area, where people are known to shop, on average, for 2 hours. You circle around, but there are no empty spots. You decide to wait at one end of the lot, where you can see (and command) about 20 spaces.

How long do you have to wait before someone frees up a space?
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How long do you have to wait before someone frees up a space?

\[ t_{\text{wait}} = \frac{T_{\text{shop}}}{N_{\text{spaces}}} \]
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How long do you have to wait before someone frees up a space?

\[ t_{\text{wait}} = \frac{T_{\text{shop}}}{N_{\text{spaces}}} \]
computers can do this!

1. purposes
2. problems
1 purposes
2 problems
1 purposes
2 problems
Real problem solving involves:

1. Purposes
2. Problems

- Problem
- Solution
- Outcome

Known

Unknown
grading incompatible with real problem solving
1 purposes
2 problems
isolation

1 purposes
2 problems
Final Exam

1. purposes

2. problems

4. We will use spherical coordinates:

\[0 < \varphi < \pi, \quad 0 < \theta < 2\pi, \quad \rho > 0\]
high-stakes examinations promote cramming
information stored in short-term memory
purposes
no retention

information stored in short-term memory

no transfer

problems
assessment produces a conflict
assessment produces a conflict

coach or judge?

1 purposes

2 problems
conflict resolved by:

objectivity (fairness, reliability)
... but ...

List the three important concepts that the Law of conservation of Energy leads to:

- Equilibrium (boring)
- Thermodynamics (boring)
- Kinetics (bow-chicka-wow-wow)

Describe the Law of definite composition (Dalton’s Law):

The young always contains exactly the same elements by mass.
1. purposes
2. problems
only lowest order thinking skills can be judged objectively
and then there is...

- grade inflation
- cheating
1 purposes
2 problems
3 improvements
1 mimic real life

1 purposes  2 problems  3 improvements
open-book exam

1 purposes
2 problems
3 improvements
purposes

problems

improvements
REMEMBERING
UNDERSTANDING
APPLYING
ANALYZING
EVALUATING
CREATING

1. purposes
2. problems
3. improvements
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focus on feedback, not ranking
objective ranking: a myth
2 metrics, 2 results

- Final grade vs. conceptual understanding

1. Purposes
2. Problems
3. Improvements
Aristotelian thinkers
top performers, broad grade distribution

1. purposes
2. problems
3. improvements
objectivity or injustice?

1 purposes
2 problems
3 improvements
focus on skills, not content
Grant Wiggins and Jay McTighe, *Understanding by Design* (Prentice Hall, 2001)

1. purposes
2. problems
3. improvements
Traditional approach to course planning

1. purposes
2. problems
3. improvements

course content
Traditional approach to course planning

1. purposes
2. problems
3. improvements

- course content
- assessment
Traditional approach to course planning

1. purposes
2. problems
3. improvements

Course determined by content

Course content ➔ assessment
Backward design

1 purposes
2 problems
3 improvements

desired outcomes
Backward design

1. purposes
2. problems
3. improvements

acceptable evidence → desired outcomes
Backward design

1. purposes
2. problems
3. improvements

instructional approach → acceptable evidence → desired outcomes
Backward design

1. purposes
2. problems
3. improvements

- instructional approach
- acceptable evidence
- desired outcomes
Backward design

1. purposes
2. problems
3. improvements

Course defined by outcomes

Instructional approach

Acceptable evidence

Desired outcomes
4 resolve coach/judge conflict
Use external evaluators

- purposes
- problems
- improvements
peer- and self-assessment

1. purposes
2. problems
3. improvements
Calibrated Peer Review

purposes
problems
improvements
rethink assessment
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