Brewing Motivation: The Importance of Ability Beliefs and Task Value

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Overview

- Task values and achievement behavior (e.g., interest and performance)
- Study 1—effects of utility information on task interest and performance
- Review how learners think about competence
- Study 2—effect of feedback focused on learning potential can help learners respond positively to utility information
- Discuss options / challenges in the classroom
Imagine: Students Valuing Learning

• “Writing will be valuable in my career”
• “Algebra really comes in handy sometimes”
• “It’s practical to have a second language”
Expectancy-Value Model of Achievement Choices

(Eccles et al., 1983)

- Expectation of success / ability beliefs
- Subjective task values

Cultural milieu
Students’ goals
Socializers’ behaviors
Students’ characteristics
Students’ reactions/memories
Achievement-related Choices and Performance
Expectancy-Value Model of Achievement Choices

(Eccles et al., 1983)

Students’ reactions/memories

Students’ characteristics

Socializers’ behaviors

Students’ goals

Cultural milieu

Subjective task values

Expectation of success/ability beliefs

Achievement-related Choices and Performance
Subjective Task Values

• Utility value
• Intrinsic value
• Attainment value
Utility Value

• **Useful for short-term or long-term goals** (Eccles et al., 1983; Eccles & Wigfield, 2002)

• **Related to interest and meaning** (e.g., Brophy, 1999; Husman & Lens, 1993; Mitchell, 1993; Schiefele, 1991)

• **Predicts achievement choices** (e.g., Bong, 2001; Jacobs & Eccles, 2000; Simkins et al., 2006)

• **Predicts performance** (e.g., Bong, 2001; Hulleman & Harackiewicz, 2009)
How to Increase Utility Value?

• Assume utility will be obvious to students
• Communicate task utility to learners
• Coach learners to generate their own utility
Expectancy-Value Model of Achievement Choices

(Eccles et al., 1983)

- Students’ reactions/memories
- Students’ characteristics
- Socializers’ behaviors
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- Cultural milieu

Subjective task values

Expectation of success/ability beliefs

Achievement-related Choices and Performance
Expectancy-Value Model of Achievement Choices

(Eccles et al., 1983)

- Expectation of success / ability beliefs
- Subjective task values

Cultural milieu

Socializers’ behaviors

Students’ goals

Students’ reactions/memories

Students’ characteristics

Achievement-related Choices and Performance
Expectations of Success / Ability Beliefs

• Expectations of success predict effort (e.g., Bandura, 1983)
• Feelings of competence predict interest and task enjoyment (e.g., Deci & Ryan, 1985)
Return to Students Valuing Learning:

• “Writing will be valuable in my career”
• “Algebra really comes in handy sometimes”
• “It’s practical to have a second language”

What about students who feel incapable of writing, doing algebra, learning a second language, etc.?
Communicating Utility Value

The good:
Educators can directly communicate utility value to students

The bad:
Utility value may make competence salient

The ugly:
Utility may decrease engagement for those with low perceived competence
Research Directly Communicating Utility Value—Study 1

• Experimental lab paradigm
• Measure initial beliefs about ability in math
• Participants learn a math technique for mentally solving 2-digit x 2-digit multiplication problems
• Some participants receive utility information and others do not (control)
• Measure technique interest and performance
Research Directly Communicating Utility Value—Study 1

Measure initial math competence

Learn technique

Utility information

No utility information

Measure interest and performance

Pre-measure

Learning Session

Post-measure
Research Directly Communicating Utility Value—Study 1

- Control
- Utility

Mean task interest

Low math competence

High math competence
Research Directly Communicating Utility Value—Study 1

Mean task interest

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<thead>
<tr>
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<th>Control</th>
<th>Utility</th>
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<tbody>
<tr>
<td>Low math competence mean task interest</td>
<td>5</td>
<td>5.5</td>
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<tr>
<td>High math competence mean task interest</td>
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Total problems correct

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<tbody>
<tr>
<td>Low math competence total problems correct</td>
<td>30</td>
<td>35</td>
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<tr>
<td>High math competence total problems correct</td>
<td>40</td>
<td>45</td>
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Research Directly Communicating Utility Value—Study 1

[Bar chart showing mean task interest for low and high math competence groups with Control and Utility conditions.]

[Bar chart showing total problems correct for low and high math competence groups with Control and Utility conditions.]
Research Directly Communicating Utility Value—Study 1

- Mean task interest
- Total problems correct

Controls vs Utility: Low vs High math competence.
Study 1—Conclusions

• Effects of information about task utility vary
  – increase interest and performance for those with high perceived competence
  – dampen interest and performance for those with low perceived competence

• Feelings of INcompetence can undermine positive effects of utility effects on task interest and performance

• How to help learners with low perceived competence respond positively to utility information?
Focus on Ability Beliefs
(Dweck, 1999; Dweck & Leggett, 1988)

• Not simply about being competent or not
• About whether competence can change
  – Fixed mindset—intelligence is fixed
  – Growth mindset—intelligence can change
Core Beliefs for Each Mindset
(Dweck, 1999; Dweck & Leggett, 1988)

• Fixed mindset
  – “You can learn new things but you cannot really change your basic amount of intelligence”
  – “In truth, when I work hard at my schoolwork, it makes me feel like I’m not very smart”

• Growth mindset
  – “No matter how much intelligence you have, you can always change it a good amount”
  – “I like school work that I’ll learn from even if I make a lot of mistakes”
Effects of Fixed Versus Growth Mindset

(Blackwell et al., 2007; Dweck, 1999; Dweck & Leggett, 1988)

**Fixed mindset**
- Lower grades
- Feelings of helplessness
- Believe effort signifies low ability

**Growth mindset**
- Higher grades
- Learning goals
- Believe effort leads to improvement
How to Encourage Growth Mindset?
(Blackwell et al., 2007; Kamins & Dweck, 1999)

• Use praise to focus on learning
  – Praise for being smart ➔ fixed mindset
  – Praise for working hard ➔ growth mindset

• Intervene to increase growth mindset
  – Bolster students’ beliefs that they can learn
  – Brainology ™
Research Directly Communicating Utility Value—Study 2

Measure initial math competence

Learn technique

Utility information

No utility information

Measure interest and performance

Pre-measure

Learning Session

Post-measure

Half told of their high learning potential
Study 2—Results (task interest)

![Bar graph showing mean task interest for different conditions.](chart)

- **Control** and **Utility**
- **Mean Task Interest**
- **Low math comp.**
- **High math comp.**
- **No feedback**
- **High potential**
Study 2—Results (task interest)

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<tr>
<td>No feedback</td>
<td>High potential</td>
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Study 2—Results (task interest)

![Bar chart showing mean task interest for different conditions: Low math comp. No feedback, High math comp. No feedback, Low math comp. High potential, High math comp. High potential.](chart)

- Low math comp. No feedback: Mean Task Interest is around 4.5
- High math comp. No feedback: Mean Task Interest is around 5.5
- Low math comp. High potential: Mean Task Interest is around 6.5
- High math comp. High potential: Mean Task Interest is around 6.5

**Legend**
- Green: Control
- White: Utility
Study 2—Results (task interest)

Mean Task Interest

- Control
- Utility

Levels:
- Low math comp.
- High math comp.

Conditions:
- No feedback
- High potential

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Study 2—Results (performance)

Total problems correct

- No feedback
- High potential

Perceived Competence in Math

Low | High
---|---
25  | 38
Study 2—Conclusions

• Feedback about high learning potential helped those with low perceived competence appreciate utility and find the task interesting.
• Feedback about learning potential increased performance for those with low math competence.
General Conclusions

• Perceived task utility predicts achievement behavior—task utility is good
• But, statements of utility can interfere with interest and performance for learners with low perceived competence
• Feedback encouraging growth mindset may help learners perform better and respond positively to utility information
Acknowledgements

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Thank you

adurik@niu.edu
Experimental Task

• Four-step, mental math technique for solving two-digit multiplication problems

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Long-term Effects of Mindset

(Blackwell et al., 2007)
Intervention to Promote Growth Mindset

(Blackwell et al., 2007)