Failure is NOT an Option...Or is it?

Kelly Jackson
Andrea Hendricks

I tried, therefore I succeeded.
Failure is not the opposite of success; it’s part of success.

Arianna Huffington

Fail, fail again, fail better.

“I haven’t failed. I’ve just found 10,000 ways that won’t work.”
Thomas Edison

“Failure is simply the opportunity to begin again, this time more intelligently.”
Henry Ford
"I've missed more than 9,000 shots in my career. I've lost almost 300 games. 26 times I've been trusted to take the game winning shot and missed. I've failed over and over and over again in my life. And that is why I succeed."

~ Michael Jordan
Strategies for Success

AKA... The wish list!

We can’t time travel...
Topics for Today

- Responsibility
- Persistence
  - Overcoming obstacles
- Mind Set
  - Fixed vs Growth
- Risk
- Goal Setting

Transfer of Responsibility

Faculty

model

I do

We do

collaborate

You do together

Student

DO

You do yourself

guide

You do yourself
Fight or Flight?

Are those the only choices?

Oh well, I guess I’ll never learn to eat.
I don’t think this walking thing is for me.

That’s it! I’m not riding a bike.
Obstacles...

The impediment to action advances action. What stands in the way becomes the way.

Marcus Aurelius
Obstacles...

THE OBSTACLE IS THE WAY

RYAN HOLIDAY
Bestselling author of Trust Me, I’m Lying

The Iceberg Illusion

Success is an iceberg

WHAT PEOPLE SEE
SUCCESS!

WHAT PEOPLE DON’T SEE

Persistence
Failure
Sacrifice
Disappointment

Dedication
Hard work
Good habits

@syriaduckworth
Perception versus Reality

“Success”

what people think it looks like

“Success”

what it really looks like

“I don’t have a math mind.”

Just because some people can do something with little or no training, it doesn’t mean that others can’t do it (and sometimes do it even better) with training.

Carol Dweck

EverydayPowerBlog.com
Perception is reality.

Growth Mindset...

1. “Good job.”
2. “Good job, you are very smart.”
3. “Good job, you must have worked very hard.”
Growth Mindset...

1. “Good job.”
2. “Good job, you are very smart.”
3. “Good job, you must have worked very hard.”

In a growth mindset, challenges are exciting rather than threatening. So rather than thinking, oh, I'm going to reveal my weaknesses, you say, wow, here's a chance to grow.

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Carol S. Dweck

AZQUOTES
**GROWTH MINDSET**
- I can learn to do anything I want
- Challenges help me to grow
- My effort and attitude determine my abilities
- Feedback is constructive
- I am inspired by the success of others
- I like to try new things

**FIXED MINDSET**
- I'm either good at it or I'm not
- My abilities are unchanging
- I don't like to be challenged
- I can either do it or I can't
- My potential is predetermined
- When I'm frustrated, I give up
- Feedback and criticism are personal
- I stick to what I know

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**THERE is a difference BETWEEN not knowing AND NOT KNOWING YET.**

- Sheila Tobias
Risk ➔ Reward

ANYONE WHO HAS NEVER MADE A MISTAKE HAS NEVER TRIED ANYTHING NEW.

Albert Einstein

YOU MISS 100% OF THE SHOTS YOU DON'T TAKE

-Wayne Gretzky
SMART Goals

Specific

• Bad: “I want to get healthy this year.”

• Good: “I want to eat 100 grams of protein each day.”
**Measurable**

- Bad: “I want to learn to play the guitar.”

- Good: “I want to be able to play *Thank God I’m a Country Boy* on the guitar by my Mom’s Birthday.”

**Achievable**

- Bad: “I want to be a 7 feet tall NBA center by next year.”

- Good: “I want to get my free throw percentage above 75% by next year.”
Relevant

• Bad: “I want to be a 7 foot tall NBA center by next year.”

• Good: “I want to have no more than 3 absences this semester”

Time Dependent

• Bad: “I want to study hard for this class.”

• Good: “I want to spend at least 3 hours a week outside of class on HW and studying for this class.”
Outcome Goals vs Behavior Goals

- Outcomes
  - Pass my class
  - Get an “A” on the exam
  - Get my degree
  - Pass my boards

- Behaviors
  - Attend class
  - Do homework on time
  - Read the text
  - Get tutoring if I’m behind

Goals to Help Attendance

- Have students identify their goal for being in college and for taking your course.
- Have students set specific goals for your course.
• I will get a grade of ________ in this course.
• Three things I can do to ensure that I meet this goal are
  1. ____________________________________________
  2. ____________________________________________
  3. ____________________________________________
• I plan to spend ______ hours per week outside of class for this course.
• Three things I can do to be sure that I have enough time to devote to math are
  1. ____________________________________________
  2. ____________________________________________
  3. ____________________________________________
• At most I will miss _______ classes this semester.
• Three things I can do to be sure I attend each class meeting are
  1. ____________________________________________
  2. ____________________________________________
  3. ____________________________________________
• What could interfere with my ability to meet these goals? ______________
• What can I do to overcome or prevent this challenge? __________________

Learning Styles

• Math is a lot like learning a foreign language...
  • Read it…Directions, textbook, symbols, terms
  • Write it…Note taking, HW, tests
  • Hear it…Listening to lectures, videos, aural directions
  • Say it…Ask questions, answer questions
Plan
Plan where, when, and with whom you are going to study. Be sure to leave enough time to get studying done.

Use
Use all of the materials that you have collected: notes, homework, handouts, online work, past quizzes or tests, and your textbook.

Review
Review your materials regularly. Just doing your homework is not enough; you need to review your notes, readings, and problem sets.

Practice
Practice! Do not just skim over your previous work and assume you still know it. Try to rework problems from your materials.

Observe
Observe the types of mistakes you make as you practice. If you are still making procedural or conceptual mistakes, you are not ready for a test or quiz.

Seek
Seek help from classmates, tutors, and especially your instructor if you are not comfortable with the material.

Evaluate
Evaluate whether you are ready for your quiz/test/exam and plan for more study time if you know you are not ready.

Forgetting Curve: Ebbinghaus

Overcoming the Curve

<table>
<thead>
<tr>
<th>Time</th>
<th>Forgetting Curve</th>
<th>Review 1</th>
<th>Review 2</th>
<th>Review 3</th>
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</thead>
<tbody>
<tr>
<td>Immediately after class</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>24 hours later</td>
<td>70%</td>
<td>70%</td>
<td>70%</td>
<td>70%</td>
</tr>
<tr>
<td>1 week later (or sooner)</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>1 month later (or sooner)</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
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</tbody>
</table>

Notice how less is forgotten after each review!!

Study Skills - PURPOSE
Model How to Review

- How to review
- Problem recognition
- Daily math work

### Daily Sheet 4

#### Monday
- **Simplify**: 
  \[ 3x + 6 = 6x - 2 \]

#### Tuesday
- **Graph**: 
  \[ 3x - 5 \]

#### Wednesday
- **Solve and Graph**: 
  \[ 3x + 5 \]
  \[ 2x + 10 \]

#### Thursday
- **Which ordered pairs satisfy the equation**: 
  \[ 3x + 5 \]

#### Friday
- **Complete the ordered pairs tables**: 
  \[ 3x + 5 \]

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### Tutoring Information

- **Day one**: handout with office hours
- **Week one**: Tutoring information
  - Map, hours, rules
- **Before test one**: Tutoring handout
  - How to get the most out of tutoring/ Tutoring organizer
- **After test one**: Wallet sized card
  - Office hours on one side, Tutoring hours on the other
- **As time allows**: “Any issues with tutoring?”
  - Give feedback to appropriate administrator
Test Taking

• Before
• During
• After
  • Troubleshooting Common Mistakes
  • Test Items that Encourage Fixing Mistakes
  • Test Corrections
    • Alternate partial credit model

Error Analysis

• Use this list as a guideline for deciding what type of mistake you made:
  • Conceptual: Left it blank, wrong process, mis-memorized rule
  • Procedural: Did steps out of order, missed a step, couldn't finish all steps
  • Computational: Added, subtracted, multiplied, or divided wrong
  • Secretarial: Miscopy, omission, misalignment, misread handwriting
For every wrong answer on a test or quiz, you should write the correct solution and practice additional problem types.

- Fold a fresh sheet of paper in thirds.
- On the left third, write the original problem with your original work.
- On the middle third, write the correct solution of the problem.
- On the right third, work a problem similar to the one you missed.

Encouraging Active Learning
- Games
- Organizers
- Review Materials
- Classroom Assessment
BURIED TREASURE

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Guess | Clue
---|---

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<thead>
<tr>
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<tbody>
<tr>
<td>4x^2-16</td>
<td>x^2-4</td>
<td>x^2-16</td>
<td>4x^2-16x^2</td>
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<tr>
<td>4x^4-16x^3</td>
<td>4x^4-9</td>
<td>4x^4+9</td>
<td>x^4+3x+12</td>
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<tr>
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<td>x^4-10x+24</td>
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<td>2x^3-3x-5</td>
<td>4x^2-12x+9</td>
<td>4x^2+12x+9</td>
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<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>4(x-6)</td>
<td>(x-2)(x+2)</td>
<td>(x-6)(x+1)</td>
<td>4(x+1)^2</td>
</tr>
<tr>
<td>4(x^3-4x)</td>
<td>(x+3)(x+2)</td>
<td>(x+3)(x+4)</td>
<td>(x+3)(x+4)</td>
</tr>
<tr>
<td>(x-4)(x-6)</td>
<td>(x-5)(x+4)</td>
<td>(x-3)(x+6)</td>
<td>(x-2)(x+15)</td>
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<tr>
<td>(x+3)(x+10)</td>
<td>(x-12)(x+2)</td>
<td>(x-6)(x-4)</td>
<td>(3x+5)(x+1)</td>
</tr>
<tr>
<td>(3x-5)(x+3)</td>
<td>(2x-5)(x+4)</td>
<td>(2x-3)</td>
<td>(2x+3)</td>
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</tbody>
</table>

*Note: Solve the set of critical answers*
### Linear Equations

<table>
<thead>
<tr>
<th>No Solution</th>
<th>One Solution</th>
<th>Two Solutions</th>
<th>Infinitely Many Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2x + 3 = 8)</td>
<td>(x = 5)</td>
<td>(x = 4)</td>
<td>(x = \frac{1}{2})</td>
</tr>
<tr>
<td>(3x + 5 = -25)</td>
<td>(x = 10)</td>
<td>(x = 1)</td>
<td>(x = 2)</td>
</tr>
<tr>
<td>(x + 5 = 6)</td>
<td>(x = 1)</td>
<td>(x = 2)</td>
<td>(x = 3)</td>
</tr>
<tr>
<td>(x + 5 = 3)</td>
<td>(x = -2)</td>
<td>(x = 0)</td>
<td>(x = 1)</td>
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### Quadratic Equations

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<th>One Solution</th>
<th>Two Solutions</th>
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</thead>
<tbody>
<tr>
<td>(x^2 - 3 = 0)</td>
<td>(x = \sqrt{3})</td>
<td>(x = -\sqrt{3})</td>
<td>(x = \pm \sqrt{3})</td>
</tr>
<tr>
<td>(4x^2 + 9 = 0)</td>
<td>(x = \pm \frac{3}{2})</td>
<td>(x = \pm \frac{3}{2})</td>
<td>(x = \pm \frac{3}{2})</td>
</tr>
<tr>
<td>(x^2 + 4x - 5 = 0)</td>
<td>(x = 1)</td>
<td>(x = -5)</td>
<td>(x = 1)</td>
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### Higher Degree Equations

<table>
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<th>One Solution</th>
<th>Two Solutions</th>
<th>Infinitely Many Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(x^3 - 4x^2 + 3x = 0)</td>
<td>(x = 1)</td>
<td>(x = 3)</td>
<td>(x = 1)</td>
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### Absolute Value Equations

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</thead>
<tbody>
<tr>
<td>(</td>
<td>x - 2</td>
<td>= 3)</td>
<td>(x = 5)</td>
</tr>
<tr>
<td>(</td>
<td>x + 3</td>
<td>= 5)</td>
<td>(x = 2)</td>
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</table>

### Rational Equations

<table>
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<th>No Solution</th>
<th>One Solution</th>
<th>Two Solutions</th>
<th>Infinitely Many Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{1}{x} = 2)</td>
<td>(x = 1/2)</td>
<td>(x = \pm 1)</td>
<td>(x = 1/2)</td>
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</table>

### Radical Equations

<table>
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<th>One Solution</th>
<th>Two Solutions</th>
<th>Infinitely Many Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\sqrt{x - 2} = x)</td>
<td>(x = 3)</td>
<td>(x = 1)</td>
<td>(x = 3)</td>
</tr>
<tr>
<td>(\sqrt{4 - x} = 2)</td>
<td>(x = 0)</td>
<td>(x = 4)</td>
<td>(x = 0)</td>
</tr>
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</table>
“When bad things happened, we just calmly laid out all the options, and failure was not one of them. We never panicked, and we never gave up on finding a solution.”