



2020 NERC

Mindsets and Nursing Student
Approaches to Learning: The Williams
Inventory of Learning Strategies Tool



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Outcomes

- By the end of this presentation, the participant should be able to:
- Identify the Williams Inventory of Learning Strategies (WILS) as a promising tool in the assessment of mindsets and nursing students learning strategies

Research Question

Is the **Williams Inventory of Learning Strategies** Survey suitable to assess students' **fixed/ growth** mindsets & choice of **learning strategies**?

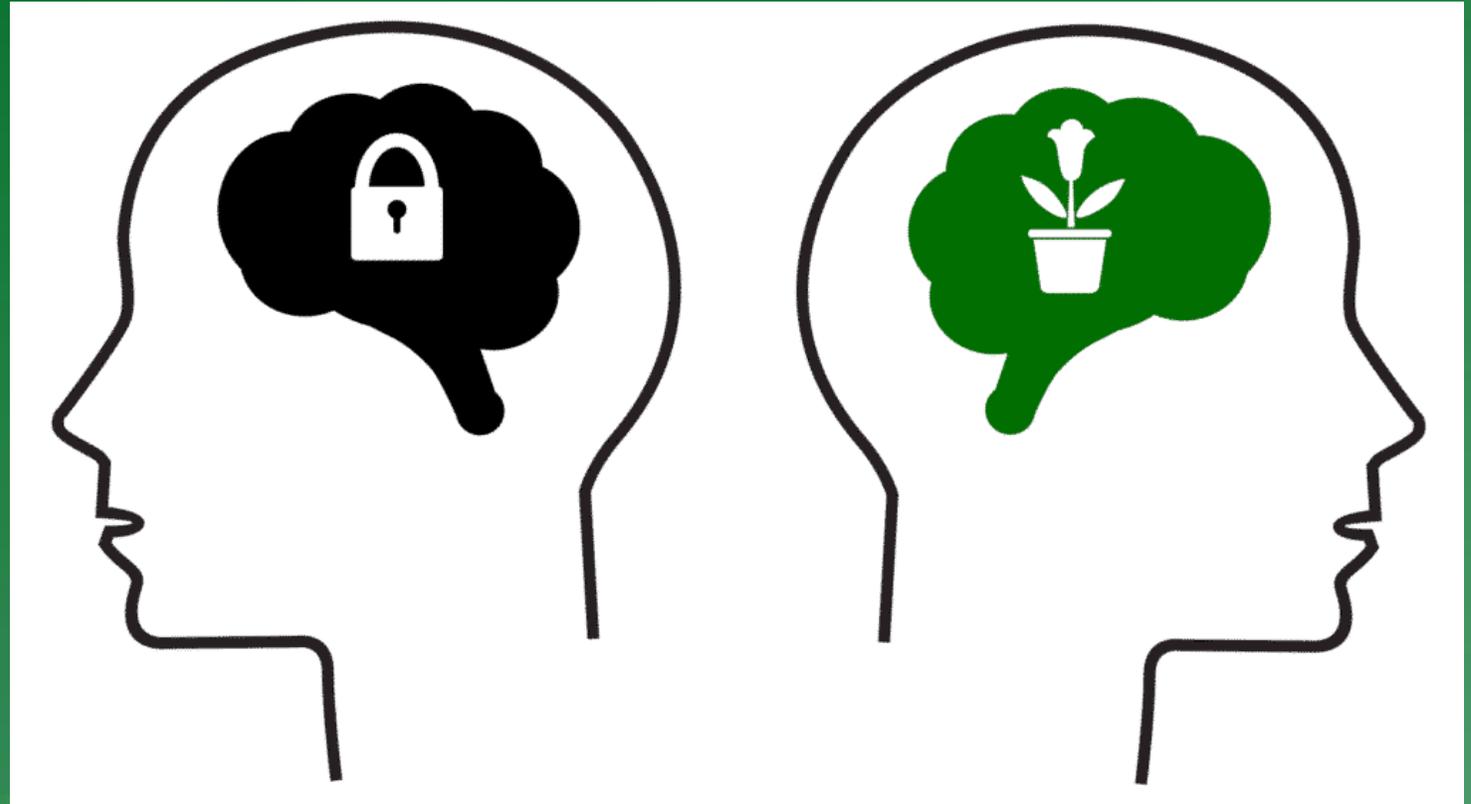
Mindsets and Learning

- We do know that **fixed mindsets** fear failure, avoid mistakes, and **do not remediate** (Dweck, 2014).

Growth Mindsets do remediate, using
as opportunities for learning

*Less known: mindset proclivity/
learning in nursing students.*

What are Fixed and Growth Mindsets?



	Fixed Mindsets	Growth Mindsets
Intelligence	Innate	Malleable
Goals	Performance Avoidance	Multiple Learning
Effort	Low	High
Competence	Display Normatively Appraised	Development Mastery
Attributions	Girls cannot do math The teacher did not...	I have not learned that yet
Remediation	No	Yes

Methods

- Introducing The **Williams Inventory of Learning Strategies** (WILS)
- 33 item Visual analog survey

The WILS has four subscales

- **Dweck's Mindset Assessment (3 items; $\alpha = .95$)**
- Low scores Growth Mindset/High scores Fixed Mindsets

**Willingness to remediation and review
(8 items)**

**Fear of failure and avoidance
(9 items)**

**Learning strategies (inventory)
(13 items)**

WILS Face Validity

- **Face validity**: subjective relevance of test
- Assessed by a convenience sample of expert nursing faculty
- Yielded a few minor edits before testing.

WILS Content Validity

- **Content validity** was obtained from a robust review of the literature
- Mindsets: 30 years of research
 - Dweck (2000, 2006, 2014)
- Learning: much literature was reviewed
 - Brown (2014)
 - Dunlosky (2013)
 - Hattie (2009)

WILS Content Validity Index (CVI)

- **Polit and Beck** (2006) expressed the need for CVI
 - Individual I-CVI and Scale S-CVI
 - WILS subscale items assessed by a convenience sample of three expert nursing faculty
 - **I- CVI**= 50% of items were very relevant
 - 43% were relevant
 - Only 1 item was not deemed relevant (but retained)
 - **S-CVI**=0.830.

Reliability

- Test/retest reliability was done over two weeks with the same 4 pairs of nursing students completing the WILS
- Test/re-test reliability $\alpha = 0.844$

Reliability

Subscale Items	Pilot Reliability n=102	Recent Reliability n= 73	Most Recent n=204
Mindset	R=0.773	R = 0.703	R= 0.683
Learning inventory	R= 0.664	R= 0.741	R = 0.738
Remediation and Review	R= 0.806	R= 0.803	R = .809
Fear of failing and Avoidance	R= 0.664	R= 0.686	R= 0.680

WILS Learning Score

- **Learning Inventory Subscale:**
 - Compute an overall learning score
 - Higher scores => effective study strategies
 - Possible range 0-3000
 - **Scores ranged: 1100-2883: n=180**

Correlation Mindset and Learning Score

Correlations

			mindsetscore	learningscore
Spearman's rho	mindsetscore	Correlation Coefficient	1.00	-.225**
		Sig. (2-tailed)	.	.002
		N	188	188
	learningscore	Correlation Coefficient	-.225**	1.000
		Sig. (2-tailed)	.002	.
		N	188	188



** . Correlation is significant at the 0.01 level (2-tailed).

As mindset scores decreased to that of the growth mindset , the learning score increased

Growth Mindsets exhibited significance

- Increased use of **seeking out feedback** from peers (rho=0.26)
- Increased use of **quizzing and teaching** each other (rho=0.22)
- Worries less about **looking like** they were having trouble with content (rho=0.23)

Fixed Mindsets significance

- **Avoid challenges** situations in which they may struggle ($\rho=0.22$)
- If they failed an exam they would look for **excuses** other than themselves to blame ($\rho=0.23$)

Anova One Way

- Low user mindset scores: $n=94$, Mean=98, SD 63.3
 - High Users' mindset scores: $n=90$, Mean=64, SD 48.9
 - High Users' scores decreased to that of the growth mindset scores
 - Was found to be statistically significant: Welch Test
 - $F=(1,174.284)= 17.557, p=0.000$
- The homogeneity of variances was violated as assessed by Levene's test for equal variances ($p=0.000$)... needed to use Welch test

Implications

- The WILS tool showed promise as a new tool
- We used it as an intervention

Using the WILS tool to evaluate mindset training:

The Mindset Intervention for Pre-licensure Nursing Students Study



Photo by [kylie De Guia](#) on [Unsplash](#)

Purpose:

- To learn if pre-licensure community college nursing students would have increased growth mindset tendencies and report more effective learning strategies after a mindset training intervention

Methods:

- Quasi-experimental design
- Pre- and post-intervention administration of the WILS tool
- Intervention consisted of 1-hour mindset training session
- Setting was two community college schools of nursing in North Carolina
- Total of 35 participants

Results

WILS Tool Subscales	Pre	Post	Statistical Significance	Interpretation
Average mindset scores	105	72	Significant improvement $t= 2.32$ $p= 0.03$ Cohens $d= 0.45$ (moderate effect)	Range 0-300 0-120 Growth Mindset 121-180= Mixed Mindset 181-300 = Fixed Mindset
Average learning strategies scores	812	838	Not significant, but trend showed improvement	Range= 0-1300 0-520= Low use of effective learning strategies 521-780= Moderate use 781-1300= High use
Average willingness to remediate and review scores	453	489	Not significant, but trend showed improvement	Range 0-800 0-320= Low willingness to remediate and review 321-480= Moderate 481-800= High Willingness
Average avoidance and fear of failure scores	228	177	Not significant, but trend showed improvement	Range 0-900 0-360= Low avoidance and fear of failure 361-540= Moderate fear and avoidance 541-900= High fear and avoidance

Discussion:

- Study applied mindset theory to nursing education with promising results
- The intervention to teach nursing students about mindset was correlated with increased growth mindset perspectives, increased willingness to remediate, and decreased fear of failure
- Although effect size was small and statistical significance met only for the mindset subscale, we hypothesize that a larger sample could demonstrate significant findings
- Researchers are currently replicating the study with a larger sample of BSN students

Limitations

- Survey and social bias
- Non-response bias
 - Many people who did not answer could have been FMs and or GMs

Thanks for Coming

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