Approaches to Studying and Student Success

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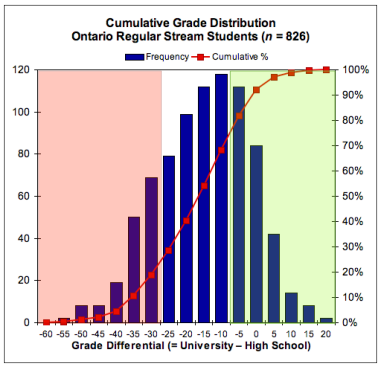
http://www.chem.utoronto.ca/~dstone/Research/survey.html

The first-year experience:



Aggregate student data for 2006–2010 (WD and DNW omitted)

- **Overall**:
  - GD = -17 ± 13
- **Upper quartile:**
  - GD = -9 to +20
- **Lower quartile:**
  - GD = -60 to -30

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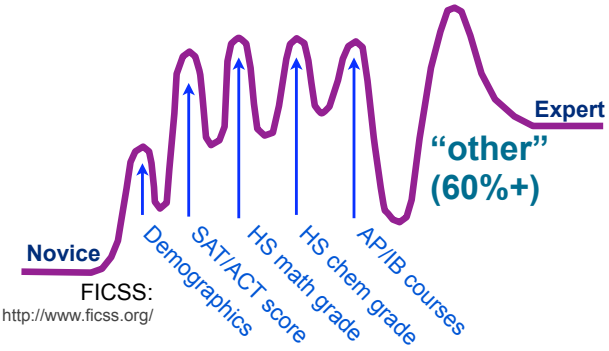
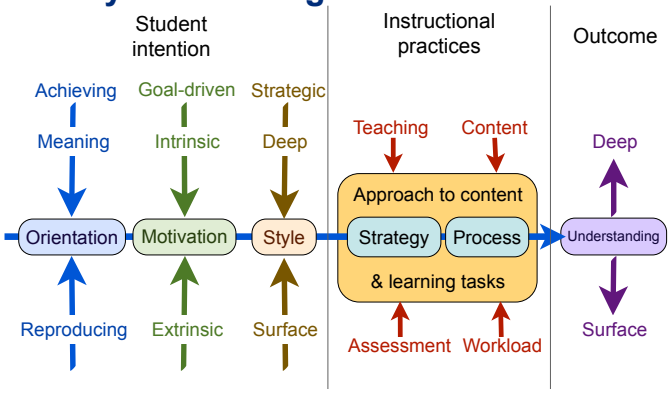
Pathways & barriers to success:



FICSS:
http://www.ficss.org/

Ways of learning:



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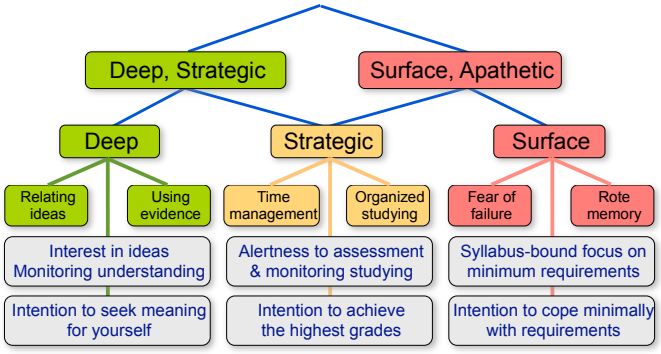
ASSIST Inventory:



http://www.etl.tla.ed.ac.uk/questionnaires/ASSIST.pdf

ASSIST Main scale correlations

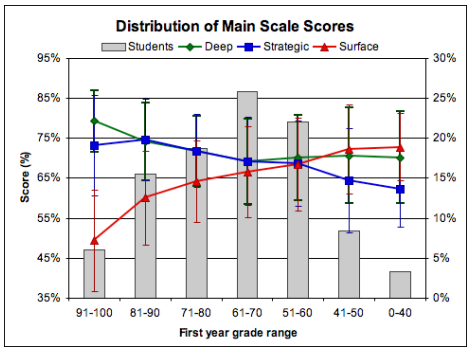
- Pearson's *r* values:
  - 1st-year chemistry students (life sciences), *n* = 394

Scale:	Deep	Strategic	Surface
1st-year	0.1960	0.2859	**–0.4060**
Deep		**0.4561**	**–0.3545**
Strategic			–0.2528

All *r* values statistically significant @ 99.99% CL ($p < 10^{-4}$)

$$t = \frac{|r|\sqrt{n-2}}{\sqrt{1-r^2}};\ H_0(r=0)$$

ASSIST Scores and grades



Mean normalised scores by grade range for 1st-year chemistry students (life sciences) *n* = 394; error bars are ±1 s.d.

ASSIST Deep scale:

- Interest in ideas (II)

"I sometimes get 'hooked' on academic topics and feel I would like to keep on studying them"

- Relating ideas (RI)

"I like to relate ideas I come across to those in other topics or courses"

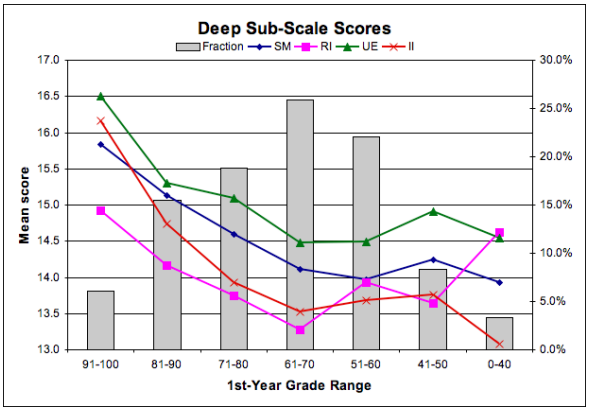
- Seeking meaning (SM)

"When I'm reading an article or book, I try to find out for myself exactly what the author means"

- Use of evidence (UE)

"It's important for me to be able to follow the argument, or to see the reason behind things"

ASSIST Deep scale:



ASSIST Strategic scale

- Achieving orientation (AO)

"I put a lot of effort into studying because I'm determined to do well"

- Alertness to assessment demands (AA)

"I keep an eye open for what lecturers seem to think is important..."

- Monitoring effectiveness (ME)

"I think about what I want to get out of this course to keep my studying focussed"

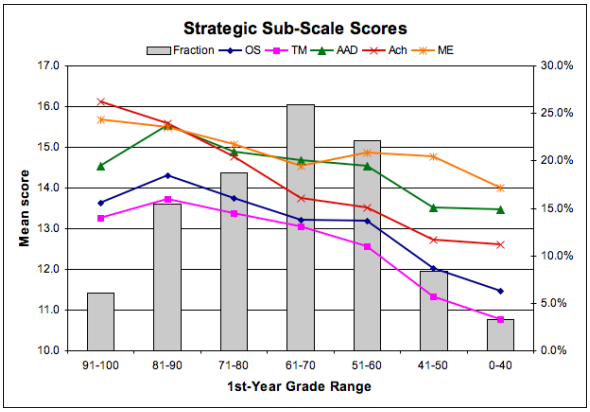
- Organised studying (OS)

"I usually plan out my week's work in advance, either on paper or in my head"

- Time management (TM)

"I'm pretty good at getting down to work whenever I need to"
"I work steadily through the semester, rather than leave it all until the last minute"

ASSIST Strategic scale



ASSIST Surface scale

- Fear of failure (FF)

"I often worry about whether I'll ever be able to cope with the work properly"

- Lack of purpose (LP)

"Often I find myself wondering whether the work I am doing here is really worthwhile"
"I'm not really interested in this course, but I have to take it for other reasons"

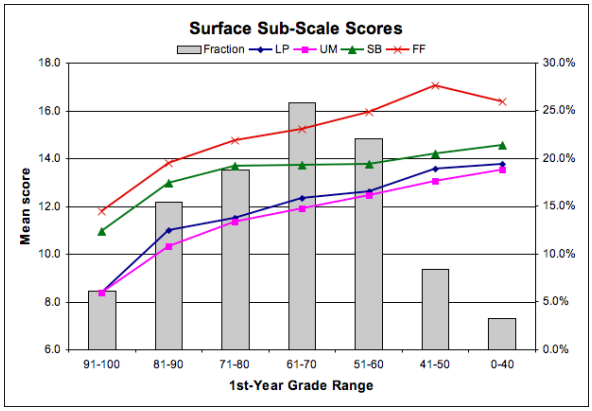
- Syllabus boundness (SB)

"I concentrate my learning just on those bits of information I have to know to pass"

- Unrelated memorising (UM)

"Much of what I'm studying makes little sense: it's like unrelated bits and pieces"
"I'm not really sure what's important in lectures, so I try to get it all down"

ASSIST Surface scale



ASSIST Cluster analysis

- k-means grouping into 24 clusters:
  - students with similar "traits"

SM	RI	UE	II	OS	TM	AA	AO	ME	LP	UM	SB	FF	Uni
12.4	10.8	14.0	**9.7**	**10.1**	**7.1**	14.7	11.6	13.2	**13.8**	13.9	15.2	**18.0**	57%
15.0	14.9	15.2	**17.5**	**14.4**	**16.0**	17.0	16.3	16.6	**9.2**	11.3	14.4	**17.2**	71%
14.0	14.3	15.4	**13.0**	**14.6**	**14.9**	14.6	14.0	14.4	**11.9**	14.7	15.3	**17.6**	74%

Curiosity
Discipline & Focus
Goals
Anxiety

Ways of knowing:

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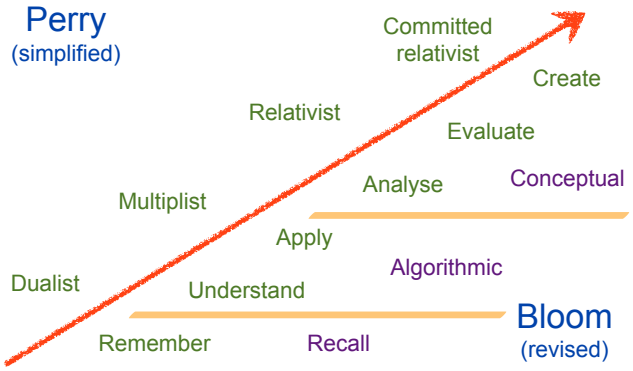
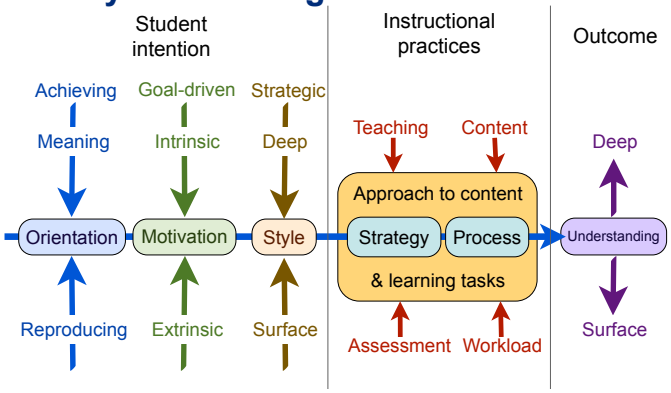


Ways of learning:



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Research teams:

- 2006-7:
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- 2007-8:
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