

# *A study into the effect of assessment on learning*

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# About the Study

- A 3-year longitudinal study which examines the effect of assessment on student learning.
- A random sample of 412 first year UG students (2010 – 2013 cohort)
- Data are collected at the end of each term.

# Dependent Variables

- Generic learning outcomes (students' self-assessment)
- Academic performance
- **Learning approaches** (SPQ, Biggs, Kember and Leung 2001)

# Independent variables

- **Assessment environment** (AEQ, Gibbs 2007)
- Method of assessment
- Course experience
- **Motivation to study** (MSLQ, Pintrich, 1991)
- Conception of learning
- Epistemological beliefs

# AEQ - Study Effort Scales

- Quantity of effort – The extent that students had to put in efforts their study.
- Coverage of syllabus – The extent that assessment required students to study all aspects of the course.

# AEQ – Feedback Scales

- Quantity and quality of feedback (given to students)
- Use of feedback (by students)

# AEQ - Other scales

- Appropriate assessment – the extent the assessment tested higher order learning (i.e. not rote memorization)
- Clear goals and standards – the extent students understand the expectation of the course
- Learning from examination – the extent students learn from doing the exams
- Overall satisfaction (with the course)

# Learning Approach and AEQ scales

- Students were advised to respond to several questionnaires based on their experience in a randomly chosen course at the end of the term.



# Intercorrelation for Learning Approaches and AEQ scales

N=1185	Deep Approach	Surface Approach
1. Quantity of effort	.115**	-.020
2. Coverage of syllabus	.044	-.154**
3. Quantity and quality of feedback	.094**	-.164**
4. Use of feedback	.235**	-.126**
5. Appropriate assessment	.050	-.149**
6. Clear goals and standards	.164**	-.099**
7. Learning from the examination	.227**	-.083**
8. Overall satisfaction	.175**	-.062*

\*\* p<0.01 \* p<0.05

## Multiple Regression Summary for AEQ Scales predicting Deep Approach

Variable	B	SEB	$\beta$
1. Quantity of effort	.066	.027	.076**
2. Coverage of syllabus	.069	.043	.049
3. Quantity and quality of feedback	-.007	.032	-.007
4. Use of feedback	.175	.031	.192**
5. Appropriate assessment	.077	.032	.079*
6. Clear goals and standards	.050	.037	.045
7. Learning from the examination	.128	.030	.140**
8. Overall satisfaction	.066	.027	.056

$R^2 = 0.117; F(8,1014) = 16.83, p < 0.001.$

\* $p < 0.05$ ; \*\* $p < 0.01$ .

## Multiple Regression Summary for AEQ Scales predicting Surface Approach

Variable	B	SEB	$\beta$
1. Quantity of effort	-.005	.026	-.006
2. Coverage of syllabus	-.253	.042	-.184**
3. Quantity and quality of feedback	-.115	.032	-.121**
4. Use of feedback	-.065	.030	-.074*
5. Appropriate assessment	-.100	.031	-.107**
6. Clear goals and standards	-.027	.037	-.026
7. Learning from the examination	-.035	.029	-.040
8. Overall satisfaction	-.030	.022	-.048

$R^2 = 0.090; F(8,1014) = 12.598, p < 0.001.$

\* $p < 0.05$ ; \*\* $p < 0.01$ .

## Multiple Regression Summary for AEQ & MSLQ Scales predicting Deep Approach

Variable	B	SEB	$\beta$
1. MSLQ Intrinsic Goal	.165	.028	.261**
2. MSLQ Task Value	.119	.029	.198**
3. MSLQ Self efficacy for Learning and Performance	.076	.026	.128**
4. AEQ_scale1 Quantity of effort	.052	.024	.061*
5. AEQ_scale4 Use of feedback	.068	.027	.077*
6. AEQ_scale5 Appropriate assessment	.068	.027	.071*

$R^2 = 0.307$ ;  $F(14,1033) = 32.843$ ,  $p < 0.001$ .  
*Change in  $R^2$  with AEQ scales* = 0.017,  $p < 0.01$   
 \* $p < 0.05$ ; \*\*  $p < 0.01$ .

Only predictors with significant  $\beta$  are shown

## Multiple Regression Summary for AEQ & MSLQ Scales predicting Surface Approach

Variable	B	SEB	$\beta$
1. MSLQ Intrinsic Goal	-.097	.029	-.159**
2. MSLQ Extrinsic Goal	.087	.020	.155**
3. MSLQ Task Value	-.122	.030	-.211**
4. MSLQ Self efficacy for Learning and Performance	.069	.027	.120*
5. MSLQ Test anxiety	.163	.019	.265**
6. AEQ Coverage of syllabus	-.228	.039	-.172**
7. AEQ Quantity and quality of feedback	-.073	.029	-.078*
8. AEQ Appropriate assessment	-.076	.028	-.083**

$R^2 = 0.195$ ;  $F(14,1033) = 17.885$ ,  $p < 0.001$ .

Change in  $R^2$  with AEQ scales = 0.047,  $p < 0.01$

\* $p < 0.05$ ; \*\*  $p < 0.01$ .

Only predictors with significant  $\beta$  are shown

# Summary

- Preliminary results from the study support the view that assessment affects the way students go about their study, in particular, their learning approaches.
- Most of the factors measured by AEQ have a positive effect on Deep approach in learning. The reverse is true for Surface approach to learning.

# Summary

- However, the effect as measured by AEQ on Deep approach is greatly diminished when students' motivation is controlled, while the effect on Surface approach is still substantial on Surface approach after controlling for motivation.
- A possible explanation is students' adoption of deep approach in learning is influenced mostly by their level of motivation in studying the course, and not so much by assessment. But assessment does seem to influence their adoption of a surface approach even after controlling for motivation.