

## Classroom Learning Environment Questionnaire UW College of Education Pilot: AU 2006 - SU 2007

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### INTRODUCTION

This report details the second stage of development of the Classroom Learning Environment (CLE) questionnaire. Particulars of the initial development of the questionnaire were reported in [OEA Report 06-07](#). The aim of the present study was to evaluate the statistical characteristics of the revised instrument using a large sample of classes.

### METHOD

#### Instrument

The version of the CLE used in this study was comprised of eleven items (Appendix A) that elicited student opinions about the classroom atmosphere and seven demographic items (e.g., class, ethnicity, age, and gender). Because instructors administered the CLE in conjunction with standard course evaluations, we were able to conduct comparative analyses of the aggregated global evaluation score. The global evaluation score is a combination of the first four items of the standard course evaluation form (*the course as a whole, the course content, the instructor's contribution to the course, and the instructor's effectiveness in teaching the subject matter*).

#### Sample

We included CLE forms in all packets of course evaluation materials sent to College of Education courses during the 2006-2007 academic year (autumn 2006 through summer 2007). We received completed course evaluations from 3,227 students in 244 classes and CLE forms from 2,426 students in 209 (85.6%) of these classes. We limited our analyses to those classes that returned at least five standard and five CLE evaluations (Table 1). In this sample of 2,279 ratings, 1,722 (75.5%) were from women and 284 (12.4%) were from members of under-represented minority groups. Table 1 shows the distributions of classes and ratings by curriculum and instructor rank.

Table 1. Number of ratings by curriculum and rank of instructor.

Curriculum	<i>n</i>			Rank of Instructor	<i>n</i>		
	classes	standard ratings	<i>n</i> CLE ratings		classes	standard ratings	<i>n</i> CLE ratings
EDC&I	37	495	484	Tenure Track	93	1468	1354
EDLPS	22	358	332	Non-tenure Track	71	1036	925
EDPSY	35	476	433				
EDSPE	31	502	462				
EDTEP	36	618	513				
EDUC	3	55	55				
Total	164	2504	2279	Total	164	2504	2279

## RESULTS

Analyses were conducted of both class medians and student-level raw scores, as appropriate.

### Characteristics of the CLE

The first set of analyses examined the statistical properties of the individual item scores and the four subscale means. We first computed average inter-item correlation and Cronbach's alpha for each of the three CLE subscales and for the global evaluation scale (Figure 1). Coefficients for class-level data tended to be greater than those for student-level data. The inter-item correlation coefficients were very high for global evaluation and moderate for the CLE subscales. In other words, students tended to give more similar ratings to each of the global evaluation items than they gave to the positive environment, negative environment, and beliefs items. Nevertheless, internal consistency -- as indexed by Cronbach's alpha -- was acceptable for all of the subscales.

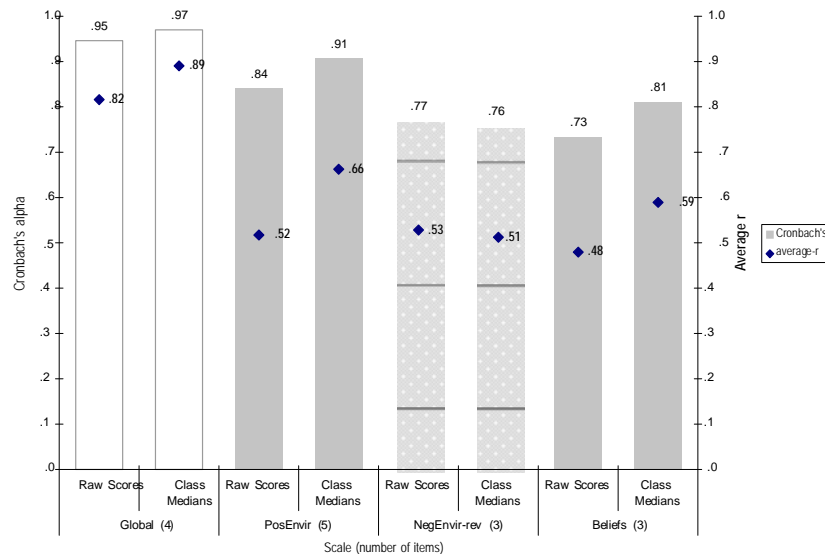


Figure 1. Internal consistency of raw scores and class means

Next, to address the question of whether raters in a class agreed in their ratings, we computed inter-rater reliability coefficients for each of the subscales. Inter-rater reliability was very high for global evaluation and positive environment, but much lower for negative environment and beliefs (Figure 2). We used the Spearman-Brown prophecy formula to estimate the number of raters one would need to achieve a stable class median. For global evaluation and positive environment, the estimates were 5 and 7 raters, respectively. By contrast, one would need approximately 50 raters to achieve stable negative environment and beliefs medians. In other words, individual students in a class tended to agree about the overall quality of the course and the positive environment of the classroom, but they did not agree about the negative aspects of the classroom experience.

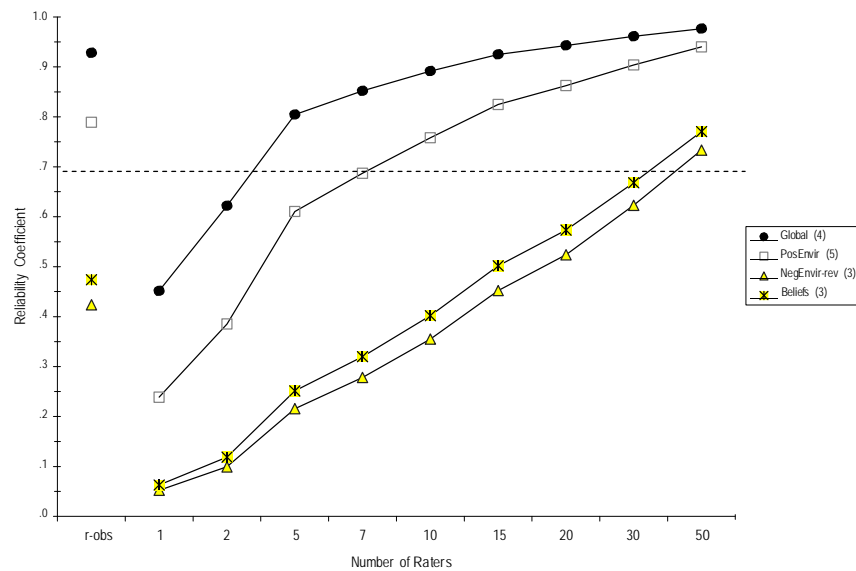


Figure 2. Inter-rater reliability of item ratings

## Group differences

Means on all scales were fairly high (Figure 3). Analyses of variance revealed a few statistically significant mean differences by ethnic group, curriculum, and instructor rank. There were no significant differences by gender.

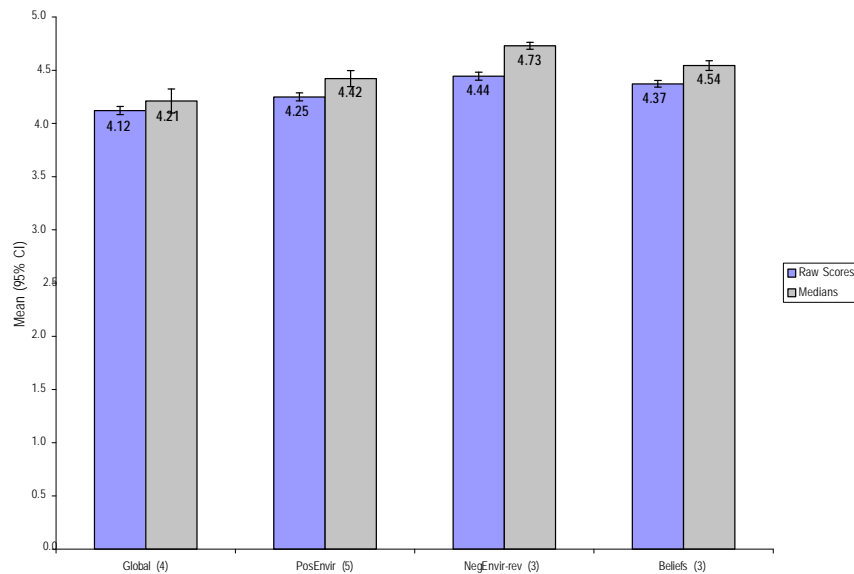


Figure 3. Subscale means

### *Ethnic group*

There were significant differences by ethnic grouping on the negative environment subscale. Although all group means were in the *disagree* end of the response scale (Figure 4), International students tended to give lower (i.e., more negative) ratings than European American students (Cohen's  $d = -.63$ ), Asian American students ( $d = -.29$ ), and URM students ( $d = -.12$ ). Conversely, European American students tended to give higher (i.e., less negative) ratings than Asian American students ( $d = .35$ ) and URM students ( $d = .34$ ). Asian American and URM means did not differ. These group differences were also detected in each of the three component items, and the largest effect was on Item 3 ("Sometimes I am singled out in this class because I am different").

International students tended to give higher ratings on the positive environment subscale than did Asian American ( $d = .41$ ) and URM students ( $d = .42$ ). There were no other significant pairwise differences by ethnic grouping.

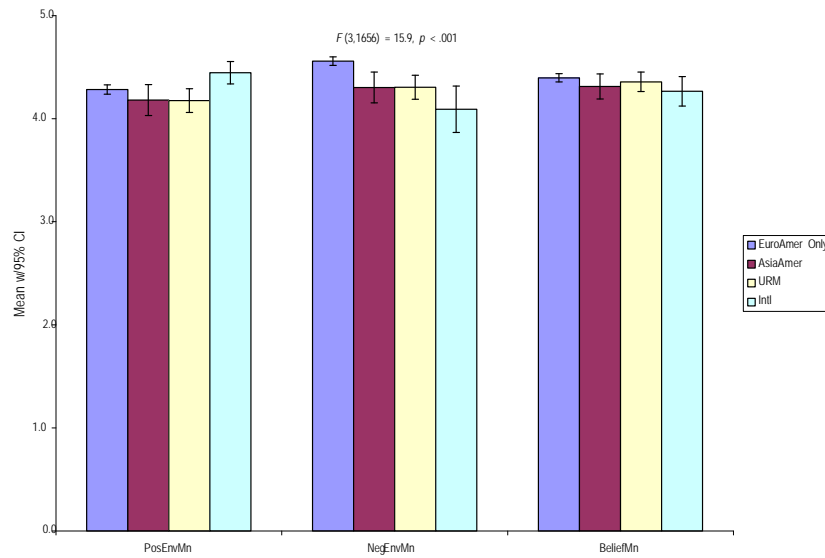


Figure 4. Subscale means by ethnic group (raw scores)

### Curriculum

Analyses of mean class medians by curriculum revealed several significant differences. First, on global evaluation, the mean for EDC&I classes was greater than that of EDPSY ( $d = .8$ ). Second, also on global evaluation, EDTEP classes had a lower mean than EDC&I ( $d = -1.3$ ), EDLPS ( $d = -1.1$ ), and EDSPE ( $d = -.95$ ). Third, on positive environment, EDPSY's mean was lower than EDC&I ( $d = -1.1$ ), EDLPS ( $d = -1.3$ ), and EDSPE ( $d = -1.2$ ). Fourth, on beliefs, the EDLPS mean was greater than the means of EDC&I ( $d = 2.9$ ), EDPSY ( $d = 3.5$ ), EDSPE ( $d = 3.9$ ), and EDTEP ( $d = 2.9$ ).

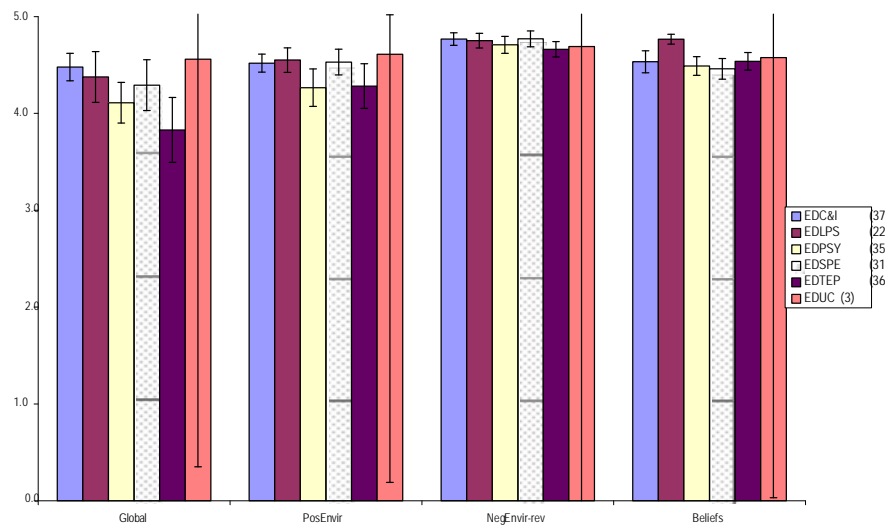


Figure 5. Subscale means by curriculum

### Instructor rank

The only difference by instructor rank was on the global evaluation median. Tenure-track faculty tended to receive higher ratings than others (e.g., instructors and TAs),  $d = .5$ .

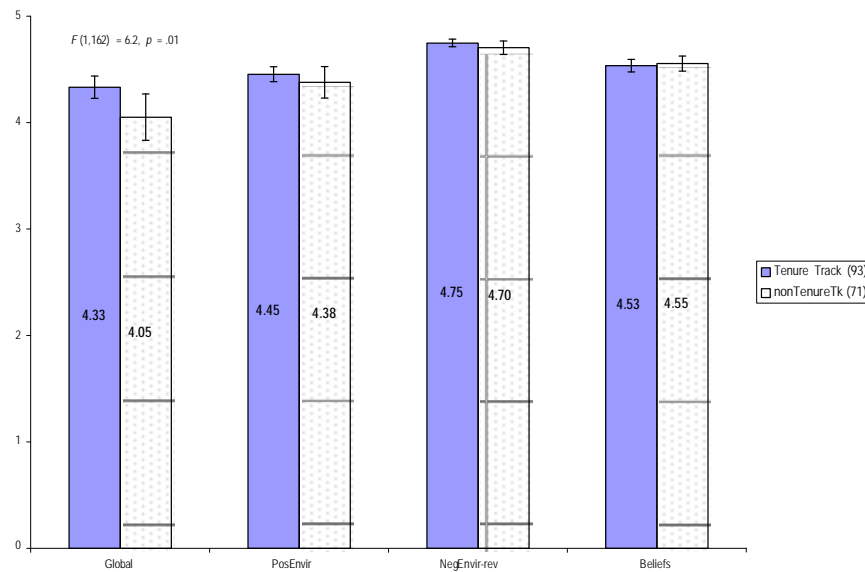


Figure 6. Scale means by instructor rank

### SUMMARY

The results of this study suggest that the CLE subscales are fairly stable. Internal consistency coefficients derived from student versus class data were very similar to one another, and in all cases exceeded the traditional benchmark of  $\alpha = .7$ . In terms of inter-rater reliability, the results indicate that a reliable ( $r \geq .7$ ) positive environment median rating can be achieved with as few as seven raters per class. There was much less inter-student agreement about negative environment and endorsement of diversity beliefs. However, given the nature of those subscales, this finding is not surprising. For those scales, it may be wisest to report response frequencies rather than class medians.

Overall, the evaluations of classroom learning environment in AU06-SU07 College of Education classes were positive. There were no differences between men and women on any of the scales, and there were no differences by instructor rank on any of the CLE scales. There was a strong relationship between degree of representation and tendency to agree with the statement "Sometimes I am singled out in this class because I am different from most of the other students", such that European American students gave it the least endorsement, international students gave it the most, and Asian American and URM students were in the middle. However, international students as a group also gave the highest positive environment ratings. Taken together, the findings indicate that the CLE can detect meaningful variation in student values within a class and in environment across classes.

## APPENDIX A

### CLE Items (0=Strongly Disagree, 5=Strongly Agree)

#### *Positive Environment*

1. This class provides an environment for the free and open expression of ideas, opinions, and beliefs.
4. Grades are assigned fairly and impartially in this class.
7. The classroom environment is comfortable and accessible for students with any type of disability.
8. The instructor encourages equal participation of all students in this class.
11. The instructor makes me feel welcome in this class.

#### *Negative Environment*

3. Sometimes I am singled out in this class because I am different from most of the other students.
6. I am often ignored in this class even when I attempt to participate.
9. I feel isolated in this class.

#### *Personal Beliefs*

2. Learning about different cultures or perspectives is an essential part of my college education.
5. I enjoy taking courses that challenge my beliefs and values.
10. I enjoy talking with people who have values different from mine.

### Standard Global Evaluation Items (0=Very Poor, 5=Excellent)

#### *Positive Environment*

1. The course as a whole was:
2. The course content was:
3. The instructor's contribution to the course was:
4. The instructor's effectiveness in teaching the subject matter was:

## APPENDIX B

### Number of Respondents Providing Demographic Data By Curriculum Counts

Curriculum	n	Demographic Item						
		Class	English primary	Ethnicity	Age	Disability	Gender	Sexual orientation
EDC&I	Missing	17	25	13	16	28	21	68
	Valid	468	460	472	469	457	464	417
EDLPS	Missing	5	13	8	7	22	7	44
	Valid	327	319	324	325	310	325	288
EDPSY	Missing	16	21	9	23	30	23	51
	Valid	418	413	425	411	404	411	383
EDSPE	Missing	15	30	29	18	34	22	72
	Valid	447	432	433	444	428	440	390
EDTEP	Missing	66	79	20	80	105	90	122
	Valid	447	434	493	433	408	423	391
EDUC	Missing	0	0	3	0	1	2	4
	Valid	55	55	52	55	54	53	51
Total	Missing	119	168	82	144	220	165	361
	Valid	2162	2113	2199	2137	2061	2116	1920

### Percentages

Curriculum	n	Demographic Item						
		Class	English primary	Age	Ethnicity	Disability	Gender	Sexual orientation
EDC&I	Missing	3.5	5.2	3.3	5.2	5.8	4.3	14.0
	Valid	96.5	94.8	96.7	94.8	94.2	95.7	86.0
EDLPS	Missing	1.5	3.9	2.1	3.9	6.6	2.1	13.3
	Valid	98.5	96.1	97.9	96.1	93.4	97.9	86.7
EDPSY	Missing	3.7	4.8	5.3	4.8	6.9	5.3	11.8
	Valid	96.3	95.2	94.7	95.2	93.1	94.7	88.2
EDSPE	Missing	3.2	6.5	3.9	6.5	7.4	4.8	15.6
	Valid	96.8	93.5	96.1	93.5	92.6	95.2	84.4
EDTEP	Missing	12.9	15.4	15.6	15.4	20.5	17.5	23.8
	Valid	87.1	84.6	84.4	84.6	79.5	82.5	76.2
EDUC	Missing	0.0	0.0	0.0	0.0	1.8	3.6	7.3
	Valid	100.0	100.0	100.0	100.0	98.2	96.4	92.7
Total	Missing	5.2	7.4	6.3	7.4	9.6	7.2	15.8
	Valid	94.8	92.6	93.7	92.6	90.4	92.8	84.2