

**Researchers Beware:  
Comparing FSSE with NSSE  
Can Be Messy**

**Ed Rugg, Director  
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Kennesaw State University  
Presented at the AIR Forum 2005  
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## National Surveys of Student Engagement

### Student Perspectives (NSSE)

The College Student Report 2004  
100 items for response

### Faculty Perspectives (FSSE)

Faculty Survey of Student Engagement 2004  
112 items for response

## Suggested Comparisons

- The 2004 Institutional Report Supported Making Comparisons of Faculty and Student Responses on 57 Supposedly Similar FSSE and NSSE Items



## FSSE & NSSE: Kin, But Not Twins



- FSSE is an Apple
- NSSE is an Orange
- Extra Care is Needed when Comparing Apples with Oranges

## Direct Comparisons of NSSE & FSSE Responses Are Messy

Substantive Differences Confound  
the Results of Most Comparisons

- “Comparable items” for the two surveys are rarely worded identically or similarly.
- The context or focus for responses is often not the same across the two surveys.
- Response categories for “comparable items” are often very different for the two surveys.

## Few Well-Matched Pairs



Only 10 of the  
57 “comparable  
items” from  
NSSE and FSSE  
were nearly  
identical in  
wording—a well-  
matched pair

## Well-Matched Pairs in 2004

<u>Category</u>	<u>FSSE Items</u>	<u>NSSE Items</u>
Quality of Student Relationships	2, 3, 4	8 a-c
Institutional Environment	5 a-e, g-h	10 a-g

## Informative Direct Comparisons for Well-Matched Items

- When responding to equivalent items in the same context, faculty and students agreed more than disagreed, with a few notable exceptions.
- See “Well-Matched Comparisons of NSSE & FSSE Handout” on institutional environment and quality of student relationships

## Different Response Contexts & Focuses

- NSSE respondents focus on the first year or senior year experience as a whole
- FSSE respondents focus on a selected lower or upper division course experience

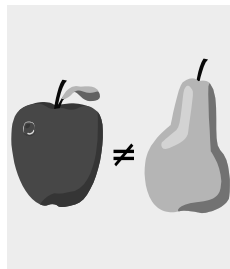


## Interpret Contextual Differences with Caution

- For example, when more students than faculty report that students often have conversations with other students of a different race or nationality (FSSE 13f vs. NSSE 1u), remember that the faculty are referencing in-class experiences only, while students are reflecting on their out-of-class as well as in-class experiences as a whole.

## Different Response Categories Limit Comparability

- For 20 of the 57 “comparable items,” faculty used different response categories than students used



## Example of a Messy Item Comparison Involving Different Response Categories

Enriching Educational Experiences (FSSE 1f compared to NSSE 7f)

Why compare an instructor’s rating of the importance of study abroad... with a student’s reported plan for completing a study abroad experience ?

What would any percentage difference mean ?

## Example of a Messy Matched Pair in Wording, Context, & Response

Academic & Intellectual Experiences  
(FSSE 12a compared to NSSE 1a)

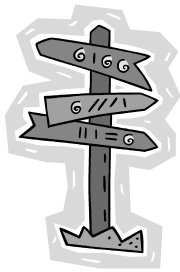
Why compare the faculty's report of the percentage of students who frequently asked questions in one selected course... with the student's report of how frequently he/she asked questions in class during the current school year?

What would any percentage difference mean?

## Consider Convergent Analyses

- When direct comparisons of FSSE with NSSE items are messy, consider parallel descriptive analyses and inspect the results for convergence.
- See "Nuggets from NSSE & FSSE – Handouts 1-4" on student learning outcomes-- extracted from convergent analyses of NSSE 11 & 2 and FSSE 21 & 20

## Where Do We Go From Here?



- Proceed with caution
- Wear boots
- Get to the high ground

## An Opportunity to Improve FSSE

- FSSE has great untapped potential to capture valuable informed judgments of educational experts (the faculty) in ways that would enable cross-validation of the self-reported engagement of students in NSSE.

## Another Key Opportunity

- NSSE and FSSE could be more centrally involved in the national conversations on documenting achievement of student learning outcomes.



## Your Turn for Questions & Comments



PowerPoint and handouts are available at:

[www.kennesaw.edu/ie](http://www.kennesaw.edu/ie)

Thanks!

## Well-Matched Comparisons of NSSE & FSSE Handout

Items 2, 3, 4, and 5 in FSSE for 2004 were well-matched to items 8 and 10 in NSSE in terms of question wording, context or focus, and response categories. These items addressed issues of institutional environment and quality of student relationships. Direct comparisons of the response distributions for faculty with those for students on these particular items were well-grounded in fundamental principles of good survey research.

### Faculty and Students Agreed that Student Relationships with Administrative Personnel Were Not as Strong as Relationships Between Students and Faculty or Other Students

Faculty and students were asked virtually identical questions about the quality of student relationships at KSU with the faculty, students, and administrative personnel. Agreement between faculty and student responses to these questions was high. The vast majority of faculty (eight out of 10) and students (nine out of 10) reported that students were more friendly, supportive, and inclusive than not at KSU. An equally large proportion of faculty and students reported that KSU faculty were more available, helpful, and sympathetic than not. In contrast, less than half of the faculty and a little more than half of students rated administrative personnel as more helpful, considerate, and flexible than not. These findings suggest that the faculty agreed with students that there is substantial room for improvement in "customer relations" in the quality of the relationship between administrative personnel and students at KSU. (See Table 1.)

**Table 1**

#### Percent of Faculty and Students Giving Favorable Ratings to the Quality of Student Relationships at KSU

<b>Student Relationships Evaluated</b>	<b>% giving a rating of 5, 6, or 7</b>		
	<b>Students</b>	<b>Faculty</b>	<b>Difference</b>
Relationships with other students who rated more friendly, supporting, and inclusive than not	88%	78%	Significant
Relationships with faculty who were rated more available, helpful, and sympathetic than not	85%	85%	Not Significant
Relationships with administrative personnel who were rated more helpful, considerate, and flexible than not	63%	46%	Significant

\*Differences were tested for significance using Chi Square at  $p < .05$ , d.f. = 1

**Well-Matched  
Comparisons (cont.)**

**Faculty and Students Agreed on KSU's High Levels of Support for Academic Success and Lower Emphasis on Support for Social and Non-Academic Success**

Faculty and students were asked identical questions in the FSSE and NSSE about KSU's emphasis on support for student success. Interestingly, faculty responses were very similar to those of the students. About seven out of every ten students and faculty reported that KSU provided "quite a lot" or "very much" of the support needed for students to succeed academically. In contrast, only about a third of both groups observed that KSU provided students with high levels of support needed to thrive socially. In addition, low percentages of both groups felt that KSU provided substantial support to help students cope with their non-academic responsibilities (work, family, etc.). In this non-academic area of support for student success, significantly fewer students than faculty reported high levels of institutional assistance. (See Table 2.)

**Table 2**

**Percent of Faculty and Students Reporting High Levels of Institutional Support for Student Success**

<b>Support for Student Success</b>	<b>% "Quite a Bit" or "Very Much"</b>		<b>Difference</b>
	<b>Students</b>	<b>Faculty</b>	
KSU Provides Support Needed for Academic Success	72%	77%	Not Significant
KSU Provides Support Needed to Thrive Socially	30%	36%	Not Significant
KSU Provides Support Needed to Cope Non-Academically	19%	42%	Significant

\*Differences were tested for significance using Chi Square at  $p < .05$ , d.f. = 1

**Nearly All Faculty and Students Reported that KSU Strongly Encourages Students to Use Computers**

Rarely did nearly all faculty members or nearly all students share similar opinions about any of the same items in the FSSE and NSSE. They did so, however, in regard to their belief that KSU strongly encourages students to use computers in their academic work. Nearly all respondents, more than nine out of every 10, affirmed the institution's strong commitment to and advancements in the use of technology in KSU's educational experience.

## Nuggets from NSSE: Fundamental Learning Outcomes

Handout #1

The KSU experience was frequently rated as having had a strong impact on developing nine fundamental learning outcomes in undergraduate education. Nine out of every 10 respondents in the 2004 NSSE reported that their KSU experience contributed greatly (i.e., “Quite a Bit” or “Very Much”) to their acquisition of a broad general education. Typically, three-fourths or more of the respondents credited the KSU experience greatly for their development of knowledge and skills in critical thinking, writing, speaking, quantitative analysis, computer usage, working with others, independent learning, and job-related career preparation. Of the 16 undergraduate learning outcomes that were rated, these nine are arguably the most fundamental and important for a sound educational experience at a comprehensive public university like KSU. (See the top nine listings in Table 1.)

**Table 1**

### Percent of Students Crediting the KSU Experience Greatly for Their Growth in 16 Undergraduate Learning Outcomes and the Significance of Gains from the First Year to the Senior Year

Contribution of the KSU Experience to a Specific Learning Outcome	% Rating the Contribution as Great		
	1st-Yr	Senior	Difference*
<b>Nine Fundamentals</b>			
Acquiring a broad general education	85%	87%	Not Significant
Thinking critically and analytically	77%	88%	Significant
Using computing and information technology	76%	81%	Not Significant
Writing clearly and effectively	72%	84%	Significant
Working effectively with others	71%	83%	Significant
Learning effectively on your own	67%	72%	Not Significant
Analyzing quantitative problems	59%	75%	Significant
Speaking clearly and effectively	58%	78%	Significant
Acquiring job or work-related education	50%	74%	Significant
<b>Four Additional Notables</b>			
Understanding yourself	52%	56%	Not Significant
Solving complex real-world problems	47%	59%	Not Significant
Understanding people of other races	46%	50%	Not Significant
Developing personal values and ethics	40%	45%	Not Significant
<b>Weakest Outcomes</b>			
Contributing to your community	28%	31%	Not Significant
Voting in local, state, national elections	28%	20%	Not Significant
Developing deepened spirituality	18%	9%	Not Significant

\* Significance of differences were tested using Chi Square at  $p < .05$ , d.f. = 1.

The percentages of seniors who gave great credit to the KSU experience were higher for all nine learning outcomes than the comparable percentages of first-year students. In six of those nine comparisons, the gains from the first year to the senior year were statistically significant and large enough to be meaningful as well. It is affirming to see this evidence that the percentages of students who experienced great educational and personal development at KSU were so high and grew significantly in critical thinking skills, writing skills, teamwork, quantitative skills, speaking skills, and career-related education from the freshman to the senior years, reflecting a value-added impact of both the general education program as well as study in the major field.

## Nuggets from FSSE: Convergent Findings on Learning Outcomes Handout #2

Item 21 in FSSE was similar to but not identical with item 11 in NSSE, both of which focused on student learning outcomes. Students were asked to report the level of the institution's overall contribution to their development on 16 specific outcomes. In contrast, faculty members were asked to report the extent to which they structured one particular lower or upper division course to help students develop in 14 of those 16 learning outcomes. The two learning outcomes which were included in NSSE, but were absent in FSSE, were "Contributing to the welfare of your community" and "Voting in local, state, or national elections" (which would have been two interesting items to examine for the American Democracy Project initiative had they been included in FSSE).

Because of the confounding effects of differences between the design of NSSE and FSSE items, direct comparisons of frequency distributions of student and faculty responses on the 14 common learning outcomes would not be methodologically sound. It is appropriate, however, to extract patterns of emphasis on the 14 learning outcomes that faculty reported for their courses and comment on the degree to which such findings appeared consistent with student perceptions of the contributions of the overall KSU experience toward their achievement of those same 14 learning outcomes. In that regard, the faculty's reported instructional emphasis on learning outcomes was highly consistent and convergent with student perceptions of their overall KSU experience.

On these items, the findings from FSSE (see Table 2) were very consistent with the findings from NSSE. The list of nine fundamental learning outcomes from the students in NSSE overlapped the faculty's in FSSE in all cases except one. The substantial overlap between what faculty say they emphasize in their courses and what students report they experience as KSU's greatest educational impact helps to confirm that the faculty's curricular intentions are achieving their expected results. Significant differences between lower and upper division courses in FSSE and the first year and senior student experience in NSSE are also strikingly similar.

**Table 2**

**Percent of KSU Faculty Who Reported Structuring Their Selected Course to Greatly Facilitate Particular Undergraduate Learning Outcomes and the Significance of Differences Between those Reports for Lower Division and Upper Division Courses**

<b>Course Contribution to a Particular Learning Outcome</b>	<b>% Reporting Great Emphasis</b>		
	<b>Lower Div</b>	<b>Upper Div</b>	<b>Difference</b>
<b>Nine Fundamentals</b>			
Thinking critically & analytically	95%	99%	Not Significant
Learning effectively on their own	93%	82%	Significant
Acquiring a broad general education	76%	59%	Significant
Using computing & info technology	68%	56%	Not Significant
Writing clearly & effectively	60%	82%	Significant
Solving complex real-world problems	57%	67%	Not Significant
Acquiring job or work-related education	55%	83%	Significant
Working effectively with others	55%	74%	Significant
Speaking clearly & effectively	39%	60%	Significant
<b>Four Additional Notables</b>			
Understanding themselves	53%	55%	Not Significant
Understanding people of other races	47%	45%	Not Significant
Analyzing quantitative problems	48%	40%	Not Significant
Developing personal values & ethics	41%	58%	Significant
<b>Weakest Outcome</b>			
Developing deepened spirituality	11%	13%	Not Significant

\*Significance of differences were tested using Chi Square at  $p < .05$ , d.f. = 1.

No notable differences existed between KSU students and NSSE’s national samples in their reports of coursework emphasis on critical thinking and higher-order learning skills. However, there were several important findings between lower-order and higher-order thinking skills within KSU between freshmen and seniors.

For example, both first-year and senior students reported the least emphasis in their coursework on the lower-order thinking skills of memorizing facts and ideas and the most emphasis on the higher-order thinking skills of analyzing ideas and experiences. This difference was significant and notable for seniors. That finding corresponds to the ideals of the educational philosophy in higher education in which critical thinking, especially analyzing and synthesizing information, is valued more than rote memorization and grows in emphasis throughout the undergraduate experience.

Significantly more KSU seniors also reported great emphasis (i.e., “Quite a Bit” or “Very Much”) on analyzing and synthesizing activity in their coursework than freshmen reported for their first-year experience. That finding is consistent with expectations that upper division coursework would entail greater higher-order thinking skills than lower division coursework as students advance in their collegiate studies. (See Table 3.)

Several related NSSE items that focused on student engagement in synthesizing intellectual activity yielded convergent findings of support. For example, KSU freshmen and seniors reported working significantly more often than their national counterparts on a paper or project that required integration of ideas or information from various sources (item 1d). Significantly more reported putting together ideas or concepts from different courses when completing assignments or during class discussions (item 1i). This building block effect of drawing on other courses increased significantly and very substantially from the freshman to the senior year for KSU students (52% of first-year students often did so compared to 75% of seniors).

**Table 3**

**KSU Coursework Emphasis on Critical Thinking**

<b>Critical Thinking Dimension Emphasized in Coursework</b>	<b>% Reporting a Great Emphasis</b>		
	<b>1st-Yr</b>	<b>Senior</b>	<b>Difference*</b>
Analyzing	73%	88%	Significant
Synthesizing	63%	78%	Significant
Applying	74%	82%	Not Significant
Making Judgments	68%	76%	Not Significant
Memorizing	63%	69%	Not Significant
Difference Between Analyzing and Memorizing	Not Significant	Significant	

Significance of differences were tested with Chi Square  $p < .05$ , d.f. = 1

**Nuggets from FSSE: Convergence on Critical Thinking      Handout #4**

When focusing on one particular course in FSSE, a substantial majority of the KSU faculty (seven to nine out of 10) reported giving great emphasis (i.e., “Quite a Bit” or “Very Much”) to the higher-order thinking skills of analysis, synthesis, application, and making judgments and a significantly lower emphasis to lower-order memorization. These results are consistent for the most part with the students' perceptions of their coursework's emphasis on critical thinking skills. (See Table 4.)

A visual comparison of Tables 3 and 4 suggests that KSU faculty and students differ notably in their perceptions of emphasis on memorization. Again, caution is advised about making direct comparisons of student responses with faculty responses because of the confounding differences that exist in the item design of the NSSE and FSSE. Regardless, it is probably fair to say that in general, students report expending more memorization effort in their college experience than faculty intend to emphasize in their courses. However, it is also reasonable to conclude that a student’s preparation for tests and exams in a course often entails extensive memorization, not all of which is rote or lower level. Memorization to facilitate lower-order learning of facts and information is probably present along with memorization for higher-order learning of problem-solving methods and analytical strategies.

Perhaps most importantly, many more faculty reported emphasizing and many more students reported experiencing great emphasis in higher-order learning and critical thinking skills than in lower-order learning and memorization. That finding is consistent with higher education’s philosophical ideals.

**Table 4**

**The Faculty's Emphasis on Critical Thinking in Their Selected Lower Division or Upper Division Courses**

<b>Course Emphasis on a Dimension of Critical Thinking</b>	<b>% Reporting Great Emphasis</b>		
	<b>Lower Div</b>	<b>Upper Div</b>	<b>Difference</b>
Analyzing	90%	88%	Not Significant
Synthesizing	84%	88%	Not Significant
Applying	84%	90%	Not Significant
Making Judgments	70%	83%	Significant
Memorizing	29%	22%	Not Significant
Difference Between Memorizing and All Other Higher-Order Skills	Significant	Significant	

\*Significance of differences were tested with Chi Square,  $p < .05$ ,  $d.f. = 1$ .