Office of Institutional Research

To: Scholarship Action Group
CC: Stephen Siciliano
From: Darby Hiller
Date: February 1, 2005
Subject: Outcome Performance Analysis (Fall 2004 Artifacts)

In January 2005, 99 artifacts were scored to measure performance in the Communications and Critical Thinking general education outcomes. A new scoring method was used to increase inter-reader reliability (See Inter-reader Reliability Study (Fall 2004)). The reliability rate for the Communications artifact scores was 100% with the addition of a third reader. The reliability rate for the Critical Thinking artifact scores was 94% with the addition of a third reader. This means that for Communications artifacts, readers were within two points on a 15-point scale 100% of the time. After an artifact was scored for the third time, any point difference greater than three between the third reader and the reader within one standard deviation of the mean was thrown out of this analysis. Therefore, this analysis includes 49 artifacts for Communications and 47 artifacts for Critical Thinking.

NMC's goal for performance on general education outcomes is that near-graduating students, defined as 52 or more NMC credit hours, will perform at the sufficient level in all the capabilities that make up the outcome. The second goal is that students show improvement with increasing exposure to NMC's curriculum. We demonstrate this by comparing students with fewer than 30 NMC credits ("Freshman") with those that have 30 or more credits ("Sophomore"). The five capabilities define the outcome. A student can score in the range of zero (deficient) to three (proficient) on each capability.

Communications.

The overall averages for each Communications capability are given in Table 1. A score of two means the students performed sufficiently in the skill. The data show that our students in on average are performing at the sufficient level in all the capabilities in the Communications outcome with the exception of C3, "expresses ideas appropriate to the task, academic area, and/or professions. Includes correct grammar, usage, and mechanics." This finding is congruent with past artifact analyses (See What We Have Learned (9_04)).

Table 1. Communications: Overall average capability score		Total Sample (N=49)
C1	Demonstrates understanding and support of mean idea	2.06
C2	Organizes information effectively, matching the topic, ideas, purposed and audience	2.05
C3	Expresses ideas appropriate to the task, academic area, and/or professions. Includes correct grammar, usage, and mechanics.	1.84
C4	Uses sources appropriately relevant to the task, academic area, and/or profession.	2.04*
C5	Communicates with a sense of purpose for an intended audience.	2.15

(*Note: the total number of artifacts used for this capability was 39. There was one assignment that did not ask students to demonstrate this capability and this impacted ten artifacts.)

When we look at the results in terms of percentages, two thirds of our students score sufficiently on each of the capabilities (Table 2). Again C3 is the weakest skill area with the fewest students performing at the sufficient level. For Table 2 we would not necessarily expect to see 100% of our students scoring sufficiently. The next step is to compare our "freshman" students with our "sophomore" students and near-graduating students.

Table 2. Percentage of students scoring Sufficient on each Communications capability		Total Sample (N=49)
C1	Demonstrates understanding and support of mean idea	71.4
C2	Organizes information effectively, matching the topic, ideas, purposed and audience	71.4
C3	Expresses ideas appropriate to the task, academic area, and/or professions. Includes correct grammar, usage, and mechanics.	61.2
C4	Uses sources appropriately relevant to the task, academic area, and/or profession.	69.2*
C5	Communicates with a sense of purpose for an intended audience.	79.6

(*Note: the total number of artifacts used for this capability was 39. There was one assignment that did not ask students to demonstrate this capability and this impacted ten artifacts.)

Is NMC value added in Communications skills to our students? Unfortunately, there were no near-graduating students in the Communications artifact sample (Table 3). Table 3 shows that the "freshman" students outperformed the "sophomore" students. A larger sample would aid this analysis, as the results here are descriptive with little generalizable value.

Table 3. Comparing "Freshman" students to "Sophomore" and near-graduating students in Communications.		"Freshman" students (N=46)	"Sophomore" students (N=3)	Near-graduating students (N=0)
C1	Demonstrates understanding and support of mean idea	2.08	1.83	None in sample
C2	Organizes information effectively, matching the topic, ideas, purposed and audience	2.09	1.50	None in sample
C3	Expresses ideas appropriate to the task, academic area, and/or professions. Includes correct grammar, usage, and mechanics.	1.86	1.50	None in sample
C4	Uses sources appropriately relevant to the task, academic area, and/or profession.	2.11*(37)	.75 (2)	None in sample
C5	Communicates with a sense of purpose for an intended audience.	2.16	2.00	None in sample

(*Note: In the C4 row the number of artifacts used to determine the average is in parentheses.)

Critical Thinking.

The average score for each Critical Thinking capability is given in Table 4. The data show that our students in the aggregate are not performing at the sufficient level on any Critical Thinking capability. The weakest area is CT2, "demonstrates an understanding of different perspectives." Again, this finding is further confirms the results presented in previous artifact analyses (See What We Have Learned (9_04)).

Table 4. Critical Thinking: Average Capability Score		Total Sample (N=47)
CT1	Identifies issue or problem	1.71
CT2	Demonstrates an understanding of different perspectives	1.12*
CT3	Uses information to results issue or problem	1.71
CT4	Applies reasoning to resolve issue or problem	1.44
CT5	Draws conclusions that resoles issue or problem	1.44

(*Note: the total number of artifacts used for this capability was 37. There was one assignment that did not ask students to demonstrate this capability and this impacted ten artifacts.)

The percentage of students scoring at the sufficient level on critical thinking capabilities is quite low and dismal for CT2 at 19% (Table 5).

Table 5. Percentage of students scoring Sufficient on each Critical Thinking capability		Total Sample (N=47)
CT1	Identifies issue or problem	55.3
CT2	Demonstrates an understanding of different perspectives	18.9
CT3	Uses information to results issue or problem	51.1
CT4	Applies reasoning to resolve issue or problem	34.0
CT5	Draws conclusions that resoles issue or problem	34.0

Is NMC value added when it comes to the critical thinking skills of our students? We had 29 "freshman," 13 "sophomores," and five "near-graduating" students in the critical thinking sample (Table 6). The data show that as a student acquires NMC credits her ability to perform on the capabilities improves. The "freshmen" scored in the developing range on all five capabilities. While the "sophomores" were sufficient on three of the five and the near-graduating students were sufficient on four of the five capabilities. The "freshmen" had the most trouble with CT5, "draw conclusions that resolves the issue or problem," while the "sophomores" and "near-graduates" were weak in CT2, "demonstrates an understanding of different perspectives."

Table 6. Comparing "Freshman" students to "Sophomore" and near-graduating students in Critical Thinking.		"Freshman" students (N=29)	"Sophomore" students (N=13)	Near-graduating students (N=5)
CT1	Identifies issue or problem	1.45	2.12	2.10
CT2	Demonstrates an understanding of different perspectives	1.09* (28)	1.31 (8)	.50 (1)
CT3	Uses information to results issue or problem	1.49	2.00	2.20
CT4	Applies reasoning to resolve issue or problem	1.14	1.85	2.10
CT5	Draws conclusions that resoles issue or problem	1.05	2.04	2.10

(*Note: In the CT2 row the number of artifacts used to determine the average is in parentheses.)

What this tells us.

The results of this analysis confirm the conclusions and key findings from the What We Have Learned (9_04) document. The weakest skill in Communications is expressing ideas appropriate to the task while using correct grammar and mechanics. The weakest skill in Critical Thinking is demonstrating an understanding of different perspectives. A larger sample size is needed to compare the scores of students with varying exposure to NMC curriculum in

Communications. But these results indicate that NMC was not value added for Communications skills. Likewise, a larger sample size is needed for the comparisons we would like to make in Critical Thinking among our students, but these results indicate that NMC is value added to our students' critical thinking skills. This conclusion confirms what we have learned from the CAAP critical thinking test as well.

The data are available from the Office of Institutional Research.