

# *What We Have Learned*

## *October 2007*

### **General Education Assessment Update**

The purpose of this update is to present what we have learned about NMC student progress on the general education outcomes from the 2006-2007 assessment cycle. Key areas of assessment over the past year included administration of the CAAP Critical Thinking test, critical thinking artifact scoring in spring 2007, and student perceptions of learning from the Transfer and Graduate student surveys.

#### **I. CAAP Results**

In February 2007, selected faculty and members of the Scholarship Action Group administered the CAAP Critical Thinking test in 21 courses to 416 students (see [the full CAAP report](#)). The CAAP Critical Thinking test measures students' ability in clarifying, analyzing, evaluating, and extending arguments.

Overall, 60% of NMC students performed better (average of 63%) than the national average (61%) for two-year institutions. NMC students have performed better than the national average since we started using CAAP to measure the critical thinking general education outcome. Out of the three critical thinking content areas - analysis, evaluation, and extension - evaluation of arguments is consistently our students' weakest skill. Evaluation of arguments corresponds to two specific capabilities on the critical thinking rubric: 1) demonstrating an understanding of different perspectives, and 2) using information in solving a problem or drawing a conclusion. While evaluating arguments is our weak area, NMC students still substantially outperformed the national normative group in this area by 11%, indicating that evaluating arguments is the weakest skill across the country. Juniors, sophomores, and freshman performed about the same overall.

#### **II. Artifact Results**

In May 2007, faculty and staff gathered over two scoring days to score student work measuring critical thinking (see [full artifact analysis](#)). NMC's general education goal is that near-graduating students (those with 52 or more college credits) will perform minimally at the sufficient level on the [outcome rubric](#). With a sample of 217 artifacts (margin of error of +/- 6%), the results cannot be generalized to all of our near graduates with confidence. However, the descriptive statistics for these specific scores can be useful in guiding our assessment improvement strategies, and in confirming trends.

Overall, 72.4% of the near-graduates performed at the sufficient level or above (down 8% from previous scoring cycle). Students were strongest in identifying issues or problems, and weakest in demonstrating an understanding of different perspectives in solving a problem. The ability to demonstrate an understanding of different perspectives is a trended weak area. Moreover, it has been difficult to assess because few assignments require students to actually demonstrate the skill. Many un-scorable artifacts contributed to a 43% attrition rate from the sample. Of the artifacts that were scorable, the inter-reader reliability rate was 94% and was consistent with prior years.

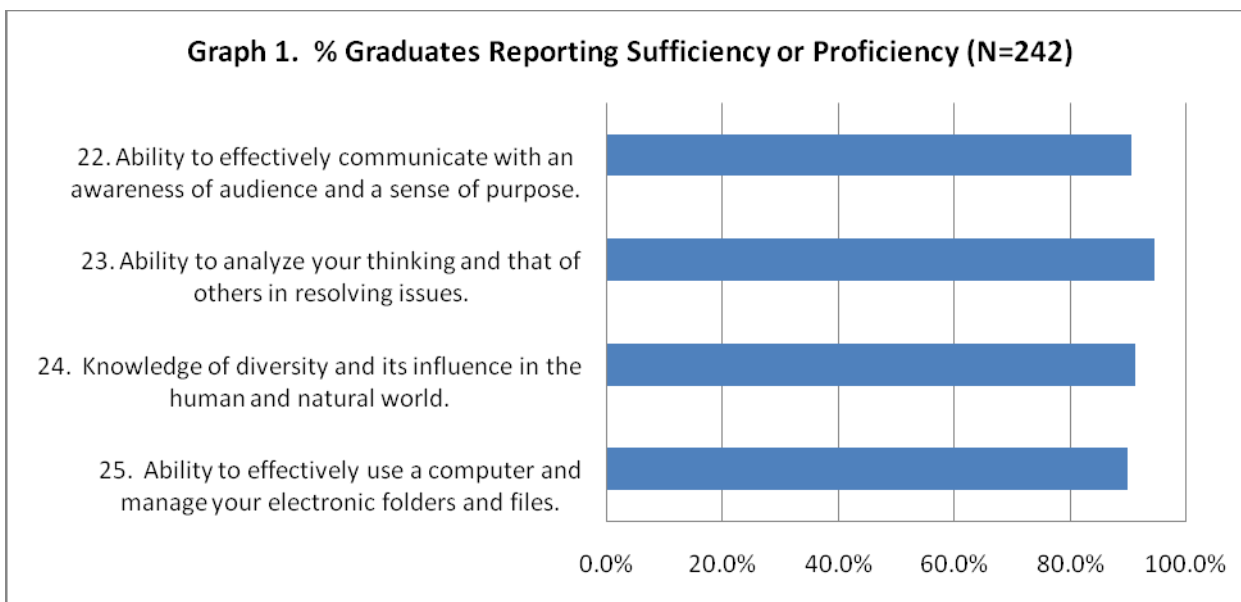
#### **III. Graduate and Transfer Student Perceptions of Learning**

The Graduate survey is an instrument for gathering student perceptions of learning. Graduates indicated how much their NMC educational experience had contributed to their growth in six areas, on a scale from 1=no contribution to 4=major contribution (Table 1).

**Table 1. NMC contribution to graduate skills (N=243); percent responding**

	Not applicable	No contribution	Slight	Moderate	Major
16. Public speaking ability...	7.8	14.8	28.8	36.2	12.4
17. Information literacy or research skills...	2.5	4.6	15.7	50.8	26.5
18. Communications skills...	2.1	3.7	19.9	53.1	21.2
19. Critical thinking skills...	1.7	2.5	12.0	48.8	35.1
20. Openness to opinions other than my own...	2.1	5.8	14.1	50.8	27.3
21. Awareness to other cultural viewpoints...	3.3	7.4	19.8	44.0	25.5

A majority of graduates reported that their NMC educational experiences had made a moderate or major contribution to their skills. NMC contributed most to graduates' critical thinking skills and least to their public speaking ability. Additionally, graduates were asked to grade their level of competency upon graduation in a set of basic skills, on a scale from 0.0 (developing) to 4.0 (proficient) (Graph 1).



About 91% believed they were at least sufficient in their ability to effectively communicate with an awareness of audience and a sense of purpose. Ninety-five percent rated themselves as sufficient or above on the critical thinking outcome. Over 91% rated themselves sufficient in their knowledge of diversity and its influence in the human and natural world (a diversity outcome that Curriculum Committee was considering but decided not to implement). Lastly, 90% of the respondents believed they had sufficient competency in effectively using a computer and managing electronic folders and files.

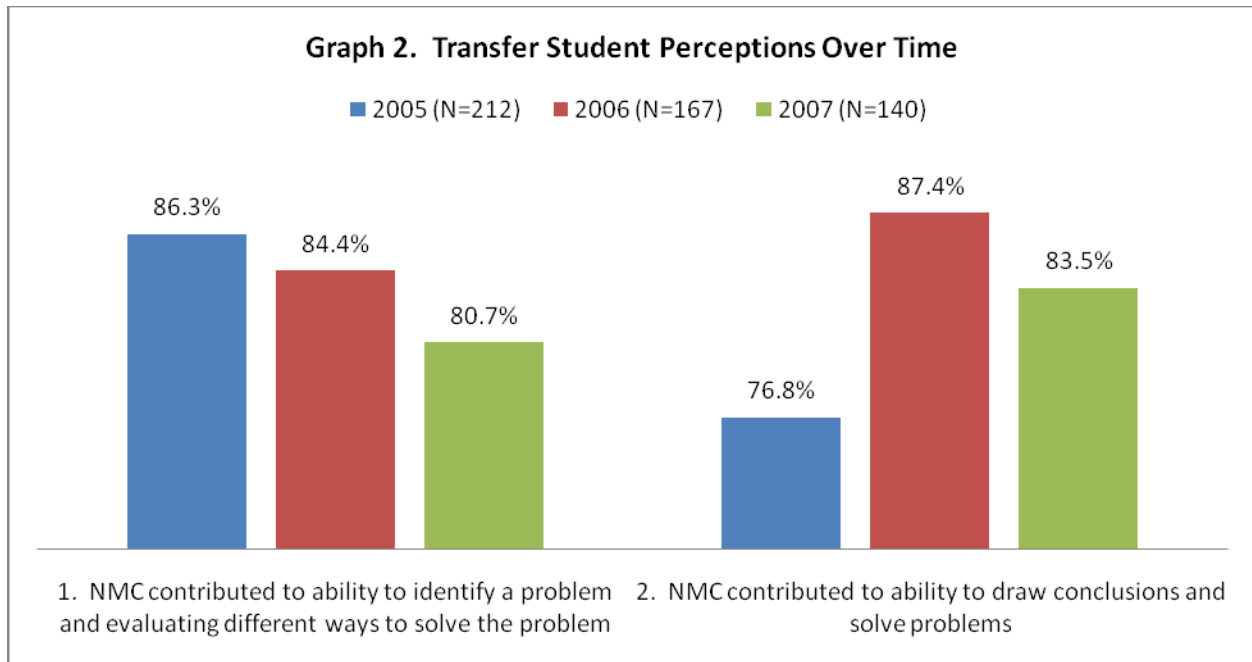
Over time, smaller percentages of graduates reported that NMC contributed to critical thinking skills.

	Graduate 2007 (N=243)	Graduate 2006 (N=203)	Graduate 2005 (N=260)
Ability to think critically and solve problems	83.9%	84.6%	90.7%
% reporting their skill level at sufficient or above	95.0%	96.3%	N/A

The Transfer Student survey is another vehicle for ascertaining student perceptions of learning. Like the Graduate survey, the Transfer Student survey asked respondents how much their educational experiences at NMC contributed to their growth in specific outcome areas (Table 3).

	Not Applicable	No Contribution	Moderate Contribution	Major Contribution
20. Developing my public speaking ability.	11.4	29.3	46.4	12.9
21. Improving my ability to express my ideas in writing.	5.7	15.0	40.0	39.3
22. Improving my research skills.	5.0	14.3	35.0	45.7
23. Developing openness to opinions other than my own.	5.0	10.0	44.3	40.7
24. Broadening my awareness of other cultural viewpoints.	7.1	24.3	46.4	22.1
25a. Improving my ability to identify a problem and evaluate different ways of solving the problem.	5.7	13.6	40.0	40.7
25b. Improving my ability to draw conclusions and solve problems.	5.0	11.4	47.1	36.4

About two thirds of transfer students reported that NMC had made a contribution to their skills. Over time, a smaller percentage of transfer students reported that NMC made a contribution to their critical thinking skills (Graph 2).



#### IV. Next Steps

*The CAAP test and the artifact scores consistently identify students' ability to demonstrate an understanding of different perspectives in solving a problem as the area most needing improvement. As far as the Scholarship Action Group is aware, no new curricular initiatives designed to improve student learning in critical thinking were proposed or implemented over the 2005-2006 or 2006-2007 academic years.*

*In December 2006, the Curriculum Committee proposed a new definition of the Critical Thinking outcome ([see policy](#)). The definition now includes the capability to "Demonstrate an understanding of the importance of diverse perspectives to academic and technical disciplines and to human communities generally." Given the difficulties in being able to assess the current statement regarding the understanding of different perspectives even more broadly defined, assessing the outcome based on the new definition will pose a challenge for the Scholarship Action Group and faculty alike in the future.*

#### **Adjusting and Continuously Improving Assessment Methods**

The Scholarship Action Group recommends the continued administration and use of the CAAP Critical Thinking test. As a multiple-choice standardized test it is a form of *traditional assessment*, and provides useful information in three ways. First, it provides a national benchmark for critical thinking skills. The ability to benchmark is a key component in continuous improvement and is required in responding to NMC's AQIP Systems Portfolio. Second, with the new content analysis results provided by ACT, the tool is useful in identifying specific areas for improvement. Third, the results provide information on whether NMC is value-added with regard to critical thinking skills, as the overall results can be differentiated by class. However, the results do not provide us with the means to directly measure learning of our near-graduates specifically, within the critical thinking content areas, yet. We anticipate that in time we may be able to measure learning in the critical thinking content areas by class with CAAP.

The results of the artifact scoring process this past spring helped to reiterate to the Scholarship Action Group that good assignments equal good artifacts, and thus good assessment. Additionally, as one faculty member put it, "good assignments equal good

thinking.” The current artifact method represents [authentic assessment](#). Authentic assessment happens when students are asked to perform tasks that demonstrate meaningful application of knowledge and skills. Authentic assessment includes a task for students to perform and a rubric by which their performance is evaluated.

Of considerable benefit to the artifact scoring process in spring 2006 was the introduction of the [Artifact Guidelines](#). With the critical thinking artifacts in spring 2007, it is apparent from the assignments that were submitted that less attention was paid to the Artifact Guidelines, contributing to many assignments and sets of artifacts that were deemed unscorable. This poses a problem on at least three levels.

First, there are too few scored artifacts from the near-graduates to be able to generalize to the population, making it difficult to measure our general education goals. Second, it is apparent that instructors may not have assignments that lead students to demonstrate critical thinking skills, thus making it difficult to assess learning in this area. Third, the actual scoring of the artifacts becomes less efficient as the variation in assignment and artifact format increases.

In the future, the Scholarship Action Group will need to improve the education of and communication with faculty in general, and instructors submitting artifacts specifically, as to the appropriateness of the assignments used to generate the artifacts for the purpose of general education assessment. There are several [model assignments](#) available on the IR website that provide explanation for eliciting critical thinking from students and getting the students to demonstrate their thinking in their work. With the help of the academic area chairs, the Scholarship Action Group will continue to improve our general education assessment methods.

Finally, in January 2007, the Scholarship Action Group eliminated the Student Perceptions of Learning survey tool as a means of indirectly assessing the general education outcomes because of the lack of actionable information the tool provided. Student perceptions of learning are gathered on the Graduate and Transfer Student surveys, annually and bi-annually, respectively.

### ***General Education Cycle of Continuous Improvement 2007-2008***

This year while curricular improvements are considered for critical thinking, the Scholarship Action Group along with the help of faculty will assess student learning on the Communications outcome. Artifacts will be collected and scored in spring 2008.

For any questions or comments regarding general education assessment please contact the [Office of Institutional Research](#).