

University of Minnesota – Morris
Demonstration of Technology Competencies: Fall/Winter/Spring
Prepared by ACET, Inc.

The University of Minnesota – Morris NTNT staff designed and administered the *Demonstration of Technology Competency* ratings to address the integration of technology in courses and in field experience. The purpose of the ratings was to document student self-rated competence in the understanding of and in teaching with technology. The instrument was administered in the fall and winter of 2002, with a third administration in spring 2003¹. Ratings came in the form of a 3-point scale with 1 being *seldom* and 3 being *consistently*. This instrument aimed to document student ratings of their technological competencies within three areas:

1. **Basic Computer/Technology Operations and Concepts:** Use computer terminology appropriately, utilize hardware and software and apply basic trouble shooting strategies, use basic computer applications, and use imaging devices.
2. **Personal and Professional Use of Technology:** Create multimedia presentations, create/maintain a webpage, use online resources, use software to support data management, problem solving and decision making, maintain an electronic professional portfolio, demonstrate awareness of resources for students with special needs, and understand/follow ethical principles and guidelines for technology use.
3. **Integration of Technology in Instruction:** Evaluate discipline-specific resources, integrate technology in multiple settings, and design student learning activities that foster equitable, ethical, and legal use of technology by students.

Following are the **key findings**:

- Overall, all UMM students in this sample reported high levels of consistent use of basic computer applications in all three administration periods.
- Increased competence was reported from fall-to-spring. The greatest significant change was recorded from fall-to-winter and the least from winter-to-spring.
 - For the domain *Basic Computer/Technology Operations and Concepts*, students reported significantly higher ratings on their use of computer terminology (item 1.1) from fall-to-winter and from fall-to-spring.
 - For the domain *Integration of Technology in Instruction*, students reported significantly higher ratings on all three items of instructional technology integration (item 3.1, 3.2. and 3.3) from fall-to-winter and from fall-to-spring.
 - Students reported significantly higher ratings on their awareness of resources for special needs students (item 2.7) from fall-to-winter, but a significant decrease was reported from winter-to-spring.
- UMM students remained static or demonstrated almost no change in level of demonstration from fall to winter in the following:
 - Creating and maintaining a simple webpage.
 - Understanding and following ethical principles and guidelines for technology use.

¹ A total of 100 students completed the ratings in the fall administration, 105 in winter, and 66 in spring. A total of 57 students completed the ratings in all three administrations.

Chart 1: Noted Significant Changes

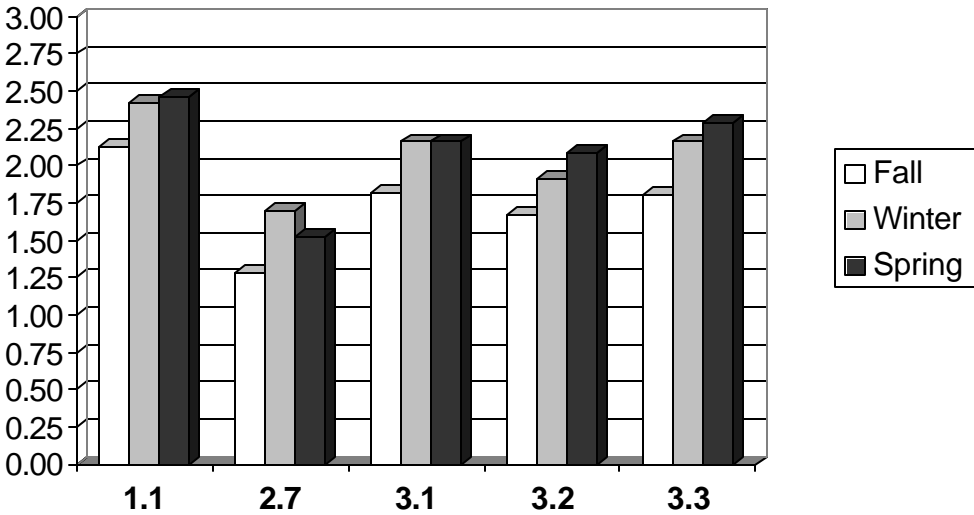


Chart 2: Noted Decreases from Winter-to-Spring

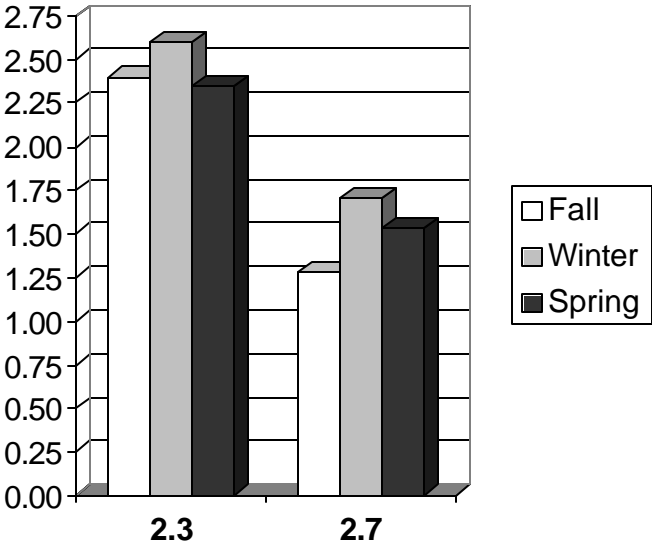


Table 1: Basic Computer/Technology Operations and Concepts

Item	Rating	Fall 2002	Winter 2002	Spring 2003
1.1 Use terminology related to computers appropriately in written and oral communication	1	8 (14%)	1 (2%)	2 (4%)
	2	34 (60%)	31 (54%)	27 (47%)
	3	15 (26%)	25 (44%)	28 (49%)
	Mean	2.12	2.42*	2.46***
1.2 Utilize hardware and software and apply basic trouble shooting strategies as needed	1	12 (21%)	7 (12%)	12 (21%)
	2	26 (46%)	28 (49%)	19 (33%)
	3	19 (33%)	22 (39%)	26 (46%)
	Mean	2.12	2.26	2.25
1.3 Use basic computer applications	1	0 (0%)	0 (0%)	0 (0%)
	2	0 (0%)	0 (0%)	0 (0%)
	3	57 (100%)	57 (100%)	57 (100%)
	Mean	3.00	3.00	3.00
1.4 Use imaging devices	1	16 (28%)	16 (28%)	11 (19%)
	2	30 (53%)	25 (44%)	28 (49%)
	3	11 (19%)	16 (28%)	18 (32%)
	Mean	1.91	2.00	2.12

* Significant (a=.05) difference from fall to winter
 ** Significant (a=.05) difference from winter to spring
 *** Significant (a=.05) difference from fall to spring

Table 2: Personal and Professional Use of Technology

Item	Rating	Fall 2002	Winter 2002	Spring 2003
2.1 Create multimedia presentations	1	9 (16%)	6 (11%)	5 (9%)
	2	24 (42%)	20 (35%)	27 (47%)
	3	24 (42%)	31 (54%)	25 (44%)
	Mean	2.26	2.44	2.35
2.2 Create and maintain a simple webpage	1	41 (72%)	41 (73%)	41 (73%)
	2	11 (19%)	8 (14%)	9 (16%)
	3	5 (9%)	7 (13%)	6 (11%)
	Mean	1.37	1.37	1.35
2.3 Use online resources to access information and enhance personal and professional productivity	1	3 (5%)	0 (0%)	6 (11%)
	2	28 (49%)	23 (40%)	25 (44%)
	3	26 (46%)	34 (60%)	26 (46%)
	Mean	2.40	2.60	2.35**
2.4 Use software to support data management	1	23 (40%)	19 (33%)	16 (28%)
	2	17 (30%)	21 (37%)	20 (35%)
	3	17 (30%)	17 (30%)	21 (37%)
	Mean	1.89	1.96	2.09
2.5 Use software to support problem solving and decision making	1	25 (44%)	12 (21%)	19 (33%)
	2	27 (47%)	28 (49%)	28 (49%)
	3	5 (9%)	17 (30%)	10 (18%)
	Mean	1.65	2.09*	1.84

2.6 Maintain an electronic professional portfolio	1	46 (81%)	40 (70%)	47 (84%)
	2	9 (16%)	10 (18%)	6 (11%)
	3	2 (3%)	7 (12%)	3 (5%)
	Mean	1.23	1.42	1.19
2.7 Demonstrate awareness of resources for special needs students	1	44 (77%)	24 (42%)	32 (56%)
	2	10 (18%)	26 (46%)	20 (35%)
	3	3 (5%)	7 (12%)	5 (9%)
	Mean	1.28	1.70*	1.53***
2.8 Understand and follow ethical principles and guidelines for technology use	1	1 (2%)	5 (9%)	2 (4%)
	2	23 (40%)	17 (30%)	19 (33%)
	3	33 (58%)	35 (61%)	36 (63%)
	Mean	2.56	2.53	2.60

* Significant ($\alpha=.05$) difference from fall to winter

** Significant ($\alpha=.05$) difference from winter to spring

*** Significant ($\alpha=.05$) difference from fall to spring

Table 3: Integration of Technology in Instruction

Item	Rating	Fall 2002	Winter 2002	Spring 2003
3.1 Evaluate discipline-specific resources for use with students	1	19 (33%)	7 (12%)	6 (11%)
	2	29 (51%)	34 (60%)	36 (63%)
	3	9 (16%)	16 (28%)	15 (26%)
	Mean	1.82	2.16*	2.16***
3.2 Integrate technology in multiple settings	1	22 (39%)	14 (25%)	10 (18%)
	2	32 (56%)	34 (59%)	32 (56%)
	3	3 (5%)	9 (16%)	15 (26%)
	Mean	1.67	1.91*	2.09***
3.3 Design student learning activities that foster equitable, ethical, and legal use of technology by students	1	21 (37%)	8 (14%)	6 (11%)
	2	26 (46%)	32 (56%)	29 (51%)
	3	10 (17%)	17 (30%)	22 (39%)
	Mean	1.81	2.16*	2.28***

* Significant ($\alpha=.05$) difference from fall to winter

** Significant ($\alpha=.05$) difference from winter to spring

*** Significant ($\alpha=.05$) difference from fall to spring