

# Academic Quality Improvement Program (AQIP)

## Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

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### Action Project Committee Final Report (Draft)

8/23/2010

This Action Project specifically identified one goal of the *NMU Teaching, Learning, and Communication* (TLC) initiative, drawn from original documents created at inception of the TLC initiative, to be the focus of the AQIP Action Project. This one goal is to “create a learning environment that: a) embraced technology to enhance student access; b) promoted the development of independent learners; and c) encouraged greater student-faculty communication and collaboration.”

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**Introduction and Background**

This Action Project specifically identified one goal of the *NMU Teaching, Learning, and Communication* (TLC) initiative, drawn from original documents created at inception of the TLC initiative, to be the focus of the AQIP Action Project. This one goal is to “create a learning environment that: a) embraced technology to enhance student access; b) promoted the development of independent learners; and c) encouraged greater student-faculty communication and collaboration.”

The membership roster of the Action Project Committee for Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning (AP Committee) was confirmed in December, 2009. An organizational meeting was held December 15, 2009 to introduce members to each other, review the Action Project (AP) and Committee charge, discuss the action project timeline, and solicit members’ schedules. The committee has members from each of NMU’s colleges and is made up of the following individuals:

Darlene Walch (Chair)	Academic Information Services (Dean)
Krista Clumpner	Olson Library (Faculty)
Charles Ganzert	Communication & Performance Studies (Faculty)
Daryl Kobie	Technology and Occupational Sciences (Department Head)
Joe Lubig	Education (Faculty)
Rachel Nye	Practical Nursing (Faculty; Teaching, Learning Advisory Committee)
Larry Pagel	Business (Faculty)
Julie Rochester	Health, Physical Education & Recreation (Faculty)
Chris Wagner	Computing HelpDesk (Administrative Professional)

The AP Committee had its next meeting in January 2010 and agreed to two-hour meetings every other week throughout the Winter semester. By March much progress had been made with respect to the Action Project objective to “articulate a process to evaluate this goal on an ongoing basis.” The Committee’s focus then turned to the second element of the AP objective to “use this process to assess progress towards the goal at this time” (AQIP Action Project statement).

Committee members met throughout April and May to analyze data collected from various sources, including an NMU AQIP TLC survey conducted by the Committee in April, and to discuss conclusions and recommendations. This report reflects on both the process for evaluating the goal and the progress NMU has made toward achieving the original TLC goal.

## **AP Objective – Element 1: Articulate a process to evaluate this goal on an ongoing basis.**

Process elements, which could be used by other committees to plan an assessment project, were identified early in the Winter 2010 semester. These process elements were modified along the way as needed. The AP Committee also faced unexpected challenges, particularly with the inclusion of other institutions, and thus additional process steps are recommended.

Initially, AP Committee members adopted and completed these procedural elements:

- Analyze components of the goal to be assessed
- Clarify definitions within the goal to be assessed (original documents associated with the initiative, input from key personnel involved, and other resources were used to accomplish this task with respect to this particular action project)
- Identify and review possible data sources already in existence at NMU (e.g. National Study of Student Engagement (NSSE); locally developed institutional surveys)
- Identify and review possible data sources used elsewhere (e.g. NSSE, surveys published in journal articles, case studies, etc.)
- Select peer institutions for comparison (e.g. laptop and non-laptop)
- Develop or identify an appropriate survey instrument to gather additional data
- Secure permission to conduct the survey at NMU and peer institutions

At the first meeting, AP Committee members **analyzed components** of the goal to be assessed by reviewing the language regarding the goal. The Action Project specifically identified one goal of the *NMU Teaching, Learning, and Communication* (TLC) initiative, drawn from original documents created at inception of the TLC initiative, to be the focus of the AQIP Action Project. This one goal is to “create a learning environment that: a) embraced technology to enhance student access; b) promoted the development of independent learners; and c) encouraged greater student-faculty communication and collaboration.” This goal was dissected into its three specific components, and those became the focus of the AP Committee’s attention.

**Definitions** were important in keeping the team focused on the goal specified in the Action Project. Definitions were also critical in helping AP Committee members determine the most appropriate data resources and survey questions to use in assessing success of the goal. Definitions for the three components of the TLC Initiative goal within this project are:

(a) Student access – putting technology (hardware, software, network) in the hands of students

(b) Independent learners – Gaining knowledge by your own efforts from a number of sources.

(c) Student-faculty communication and collaboration – Exchange of information and knowledge between student and faculty in order to work towards a common goal of student learning.

AP Committee members then undertook the task of **reviewing data sources** already available that might lend insight into the degree to which the three components of the TLC goal had been met. Sources sought included surveys conducted either locally or nationally, journal articles, and case studies. As expected, some leads were dead ends. For example, surveys conducted by NMU's JobSearch center did not include questions appropriate to this Action Project. A survey conducted by two NMU faculty seemed promising, and while it offered information about faculty adoption of technology, the data danced around the specific goals the AP Committee was addressing, so while useful, those results did not have a direct application to this assessment.

The National Study of Student Engagement (NSSE) was more beneficial. Each AP Committee member reviewed NSSE questions, tagging those which seemed applicable to the TLC goals and identifying the goal to which the NSSE question applied. While there are challenges with NSSE data such as no clear cause for a particular response, the strengths of NSSE data include data for NMU over time and comparisons to other institutions.

The challenges faced by the AP Committee in finding data directly related to the TLC goals under review confirmed the Committee's interest in creating a survey specifically for this project. Further, it was determined that data for the goal component of *student access* did exist and the survey should focus on the remaining two goal components: *independent learners* and *student-faculty communication and collaboration*.

NMU has a list of current **peer institutions** which the AP Committee used. For this particular Action Project, the peer institutions selected initially were Winona State University (MN), chosen as the laptop peer, and Saginaw Valley State University (MI), selected as the non-laptop peer. Both peer universities were contacted and expressed a willingness to assist with our assessment project. We planned to ask a random sample of students at all three universities (NMU, Winona, and Saginaw Valley) to complete a questionnaire which AP Committee members designed to gather perceptions about computer use. These questions sought to gather information primarily about independent learning and student-faculty communication. Survey dates were identified, based on the university calendars for all three institutions, which Committee members believed would most likely garner responses.

AP Committee members did not find a survey instrument that closely fit our interests, so the Committee **designed a survey** which was distributed using Qualtrics software with assistance from NMU's Office of Institutional Research. After discussion and several revisions, a sixteen (16) question survey was agreed upon (see AQIP TLC survey in Appendix 1). Both peer institutions were e-mailed the survey on March 11, 2010. Additional information on the survey appears on page 6 of this report and results are discussed throughout the report.

**Securing permission** to administer the AQIP TLC survey to a random sample of NMU students was relatively easy. After consulting with the NMU Institutional Review Board regarding research with human subjects, clearance was given to administer the survey to a sample of NMU students drawn from the freshmen and senior classes. It proved more challenging than anticipated to administer this same survey at the selected peer institutions. In spite of the positive initial responses received from both identified peers, it proved impossible to secure the cooperation required to identify a random student sample and distribute an e-mail message to those students requesting survey participation. This is not to say that such a survey could not be administered at those institutions. Instead, due to the delays encountered in sorting through permissions and securing assistance, particularly from technical staff at the peer institutions, the time frame for getting a good response rate was missed.

**AP Objective – Element 2: Use this process to assess progress towards the goal at this time.**

The TLC Initiative goal under review is to “create a learning environment that: a) embraced technology to enhance student access; b) promoted the development of independent learners; and c) encouraged greater student-faculty communication and collaboration.” As previously stated, this goal was dissected into its three specific components, and those became the focus of the AP Committee’s attention. This section of the final report is organized around the three sub-goals.

AP Committee members determined that the components of the TLC goal could be measured using a combination of (a) data maintained by staff at NMU; (b) reports from NSSE surveys conducted previously and slated to be done again this year; and (c) from the AQIP TLC student survey designed and conducted by the AP Committee.

When using NSSE data, in addition to NMU results, the AP Committee determined that “Midwest Public Peer” data was best for comparison given that our student population is primarily from that region. Results from “All Public” institutions reported in NSSE were also considered for comparison purposes.

The AP Committee designed the 16 question AQIP TLC survey which was distributed electronically using Qualtrics software to 20% of NMU freshmen and 20% of NMU seniors selected randomly. For most questions, students were asked to *Strongly Agree, Agree, Disagree, or Strongly Disagree*. Other questions asked for specific information and one sought comments. Survey dates of March 29 through April 7 were selected as optimal, following spring break but well before the end of the semester. After the initial e-mail was sent to the 703 students selected to participate, a follow-up message was sent. A total of 194 students responded. The survey questions with results can be found in Appendix 1.

Analysis of data from the AP Committee’s three primary data sources (locally maintained, NSSE, and AQIP TLC Survey) relative to the three components of the TLC goal comprises the next

section of this report. The last data component is a summary of comments from the NMU AQIP TLC Survey, categorized into main themes.

***TLC Initiative goal to create a learning environment that: a) embraced technology to enhance student access.***

Definition: Student access – putting technology (hardware, software, network) in the hands of students

In the late 1990's, the Educational Technology Resources and Policies Committee (ETRPC) received a subcommittee proposal recommending that by 2000 all NMU students would be expected to have their own computer. Out of that recommendation grew the concept that NMU would issue a laptop computer to each full-time student, providing a uniform platform, standardized software, and consistent helpdesk support for students. Thus, the TLC initiative emerged.

The following local data elements provide evidence of student access to computing resources, consistent with the TLC learning environment goal, subpart a.

➤ Hardware issued to students

In 1999 a pilot project commenced whereby selected students were issued laptop computers. That year 734 students out of a total student population of 8,144 (9%) had NMU issued laptops in hand. During the 2009-2010 academic year 8,430 students out of a student population of 9,258 (91%) had NMU-issued notebook computers.

➤ Student participation in computer set-up and registration during computer distribution

During Fall computer distribution, a set-up and registration area is staffed to help students set up their newly issued laptops and finalize network registration. This guarantees that the laptop is configured properly and is recognized by the campus network before the student leaves the distribution area in the Superior Dome. Between 2,000 and 3,000 students participate in the set-up and registration activity each fall, representing between 50% and 61% of students receiving notebook computers during any given Dome distribution cycle.

➤ Software applications available to students

A standardized set of software applications is available to all students and faculty who receive an NMU-issued notebook computer. Faculty can assign work knowing that students have access to the software required. Further, because each notebook computer is refreshed every two years and a new NMU software image is produced annually for each computer model in the TLC program, students and faculty have current versions of the software. Throughout the TLC program, NMU's software image

has consisted of a professional suite of production software including applications for word processing, e-mail, spreadsheets, databases, publishing, and Internet searching. Antivirus and other maintenance software is also standard on each machine. Additional software is acquired for campus-wide use (e.g. SPSS and Respondus) as is program-specific software such as AutoCad (Construction), Matlab (Physics), Maple (Mathematics), and SmartMusic (Music). Each year, approximately seventy-five software applications are acquired to support the instructional and scholarship activities of the students and faculty.

- Network development on campus and off campus (wired, wireless, Wi-Fi, Wi-Max)

Starting with campus hardwiring and dial-in access, NMU has continuously built network access. Between 1995 and 1999, the focus was on faculty and staff offices, computer labs, and residence halls and apartments on campus. From 2000 to 2002, network wiring expanded on campus to encompass classrooms and public areas across campus. Each academic building had at least one wired classroom and all buildings had network access. Also in 2002, NMU implemented a wireless network to extend and complement existing wired network connections. By 2009, the campus had become primarily wireless and a new WiMax project pushed the campus network signal to portions of Marquette, concentrating initially on areas within the city that were densely populated by students. By the early summer 2010, NMU's WiMax signal extends to many sections of Marquette, plus the surrounding regions of Harvey, Ishpeming, and Negaunee. The notebook computers issued in Fall 2009 were WiMax enabled and the coming Fall 2010 computer distribution will refresh the remaining computers resulting in every issued notebook computer being WiMax enabled.
- Use of the course management system

In 1999, at the start of the TLC initiative, NMU invested in a proprietary course management system offered by WebCT. Early adopters augmented their face-to-face classes with WebCT components, starting with basics such as syllabi and quizzes. Today, there are approximately 900 requests to use the course management system each semester. Requests come from all campus departments, representing myriad disciplines. As use has grown, so has the range of components that are used, components which enable faculty to engage students in technologically sophisticated learning modules. In 2010, NMU is adopting an open source course management system, called NMU EduCat, which will provide faculty and students a set of tools hosted and modified locally to meet campus needs. Students have come to expect that their classes will have materials available through the course management system accessible to them whenever they choose to do their work.
- 24 hour access to computing and associated resources

Prior to the TLC initiative, students without personal computers relied on campus computing labs. Thus, access was limited to lab hours and students competed for computer time, especially during crunch times when papers and projects were due. Labs were constantly busy and students could be found waiting to grab a computer as



soon as it became vacant. As the TLC initiative was implemented and most students were issued portable notebook computers, lab use declined. Today, there are no general use computing labs on campus. Students who are not participating in the laptop program (i.e. part-time students who have the option to participate) can rent a laptop from NMU's Olson Library to complete assignments and exams.

In addition to these local data elements which provide evidence that the TLC initiative successfully puts hardware, software, and network access into the hands of students, data from the **National Study of Student Engagement (NSSE)** reveals indications of success. The AP Committee members reviewed the 2007 NMU results from NSSE questions and made the following observations, using Midwest Public Peers and All Public NSSE for comparisons.

*NSSE 2007 Category 1: Academic and Intellectual Experiences*

Question 1-L Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment

While not significantly different, NMU freshmen did score slightly lower than their Midwest and All Public peers (2.52 compared to 2.56 and 2.61 respectively), whereas NMU seniors scored higher than both peer groups (2.85 to 2.81 and 2.83). Of interest is the change between NMU freshmen and NMU seniors (2.52 for freshmen and 2.85 for seniors), indicating an increased use of electronic medium and a greater increase than found in the peer groups.

Question 1-M Used e-mail to communicate with an instructor

In their freshman year, NMU students scored higher than either the Midwest or All Public peers (3.14 to 3.07 and 3.03). By the senior year, NMU and peers all reflected an increase in e-mail use from freshman year, with use among NMU and the peers leveling out (3.36 at NMU compared to 3.37 at Midwest and 3.31 at All Public peers). NMU's freshman head start could result from providing hardware, network access, and a technical environment.

*NSSE 2007 Category 10: Institutional Environment*

Question 10-G Using computers in academic work

NMU results are higher for both freshmen and seniors compared with Midwest and All Public peers.

Class	NMU	Midwest	All Public
FY	3.48	3.28	3.32
SR	3.56	3.46	3.47

The change at NMU shown between freshmen and seniors is not as great as the change shown between classes at the peers. However, NMU students reported more use at both the freshmen and senior level, and NMU freshman are comparable to seniors among the peers. AP Committee members believe this indicates positive results from having provided access to technology early in the NMU students' careers, and that NMU students are using computers

more than other students in academic work as a result of the technology-rich environment made possible by the TLC initiative.

*NSSE 2007 Category 11: Educational and Personal Growth*

Question 11-G Using computing and information technology

As was seen previously for Question 10-G, both NMU freshmen and seniors scored higher on this question than either their Midwest or All Public peers.

Class	NMU	Midwest	All Public
FY	3.07	3.00	3.02
SR	3.30	3.21	3.21

Compared to peers, NMU’s seniors are statistically higher with regard to their responses to question 11-G. The fact that NMU faculty and students have widespread access to computing and information technology, and therefore a greater opportunity to use that technology, has resulted in many faculty requiring the use of that technology.

The final cited evidence to support that NMU has achieved the TLC goal *to create a learning environment that: a) embraced technology to enhance student access* is found in the responses to the AQIP TLC survey conducted by the AP Committee.

Question #16 of the AQIP TLC Survey invited students to comment on “one more thing about using computers at your school.” Several students commented on the quality, or lack thereof, of the NMU-issued computer, but dissatisfaction with the hardware was countered with many positive comments on having access to the laptop, network, and software. One student wrote “It is nice to know that we always have access to the internet at school provided by the university. Also everyone’s computer is the same so it is easy to maneuver through each others with group projects.” Additional comments about access include: “Having wireless connection throughout campus is very useful to getting work done anywhere, anytime” and “Many students many (sic) not be able to enjoy the convenience of a laptop or PC due to financial reason. The computers allow all students an equal opportunity for access to knowledge and support.”

Survey question #13 asked students whether “The computer I use most often is one provided by my university or one I personally own.” The response “one provided by my university” was selected by 89% of the respondents.

While there certainly is some dissatisfaction with the TLC program, particularly with the hardware characteristics, the evidence available regarding student access indicates that this part of the TLC goal has been achieved.

***TLC Initiative goal to “create a learning environment that: b) promoted the development of independent learners”***

Definition: Independent learners – Gaining knowledge by your own efforts from a number of sources.

To help ascertain progress toward achieving this goal, AP Committee members used two sources of information: NSSE and the AQIP TLC survey. Committee members reviewed responses to those NSSE questions that were deemed compatible with the definition of independent learners. To gather additional data regarding NMU students’ development as independent learners, the AP Committee designed several questions for inclusion in the AQIP TLC Survey which targeted this aspect.

*NSSE 2007 Category 1: Academic and Intellectual Experiences*

Question 1-D Worked on a paper or project that required integrating ideas or information from various sources

Responses to this question proved interesting in that both NMU freshmen and seniors score lower than either the Midwest or All Public peers.

Class	NMU	Midwest	All Public
FY	2.82	3.00	3.00
SR	3.17	3.29	3.27

However, NMU students’ responses do indicate greater growth between freshmen and seniors than peer students. Within the TLC goal of promoting the development of independent learners, and in spite of fairly significant growth between NMU’s freshmen and seniors, responses to this NSSE question indicate that NMU should investigate why our students lag behind their peers.

*NSSE 2007 Category 9: Time Usage*

Question 9-A Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)

AP Committee members viewed this question as representing an attribute of independent learners. NMU freshmen scored identically to Midwest peers and slightly behind the All Public group (3.79 for both NMU and Midwest compared to 3.93 for All Public). However, the growth from freshmen to seniors at NMU is much greater than among the peers: a change of .39 at NMU, a change of .10 at Midwest peers, and a change of .07 among All Public peers. Further, NMU senior scores exceeded those reported at both Midwest and All Public peers (4.18 at NMU, 4.01 at Midwest, and 4.07 at All Public). AP Committee members recognize that this growth in NMU students is not necessarily a result of the TLC initiative.

However, there is a possible positive correlation between the access to technology afforded by the TLC initiative, attendant expectations on the part of NMU faculty for students to access course materials, and the change in NMU students' reported behavior between freshmen and senior year.

*NSSE 2007 Category 11: Educational and Personal Growth*

Question 11-J Learning effectively on your own

AP Committee members anticipated that NMU might fare well on this particular question, however the results are not statistically all that different than the results from the peer groups. At the freshmen level the scores for NMU, Midwest, and All Public were 2.84, 2.81, and 2.87 respectively. While a change occurred between freshmen and seniors in all three peer groups (NMU 2.93, Midwest 2.91, and All Public 2.98), the change at NMU was less than what occurred in either peer group. Overall, however, NMU students were on par with their peers. Thus, if a conclusion were to be drawn based upon this NSSE question alone, it seems the TLC program is having little, if any, impact on NMU students' perception of learning effectively on their own.

Several AQIP TLC survey questions sought to gather information on students' levels of independent learning. AP Committee members considered the responses to questions 1, 2, 5, 6, 11, and 12 for this category, with questions 2, 11, and 12 being most directly related to independent learning. Rather than in numeric order, the responses to the AQIP TLC Survey germane to independent learning are divided into the two groups: questions 2, 11, and 12; and questions 1, 5, and 6.

The questions in the first group (questions 2, 11, and 12) most directly correlate to independent learning.

Question #2: I use a computer to clarify or enhance my understanding of information presented by my instructors.

#	Answer	Response	%
1	Strongly Agree	99	52%
2	Agree	79	41%
3	Disagree	9	5%
4	Strongly Disagree	3	2%
	Total	190	100%

Question # 11: I use a computer to seek information that is not class related.

#	Answer	Response	%
1	Strongly Agree	117	61%
2	Agree	68	36%
3	Disagree	4	2%
4	Strongly Disagree	2	1%
	Total	191	100%

Question #12: The computer enhances my ability to learn independently.

#	Answer	Response	%
1	Strongly Agree	119	62%
2	Agree	63	33%
3	Disagree	8	4%
4	Strongly Disagree	1	1%
	Total	191	100%

Students' responses indicate that over half of survey participants *strongly agree* that they engage in information seeking behavior associated with independent learning, with the highest number of respondents reporting that the "computer enhances my ability to learn independently" (question #12). AP Committee members note that responses to every NMU AQIP TLC Survey question were overwhelmingly positive, especially when *strongly agree* responses are combined with *agree*. Few respondents reported disagreement (either *disagree* or *strongly disagree*) when answering any question on the survey. In spite of the limitations of the survey, there is evidence that students perceive that the computer contributes to behaviors associated with independent learning.

AQIP TLC Survey Questions 1, 5, and 6 also relate to independent learning activities, although to a lesser degree than the previously discussed group of questions.

Question #1: I use a computer to seek information required by my instructors.

#	Answer	Response	%
1	Strongly Agree	131	68%
2	Agree	54	28%
3	Disagree	5	3%
4	Strongly Disagree	2	1%

	Total		192	100%
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Question #5: The computer enhances my ability to collaborate or work on projects with other students.

#	Answer	Response	%
1	Strongly Agree	113	59%
2	Agree	69	36%
3	Disagree	5	3%
4	Strongly Disagree	3	2%
	Total	190	100%

Question #6: I use the computer to communicate with other students (e.g., e-mail, chat, social networks, blogs, etc.).

#	Answer	Response	%
1	Strongly Agree	137	71%
2	Agree	47	24%
3	Disagree	4	2%
4	Strongly Disagree	4	2%
	Total	192	100%

The activities identified in this group of questions contribute to the development of independent learning behaviors. It follows that if students practice using computers to seek course-required information as well as to collaborate and communicate, this same behavior will occur in the extracurricular environment.

Statements in the comment section of the AQIP TLC Survey support the concept that having the computer is beneficial to independent learning. One student's comment goes to the heart of the AP Committee's definition of independent learner: "It helps me understand the material better because I can research it on my own and get more than one explanation of the way things are."

While evidence suggests that the TLC laptop initiative has contributed to the development of independent learners, AP Committee members believe this is the least well achieved of the objectives identified in the goal which is under study in this Action Project. Local evidence, particularly the response to AQIP TLC Survey question #12, indicates that the laptop "enhances [students'] ability to learn independently." However, the more comprehensive data contained in the NSSE survey indicate that NMU's students are not any more developed as independent learners than their peers.

***TLC Initiative goal to “create a learning environment that: c) encouraged greater student-faculty communication and collaboration.”***

Definition: Student-faculty communication and collaboration – Exchange of information and knowledge between student and faculty in order to work a common goal of student learning.

At the same time the TLC initiative began with the pilot distribution of laptops to students, NMU adopted its first course management system, WebCT. As would be expected, at the beginning a few faculty quickly adopted the system and enhanced their face-to-face courses by using basic components within WebCT. These components included posting a syllabus, having students submit assignments, and administering quizzes. By the Fall 2002 semester, 196 faculty (over 50%) were using WebCT to deliver 488 classes. These numbers continued to climb: during the 2009-10 academic year, more than three-fourths of the faculty used components of the course management system in more than 900 class sections. Among the widely used WebCT features are discussion groups, chat, and announcements, features that foster student-faculty communication.

Repeating the strategy used for the preceding two TLC sub-goals being reviewed, AP Committee members identified questions from the National Study of Student Engagement and the NMU AQIP TLC Survey to assess whether the TLC initiative created an environment that encouraged student-faculty communication. Five NSSE questions were of particular interest.

*NSSE 2007 Category 1: Academic and Intellectual Experiences*

Question 1-L Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment.

While not significantly different, NMU freshmen did score lower than freshmen at either the Midwest or the All Public peers (2.52 for NMU; 2.56 at Midwest; and 2.61 for All Public). The NMU seniors, however, scored higher than both the Midwest and All Public peers. NMU students showed a greater increase of reported use of electronic medium between their freshman and senior years than what was reported at either the Midwest or All Public peers. This is an indication of NMU students' increased use of electronic medium over their years of college; NMU students also reported greater use of electronic medium by their senior year than shown among peers. What cannot be discerned from these responses, however, is whether that increase in use is between students and faculty.

Question 1-M Used e-mail to communicate with an instructor

This question directly addresses the TLC sub-goal of student-faculty communication. NMU freshmen scored higher than Midwest and All Public peers.

Class	NMU	Midwest	All Public
FY	3.14	3.07	3.03
SR	3.36	3.37	3.31

NMU's technology-rich environment not only facilitates e-mail communication, it also establishes expectations for both students and faculty to communicate electronically. By senior year, even though there was reported increase from freshman to senior year at NMU, there was an increase at peer institutions as well: the Midwest peers seniors reported nearly identical use of e-mail as that reported by NMU seniors, and the All Public peers, while still lagging behind, did not evidence as wide of a gap at the senior level as what had existed between freshmen peers. The indication is that providing hardware, network access, and a technology-rich environment gives NMU students an early advantage.

Two other NSSE Category 1 questions were of interest to AP Committee members because they pointed to communication and collaboration with faculty.

Question 1-P Discussed ideas from your readings or classes with faculty members outside of class

Class	NMU	Midwest	All Public
FY	1.75	1.78	1.80
SR	2.15	2.08	2.04

Question 1-S Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)

Class	NMU	Midwest	All Public
FY	1.52	1.56	1.55
SR	1.86	1.87	1.76

For both questions, NMU showed greater increase between freshmen and seniors than did the peers. However, AP Committee members are quick to acknowledge there is no way to determine the role of technology in these results and recognize that many other academically-related programs at NMU (e.g. Freshmen Fellows, Academic Service Learning, Superior Edge, etc.) could figure prominently in the responses to these questions. AP Committee members are curious as to what role, if any, NMU's technological environment plays in the responses to these questions and suggest that this is an opportunity for further study.

A question in NSSE Category 8 also caught the attention of AP Committee members. A concern often expressed as the TLC initiative unfolded was that increased use of technology might actually hinder interaction between students and faculty. Thus, the responses to one particular NSSE question addressing relationships with faculty were of interest.



NSSE 2007 Category 8: Quality of Relationships

Question 8-B Relationships with faculty members

Class	NMU	Midwest	All Public
FY	5.05	5.07	5.08
SR	5.43	5.40	5.32

The important indication from this question is that there is no negative impact of infused technology: the technology-rich TLC environment does not present a barrier between students and faculty. Further, the change from freshmen to seniors at NMU indicates greater change over time than at either the Midwest or All Public peers: freshmen start out lower, seniors end up scoring higher than their peers. The most positive rating for this question is a 7.0 – identified as available, helpful, and sympathetic. Again, there is no way to gauge the role of technology in this question/response set. However, anecdotally faculty observe that some students – particularly those who are shy – feel more comfortable communicating electronically, e.g., via e-mail or by using discussion boards within the course management system, than they do in face-to-face settings. Thus, the use of technology may foster improved relationships with faculty. This question, too, is an opportunity for further investigation.

The following six questions on the AQIP TLC Survey were designed to gather information about communication and collaboration between students and faculty. A significant percentage of students in the survey sample responded with *agree* or *strongly agree* to these questions.

Question #3: I use a computer to communicate with my instructors.

Strongly Agree: 60%      Agree: 36%

Question #4: The computer enhances my ability to collaborate or work on projects with my instructors.

Strongly Agree: 54%      Agree: 41%

Question #7: Many of my instructors communicate with me by computer.

Strongly Agree: 55%      Agree: 42%

Question #8: I communicate with my instructors more than I would if I didn't have access to a computer.

Strongly Agree: 53%      Agree: 31%

Question #9: Overall, my instructors encourage the use of the computer to assist with the exchange of ideas and information.

Strongly Agree: 42%      Agree: 48%

Question #10: The availability of computer at my university encourages greater communication and collaboration between students and instructors.

Strongly Agree: 56%      Agree: 39%

In addition to these six questions, students provided written comments on the AQIP TLC Survey (Appendix 2) that speak to communication and collaboration. Students' comments include:

"I think they [the computers] make learning more convenient and I believe it has really increased the amount of communication between students and faculty."

"They make communication with professors much easier and you are able to access all the information your professors want or need you to have access to."

Clearly students who responded to the AQIP TLC Survey report that they use the computer to communicate with instructors and vice-versa. Students also responded overwhelmingly (95% either *agree* or *strongly agree*) that the computer "encourages greater communication and collaboration between students and instructors," the environment which is the essence and exact language of the TLC Initiative goal to "create a learning environment that: c) encouraged greater student-faculty communication and collaboration."

### **Additional Perspectives from the NMU AQIP TLC Survey**

In addition to the targeted questions on the NMU AQIP TLC Survey which AP Committee members designed to address the specific components of the TLC goal under review, one survey question solicited general comments about the program. The question posed was:

"If you could tell us one more thing about using computers at your school, what one comment would you make?"

Of the 194 participants, 86 participants provided comments. Initially, comments were analyzed to determine whether they were of positive or negative nature. Of the 86 comments, 37 comments were generally positive in nature, 24 of the comments were generally negative in nature, and 22 of the comments were both positive and negative in nature. Three of the comments were determined to be neither negative nor positive.

A qualitative analysis of the comments revealed five major themes. These themes include a) cost of the laptop, b) quality of the laptop, c) university laptop provision/requirement, d) communication and, e) course use.

### **THEMES**

Cost of the laptop. Twelve comments alluded to the cost of the laptop. Six of these comments were positive in nature and six of these comments were negative in nature. One subtheme emerging from the cost of the laptop was purchase price and the perceived value of

the end-of-lease machine which became available for purchase after two years (four semesters).

Quality of the laptop. Thirty-one comments alluded to the quality of the laptop. One of these comments was positive and 30 of these comments were negative. Subthemes emerging from the quality of the laptop theme include laptop speed, laptop reliability, laptop power, available applications, and preference for the Macintosh (four said Macs should be made available to all students and one respondent said students should have a choice).

University laptop provision/requirement. Twenty-two comments alluded to the laptop provision/requirement. Twenty of these comments were positive in nature and two of these comments were negative in nature.

Communication. Seventeen comments alluded to the communication aspect of the laptop. Fifteen of these comments were positive in nature and two of these comments were negative in nature. One subtheme emerging from the communication was internet access.

Course use. Thirty-nine comments alluded to course use and the laptop. Twenty-nine of these comments were positive in nature and ten of these comments were negative in nature. Subthemes emerging from the course use theme include distraction, profession policy on laptop use, and convenience.

The nature of the comments generally supports the positive aspects of the TLC program , but certainly negative impressions and experiences emerge. While these comments overall don't indicate failure of the TLC goals under review, and in fact substantiate the success of the TLC goal, they do point to difficulties and dissatisfactions which NMU would be wise to consider.

## Conclusions

Using multiple data sources, AP Committee members assessed each of the three sub-parts of the TLC goal to “create a learning environment that: a) embraced technology to enhance student access; b) promoted the development of independent learners; and c) encouraged greater student-faculty communication and collaboration.” While each of these three sub-goals was achieved, they were achieved with varying success.

**Evidence suggests that NMU was highly successful in “creating a learning environment that a) embraced technology to enhance student access.”** NMU students have computers in hand, have access to a wide range of software applications, and use computers in their academic work. In spite of some dissatisfaction with some of the hardware and software, the program is well received and the benefits of providing access to students is evident.

**It appears that the TLC initiative goal to “create a learning environment that: b) promoted the development of independent learners” has been less well achieved.** Compared to peers, NMU students were similar to or behind in tasks and skills identified as demonstrating traits of

independent learners. NSSE responses show growth in NMU's students between freshmen and seniors, but our students' NSSE responses do not show results indicating any significant advantage over their peers. Based on NSSE, the TLC environment doesn't appear to have a negative impact, but neither does it appear to have contributed to the development of our students as independent learners as was originally intended.

As counter-balance to the NSSE data, students who responded to the NMU AQIP TLC Survey report that the computer does enhance their ability to learn independently. The difference between NSSE and the NMU AQIP TLC Survey responses may be attributed to the number of respondents. The impact of the TLC initiative on promoting the development of independent learners, and thereby the success of this aspect of the TLC goal, requires further study.

**NMU was also successful in achieving the goal to “create a learning environment that: c) encouraged greater student-faculty communication and collaboration.”** Adoption of a sophisticated course management system simultaneously with the roll-out of the TLC initiative contributed to a technical environment fostering communication, and to a lesser degree, collaboration. NSSE data also points to success within this sub-goal, with communication again taking the edge over collaboration. Likewise, responses to questions on the NMU AQIP TLC Survey further verify an environment where student-faculty communication and collaboration is both encouraged and engaged in. The preponderance seems to be toward communication, with collaboration playing a somewhat lesser role. Further investigation about fostering collaboration is warranted if there is interest in increasing this aspect of student-faculty interaction. Further study may reveal that student-faculty collaboration is a dynamic element at NMU, but that it exists in venues other than through technologically based interactions.

The AP Committee's conclusion is that overall, the TLC goal to create a learning environment that embraced technology for student access, promoted development of independent learners, and fostered communication and collaboration between students and faculty was achieved. From this positive position, the AP Committee also recognizes that ongoing review of the TLC program could lead to improvement. Additionally, it would be advantageous to move beyond the question of whether we created a learning environment that embraced technology to the next question of what effect that environment has on student learning. This latter question requires faculty involvement and opens the door for numerous scholarship opportunities.

## **Recommendations**

AP Committee members believe there are committees and mechanisms already in place for continuing assessment of the TLC initiative. Therefore, we are hesitant to suggest creating yet another group and prefer to see ongoing assessment and review of the TLC rolled into existing structures.

**Recommendation 1:** The NMU AQIP TLC Survey (or some similar variation thereof) should continue to be administered to a sample of NMU freshmen and seniors. This ongoing survey would build upon the base-line data collected during this assessment. The survey would help

track progress and evaluate the degree of sustained success for the original goal of creating a learning environment which provides access to technology, develops independent learners, and fosters student-faculty communication. The AP Committee recommends that the TLC Steering Committee conduct this survey annually.

**Recommendation 2:** Qualitative responses from the NMU AQIP TLC Survey, especially those addressing the quality of laptops, should be reviewed in the spirit of inquiry and analysis before final decisions about new laptop models are made. The TLC Steering Committee is viewed as the appropriate venue for this review.

**Recommendation 3:** Using the NMU AQIP TLC Survey, qualitative responses should be reviewed each time the survey is conducted to determine whether policies or guidelines need to be revised or developed. Of particular concern are policies and guidelines addressing laptop use in the classroom. The Educational Technology and Planning Resources Committee (ETRPC) and the Teaching and Learning Advisory Council (TLAC) are existing committees appropriate for this review.

**Recommendation 4:** Identify additional or alternate peer institutions with whom to establish strong, long-term relationships. In addition to the peer institutions initially targeted during this assessment (Winona and Saginaw Valley State University), the following institutions are cited as possible peers: Morrisville State (NY) (laptop); UM-Duluth (laptop); UW-Stout (laptop); UW-Stevens Point (non-laptop), or Villanova (laptop institution with a 2-year lease and refresh program). These peer institutions need to be identified and partnerships cultivated with them to ensure ongoing collaboration and time-series data. The TLC Steering Committee could assist with identifying these peers.

**Recommendation 5:** To improve the comparative assessment of NMU students relative to their peers, the NMU AQIP TLC Survey of student computer use should be done in collaboration with at least two peer institutions once every two years. Ideally one peer would be an institution engaged in a laptop program and the other would be a non-laptop peer. It is recommended that the TLC Steering Committee conduct this survey in conjunction with the survey administered to NMU students. Data gathered and analyzed by the TLC Steering Committee should be shared with both the ETRPC and TLAC.

**Recommendation 6:** A survey comparable to the NMU AQIP TLC survey developed for students should be administered to faculty at NMU and at peer institutions. The NMU faculty survey should be conducted annually; the peer institution survey should be done every other year. A draft survey for faculty is included as Appendix 3. Responses to this survey would complement those gathered from students and help NMU assess the need to develop additional strategies for achieving TLC initiative goals, particularly in the area of independent learning. This survey could be conducted by either the TLAC or ETRPC.

**Recommendation 7:** The TLC goal of promoting the development of independent learners is the least achieved of the three sub-goals of the TLC initiative. While technology can facilitate

independent learning, course assignments and faculty expectations of students can also promote independent learning behaviors. It is recommended that the TLAC initiate a project to help faculty identify, develop, and encourage classroom strategies and assignments that further students' skills in independent learning.

**Recommendation 8:** To monitor continued benefit of the TLC initiative, NSSE data for NMU and peer institutions should be reviewed, beginning with the 2010 NSSE survey data. The review should begin by comparing results for the questions identified and analyzed by this AP Committee as reported elsewhere in this document. To achieve ongoing success and identify appropriate changes to the TLC initiative with respect to the learning environment, the TLC Steering Committee should review the NSSE data each time the survey is administered at NMU.

**Recommendation 9:** The TLAC and/or individual faculty should be encouraged to pursue additional research projects designed to ascertain the impact of the use of technology on student learning at NMU within specific courses or programs of study. This activity would help NMU move beyond the question of whether we created a learning environment that embraced technology to the question of what effect that environment has on student learning.

The AP Action Committee members believe these recommendations can be implemented with minimal cost. The most challenging of these recommendations are those involving peer institutions. Based on this committee's experience, a period of cultivation is necessary to develop a cooperative relationship with the chosen peer institutions and thereby garner participation from those peer institutions. Perhaps such relationships are best achieved by individual faculty or staff in partnership with colleagues at the peer institutions and in circumstances where the collaborative work is accomplished for mutual benefit. A final suggestion is that when identifying peer institutions, mutual benefit might be recognized more readily in institutions who themselves participate in the AQIP process.

Respectfully submitted,  
Action Project Committee

Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

Darlene Walch (Chair)	Academic Information Services (Dean)
Krista Clumpner	Olson Library (Faculty)
Charles Ganzert	Communication & Performance Studies (Faculty)
Daryl Kobie	Technology and Occupational Sciences (Department Head)
Joe Lubig	Education (Faculty)
Rachel Nye	Practical Nursing (Faculty; Teaching, Learning Advisory Committee)
Larry Pagel	Business (Faculty)
Julie Rochester	Health, Physical Education & Recreation (Faculty)
Chris Wagner	Computing HelpDesk (Administrative Professional)

## AQIP TLC Survey

Last Modified: 05/12/2010

**1. I use a computer to seek information required by my instructors.**

#	Answer	Response	%
1	Strongly Agree	131	68%
2	Agree	54	28%
3	Disagree	5	3%
4	Strongly Disagree	2	1%
	Total	192	100%

Statistic	Value
Mean	1.36
Variance	0.35
Standard Deviation	0.59
Total Responses	192

**2. I use a computer to clarify or enhance my understanding of information presented by my instructors.**

#	Answer	Response	%
1	Strongly Agree	99	52%
2	Agree	79	41%
3	Disagree	9	5%
4	Strongly Disagree	3	2%
	Total	190	100%

Statistic	Value
Mean	1.56
Variance	0.44
Standard Deviation	0.66
Total Responses	190

### 3. I use a computer to communicate with my instructors.

#	Answer	Response	%
1	Strongly Agree	115	60%
2	Agree	70	36%
3	Disagree	6	3%
4	Strongly Disagree	2	1%
	Total	193	100%

Statistic	Value
Mean	1.46
Variance	0.37
Standard Deviation	0.61
Total Responses	193

### 4. The computer enhances my ability to collaborate or work on projects with my instructors.

#	Answer	Response	%
1	Strongly Agree	103	54%
2	Agree	78	41%
3	Disagree	6	3%
4	Strongly Disagree	4	2%
	Total	191	100%

Statistic	Value
Mean	1.53
Variance	0.44
Standard Deviation	0.66
Total Responses	191



### 5. The computer enhances my ability to collaborate or work on projects with other students.

#	Answer	Response	%
1	Strongly Agree	113	59%
2	Agree	69	36%
3	Disagree	5	3%
4	Strongly Disagree	3	2%
	Total	190	100%

Statistic	Value
Mean	1.46
Variance	0.40
Standard Deviation	0.63
Total Responses	190

### 6. I use the computer to communicate with other students (e.g., e-mail, chat, social networks, blogs, etc.).

#	Answer	Response	%
1	Strongly Agree	137	71%
2	Agree	47	24%
3	Disagree	4	2%
4	Strongly Disagree	4	2%
	Total	192	100%

Statistic	Value
Mean	1.35
Variance	0.40
Standard Deviation	0.63
Total Responses	192

## 7. Many of my instructors communicate with me by computer.

#	Answer	Response	%
1	Strongly Agree	105	55%
2	Agree	80	42%
3	Disagree	5	3%
4	Strongly Disagree	2	1%
	Total	192	100%

Statistic	Value
Mean	1.50
Variance	0.37
Standard Deviation	0.61
Total Responses	192

## 8. I communicate with my instructors more than I would if I didn't have access to a computer.

#	Answer	Response	%
1	Strongly Agree	102	53%
2	Agree	60	31%
3	Disagree	24	13%
4	Strongly Disagree	5	3%
	Total	191	100%

Statistic	Value
Mean	1.64
Variance	0.64
Standard Deviation	0.80
Total Responses	191

## 9. Overall, my instructors encourage the use of the computer to assist with the exchange of ideas and information.

#	Answer	Response	%
1	Strongly Agree	79	42%
2	Agree	91	48%
3	Disagree	15	8%
4	Strongly Disagree	4	2%
	Total	189	100%

Statistic	Value
Mean	1.70
Variance	0.50
Standard Deviation	0.70
Total Responses	189

## 10. The availability of computers at my university encourages greater communication and collaboration between students and instructors.

#	Answer	Response	%
1	Strongly Agree	106	56%
2	Agree	75	39%
3	Disagree	4	2%
4	Strongly Disagree	5	3%
	Total	190	100%

Statistic	Value
Mean	1.52
Variance	0.45
Standard Deviation	0.67
Total Responses	190

**11. I use a computer to seek information that is not class related.**

#	Answer	Response	%
1	Strongly Agree	117	61%
2	Agree	68	36%
3	Disagree	4	2%
4	Strongly Disagree	2	1%
	Total	191	100%

Statistic	Value
Mean	1.43
Variance	0.35
Standard Deviation	0.59
Total Responses	191

**12. The computer enhances my ability to learn independently.**

#	Answer	Response	%
1	Strongly Agree	119	62%
2	Agree	63	33%
3	Disagree	8	4%
4	Strongly Disagree	1	1%
	Total	191	100%

Statistic	Value
Mean	1.43
Variance	0.36
Standard Deviation	0.60
Total Responses	191

### 13. The computer I use most often is one

#	Answer	Response	%
1	Provided by my university (computer lab or issued to me)	170	89%
2	I personally own	21	11%
	Total	191	100%

Statistic	Value
Mean	1.11
Variance	0.10
Standard Deviation	0.31
Total Responses	191

### 14. I am a

#	Answer	Response	%
1	Freshman	65	34%
2	Sophomore	22	12%
3	Junior	4	2%
4	Senior	98	52%
	Total	189	100%

Statistic	Value
Mean	2.71
Variance	1.94
Standard Deviation	1.39
Total Responses	189

## 15. I am a student at

#	Answer	Response	%
1	Northern Michigan University	190	100%
2	Saginaw Valley State University	0	0%
3	Winona State University	0	0%
	Total	190	100%

Statistic	Value
Mean	1.00
Variance	0.00
Standard Deviation	0.00
Total Responses	190

## 16. If you could tell us one more thing about using computers at your school, what one comment would you make?

### Text Response

All students should receive APPLE MACBOOKS. Thank you for the great TLC program!

The computers that we are issued constantly have problems. It's not reasonable to ask students to pay for them as part of our tuition, and then when we have usage issues, force us to pay further fees even when the issue is due to regular use.

Though it is nice to have a computer provided to us to use, they are not always that reliable and are sometimes more of a headache than anything else.

It makes looking up confusing topics or related table data in chemistry very easy and convenient.

I know that it might not be the computers fault, but I get booted off quite constantly when in the dorms and always have to use the repair function.

I like the idea of having so many things available on the computer but I don't like taking online tests and quizzes because often times the computers freeze up and don't work. I also think that the internet here is not very good. Often times it will just stop working and I have to restart my computer.

Although it'd be more expensive, it would be nice if all students, and not just the Art and Design Majors, could have the option of a Macbook.

## Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

I am in the Art & Design program and I am so happy with my Mac - I have learned to use so many new program.

Having computers at my school has been incredibly useful, especially with programs such as WEBCT. However, the quality of these computers could be seriously improved, there have been a lot of issues with the Thinkpads, and I would suggest that the universities switch to a different kind of computer.

They're not the greatest of computers, but they do what I need to have done. I wouldn't have a laptop if it were not for the Thinkpad. The included computer was one of the major deciding factors for me attending Northern Michigan University.

I think it is terrific that computers are supplied to all students, and internet on campus also!

I have spent more than 10 hours at the helpdesk this semester getting my computer fixed. While I like that the computers are provided to us and the repair is free, I think I would prefer supplying my own computer (one I know will work) with my own money instead of dealing with this many problems.

This is my 5th year at NMU, and since I have been here the quality of the laptops provided have steadily declined. I would like to see the school take more care when deciding what laptops are provided to us.

If I did not have my computer provided by NMU, I would be very lost this year and not know a lot of the information that I do. All of the information I learn about my classes, campus, and the University is through my computer. It has made my first year a lot less stressful.

I feel that the technology provided to university students enhances our experience here more than anything else.

I am very happy with the opportunity of having a computer from NMU, but one negative thing about computers at school is all the other students in class being on the computer. These students are on facebook, myspace, and looking at pictures. I find this very distracting and rather annoying when I am trying to learn and all I see is another student playing around on his/her computer. I actually heard of a student watching inappropriate materials during class. So I would hope someday that the university or instructors would have some guidelines when it comes to students being on the computer for things other than school.

I hate having to check for messages in both webCT and regular email and wish both would go to one location to check. I also wish there was one sign in to be able to access all of the university sites instead of, for one example, having to sign in to webCT, sign in to university email or student services all separately

would be nice if a external hard drives were an option that came with the computer instead of paying for them seprately it would be more convienant for all students ans staff. by the time each student completes there programs they have enough documents and file for there repective courses that it would be an added bounus to the student and would be an added bonous to have the student purchase the labtop from the school

The computers that are provided are not very good. Mine tends to crach alot and I take good care of it, and it is unable to support more then one explorer window up at one time. I think it's a piece of shit!

I think they make learning more convenient and I believe it has really increased the amount of communication between students and faculty. I also think it is great in class when we can all be searching for information and then share it with each other.

they make communicating with professors much easier and you are able to access all the information your professors want or need you to have access to.

It is great having a computer but being a MET major, I have to use the program Solidworks extensively

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and the computer is not powerful enough to run it, which is frustrating.

Mac's are the best

It is nice to know that we always have access to the internet at school provided by the university. Also everyone's computer is the same so it is easy to maneuver through each others with group projects.

I love the mac everyone should be allowed to have one doesn't matter on what their degree it.

I like that we are a computer centered university, however, I would prefer to have my own computer, not one the university provides. I would be happier with a different brand of computer. The positive side of having a computer given to us by NMU is that there is a computer center we can take our computers to if there are any problems.

The latent effects of laptop computers at NMU have contributed to poor interpersonal communication skills for students as well as instructors.

Without my computer I may have never researched what I am dedicating the rest of my life to..

Unionoida

Having wireless connection throughout campus is very useful to getting work done anywhere, anytime.

They would be better and more useful if they didn't blue screen of death once a week.

it would be nice to get free internet access outside of being on campus.

They need to be upgraded. They are not of high quality whatsoever.

It is awesome!

This computers suck. Students should not need to go and get their computers reimaged 8+ times a year. The idea of supplying computers is great, but if it comes automatically, please get us better computers for our tuition.

The laptops are nice but very under powered for many of the programs needed for some classes. The slowdown on the laptop makes tasks take longer than planned, as their speed is not sufficient for many applications.

more powerful computers for students required to run more demanding software like solidworks or autocad

Having a computer is useful to view the changes in a course's schedule or syllabus at any time.

It helps me understand the material better because I can research it on my own and get more than one explanation of the way things are.

I think they whole initiative is a great thing. My laptop at home sometimes doesn't have/can't afford the software needed to participate in class, so it's great having one the school provides. Also it's an incredible convenience to have the school available to fix error/problems associated with my laptop that was issued. The whole program is such a step forward in education that it's hard to believe that all 4 year schools don't do this.

Don't require the lease of an NMU laptop. Great to have one over the summer when returning back to school. Negotiate different purchase plans because \$312 for a two year old computer is outrageous.

I think the computers are great and definitely do provide our campus with a unique opportunity. However, I think that most students would buy a laptop on their own to use daily.

make them lighter and easier to carry

Many students may not be able to enjoy the convenience of a laptop or PC due to financial reason. The



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computers allow all students an equal opportunity for access to knowledge and support.
students should be able to choose between having a PC or Mac
This computers really help with everyday things you need.
The computers are lightweight and covienent to carry. The provide for more learning opportunities in and outside of the classroom.
I bought my macbook after two years and love it. It was a great deal. I do not watch tv so i use my computer to stay in touch with what is going on in the world. I am a secondary Education major and having a computer to great technological advanced lessons (not powerpoints) is a great benefit that I have had.
Facebook.
I think its ridiculous that if you have more webclasses than campus classes you have to pay more for the computer. Every student pays the same tuition why should they pay more for the stupid crabby computer that is issued to everyone else?
Without the computer provided by the university I won't have a personal computer and would be a disadvantage in many of my classes.
Using the computers also helps meet and make new friends around campus :)
They are useful for my classes, but the quality of the computers is low. Cords break easily and other components seem too fragile.
I like having access to the wireless internet everywhere on campus.
I have really enjoyed using the laptop for research.
Teachers should not be able to ban computer use during class (Especially since students pay for them in their tuition) after all we are paying to take their courses, not the other way around!
Professors need to be more lenient about electronically submitting assignments.
Too many students don't use their computers for schoolwork even while they are in class. It is distracting and annoying to other students who appreciate the opportunity to be there learning.
Regardless of technical difficulties from time to time, computers overall make the learning process for university students much easier and more collabrative than if we didn't have them.
buying them needs to be cheaper-- after all- they are two years old at least.
Throughout my college career I have found the use of my NMU laptop extremly useful.
The use of computers at this university (Northern Michigan University) has made it more difficult to prepare for class, submit assignments and does NOT help with communication with professors.
They are very beneficial to the learning experience
These laptops have been a life saver! Thank you so much!
At times it's nice to have it in class but other times i wish some professors would not letter students bring them to class since they can sometime be a distraction.
I like it and use it a lot.
The ThinkPads are slow and WAY over-priced.
Including computers in tuition makes life as a student a lot easier.
The computer issued to me by Northern is of great help and I utilize it every day. I enjoy taking notes on

## Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

my computer in class, and can take notes more efficiently with the computer, however, many professors arbitrarily prohibit the use of computers in class. This defeats one of the main purposes of issued computers in my opinion.

They have helped me do more than i ever could without one, and it's nice to get one as part of the tuition instead of having to go out and spend upwards of \$1000 on my own.

Sometimes the internet is slow but i love how easy it makes my research. It is really nice to have a help desk that is there to help/fix the computer if i have problems.

I think that expanding WiFi and offering it to all students or having it on all the computers would benefit greatly. It is really hard when you don't have wireless/can't afford it.

It makes it much easier to write papers and do homework when a computer is provided.

We need better computers! The IBM Thinkpads just don't last long enough before they start to run slowly. I'm not saying we all need Macs, but we do need something that is better-quality.

After 4 semesters of paying for the use of the laptop in our tuition, the purchase price should be much less. Also,taking into consideration that the price of new computers has been coming down.

Some professors have gone completely paperless and it makes everything much better as far as waste is concerned. There are some issues with computer malfunction but usually they can be fixed quickly or replaced. I think more teachers should try and go paperless. Other online resources have also been a big help such as WebCT and the course homepage. The laptops also allow us to use facebook to work on group projects when the entire group cannot meet at the same time. The laptop provided by NMU has been a key resource in my journey through my udnergraduate degree.

Better wireless signals around town, and on campus. I do a lot of work from my truck between classes. If your not in a building it very week

Wimax has made a huge difference

Computers that are provided by the university has given me the full potential to research and learn independently. It is a wonderful system for students to communicate with professors and fellow classmates without the hassle of meeting the individual personally considering everyone has a tight schedule to meet. The computer is an effective way to communicate without physical contact and makes situations and discussions much easier and convienient.

The computers that are provided to the Mechanical Engineering students cannot handle the programs that we are expected to use. Like SolidWorks and AutoCad. They are very slow and often crash which takes students three times as long to complete a project.

Having computers available to us provides a lot of financial stress relieve for many of us students. If Northern didn't have this program in place I would not have a computer because I simply could not afford it

Computers are used just as much for students paying attention and not paying attention. Yes, there are students who use them to mess around in class but there are just as many using them for the class. Professors who complain about computers and don't let students use them to their fullest need to relax. People will find a way to not pay attention if they don't want to pay attention with or without computers. Don't let the additional tools available to us be wasted in the classroom just because there is some slacker checking their Facebook. It is naive to think that simply by not allowing computers in the classroom you are going to gain the whole classes attention.

Wipe Kaspersky Anti-Virus off all of the laptops for a more efficient Anti-virus software.

Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

I am glad that NMU has laptops for their students and it helps significantly with school work but computer problems arise from time to time.

The NMU computers are as helpful as they are a distraction

These thinkpads that are school issued are not very good quality and seem to have alot of problems.

It makes things much easier for me; and a lot more convenient.

Statistic	Value
Total Responses	86

## NMU AQUP Laptop Survey – Comments and Applicable Themes

- THEMES:
- 1 – Cost of the Laptop
    - A – Purchase Price
    - B – Lease Price
    - C – General affordability
  - 2 – Quality of the Laptop
    - D – Speed
    - E – Internet access/reliability
    - F – Power
    - G – Applications/programs
    - H – Mac vs. IBM ThinkPad (preference)
  - 3 – University laptop provision/requirement
  - 4 – Laptop as a tool to enhance Communication
  - 5 – Course use of Laptop
    - I – Distraction
    - J – Restricted use by instructors
    - K - Convenience
  - 6 – Laptop use to facilitate independent learning.

Comment	+/-	Themes	Subtheme(s)
All students should receive Apple MACBOOKS. Thank you for the great TLC program!	+	3, 2	H
The computers that we are issues constantly have problems. It's not reasonable to ask students to pay for them as part of our tuition, and then when we have usage issues, force us to pay further fees even when the issue us due to regular use.	-	1, 2	B, Z
Though it is nice to have a computer provided to us to use, they are not always that reliable and are sometimes more of a headache than anything else.	+/-	3, 2	E
It makes looking up confusing topics or related table data in chemistry very easy and convenient.	+	5, 6	K
I know that it might not be the computers fault, but I get booted off quite constantly when in the dorms and always have to use the repair function.	-	2	E
I like the idea of having so many things available on the computer but I don't like taking online tests and quizzes because often times the computers freeze up and don't work. I also think that the internet here is not very good. Often times it will just stop working and I have to restart my computer.	+/-	2, 3	E
Although it would be more expensive, it would be nice if all students, not just the Art and Design Majors could have the option of a Macbook.	+/-	1	H
I am in the Art & Design program and I am so happy with my Mac – I have learned to use so many new programs.	+	3, 6	H
Having computers at my school has been incredibly useful, especially with programs such as WebCT. However, the quality of these computers could be seriously improved, there have been a lot of issues with the Thinkpads, and I would suggest that the university switch to a different kind of computer.	+/-	3, 2	G

## Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

They're not the greatest computers, but they do what I need to have done. I wouldn't have a laptop if it were not for the Thinkpad. The included computer was one of the major deciding factor for me attending Northern Michigan University.	+/-	3, 2	
I think it is terrific that computers are supplied to all students, and internet on campus also.	+	3	
I have spent more than 10 hours at the helpdesk this semester getting my computer fixed. While I like that the computers are provided to us and the repair is free, I think I would prefer supplying my own computer (one I know will work) with my own money instead of dealing with this many problems.	+/-	3, 2, 1	B, Z
This is my 5 <sup>th</sup> year at NMU and since I have been here the quality of the laptops provided have steadily declined. I would like to see the school take more care when deciding what laptops are provided to us.	-	2	
If I did not have my computer provided by NMU, I would be very lost this year and not know a lot of the information that I do. All of the information I learn about in my classes, campus, and the university is through my computer. It has made my first year a lot less stressful.	+	3, 5, 6	
I feel that the technology provided to the university students enhances our experience here more than anything else.	+	3	
I am very happy with the opportunity of having a computer from NMU, but one negative thing about computers at school is all the other students in class being on the computer. These students are on facebook, my space, and looking at pictures. I find this very distracting and rather annoying when I am trying to learn and all I see is another student playing around on his or her computer. I actually heard of a student watching inappropriate materials during class. So I would hope someday that the university or instructors would have some guidelines when it comes to students being on the computer for things other than school.	+/-	3, 5	I, J
I hate having to check for messages in both WebCT and regular email and with both would go to one location to check. I also wish there was one sign in to be able to access all of the university sites instead of, for one example, having to sign in to WebCT, sign in to university email or student services all separately.	-	2	G
Would be nice if an external hard drive were an option that came with the computer instead of paying for them separately, it would be more convenient for all students and staff. By the time each students completes their programs they have enough documents and files for their respective courses that it would be an added bonus to the student and would be an added bonus to have the student purchase the laptop from the school.	?		
The computers that are provided are not very good. Mine tends to crash a lot and I take good care of it, and it is unable to support more than one explorer window up at one time. I think it's a piece of shit.	-	2	E
I think they make learning more convenient and I believe it has really increased the amount of communication between students and faculty. I also think its great in class when we can all be searching for information and then share it with each other.	+	4, 5	K, L
They make communication with professors much easier and you are able to access all the information your professors want or need you to have access to.	+	4, 5	K
It is great having a computer but being a MET major, I have to use the program	+/-	3, 2	F

## Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

Solidworks extensively and the computer is not powerful enough to run it, which is frustrating.			
Mac's are the best	+	2	H
It is nice to know that we always have access to the internet at school provided by the university. Also everyone's computer is the same so it is easy to maneuver through each others with group projects.	+	3, 4, 5	K, L
I love the Mac, everyone should be allowed to have one – doesn't matter on what their degree is.	+	2	H
I like that we are a computer-centered university, however, I would prefer to have my own computer, not one the university provides. I would be happier with a different brand of computer. The positive side of having a computer given to us by NMU is that there is a computer center we can take our computers to if there are any problems.	+/-	3	Z
The latent effect of laptop computers at NMU has contributed to poor interpersonal communication skills for students as well as instructors.	-	4	
Without my computer I may have never researched what I am dedicating the rest of my life to...Unionoida	+	3, 5	
Having wireless connection throughout campus is very useful to getting work done anywhere, anytime.	+	2	E
They would be better and more useful if they didn't show the blue screen of death once a week.	-	2	E
It would be nice to get free internet access outside of being on campus.	?	2	E
They need to be upgraded. They are not of high quality whatsoever.	-	2	
It is awesome!	+	3	
The computers suck. Students should not need to go and get their computers reimaged 8+ times a year. The idea of supplying computers is great, but if it comes automatically, please get us better computers for our tuition.	+/-	3, 2, 1	Z, B
The laptops are nice but very under-powered for many of the programs needed for some classes. The slowdown on the laptop makes tasks take longer than planned, as their speed is not sufficient for many applications.	+/-	3, 2	F, D, G
More powerful computers for students required to run more demanding software like Solidworks or Autocad.	-	2	F, G
Having a computer is useful to view the changes in a course's schedule or syllabus at any time.	+	5	
It helps me understand the material better because I can research it on my own and get more than one explanation of the way things are.	+	5, 6	
I think the whole initiative is a great thing. My laptop at home sometimes doesn't have/can't afford the software needed to participate in class, so it's great having one the school provides. Also it's an incredible convenience to have the school available to fix errors/problems associated with my laptop that was issued. The whole program is such a step forward in education that it is hard to believe that all 4 year schools don't do this.	+	3, 1	C, Z
Don't require the lease of an NMU laptop. Great to have one over the summer when returning back to school. Negotiate the different purchase plans because \$312 for a 2-year-old computer is outrageous.	+/-	1, 3	A, B
I think the computers are great and definitely do provide our campus with a unique opportunity. However, I think that most students would buy a laptop on their own to use daily.	+/-	3	
Make them lighter and easier to carry.	-	2	

## Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

Many students many not be able to enjoy the convenience of a laptop or PC due to financial reason. The computers allow all students an equal opportunity for access to knowledge and support.	+	1, 3	C, Z
Students should be able to choose between having a PC or Mac.	-	3	H
These computers really help with everyday things you need.	+	3	
The computers are lightweight and convenient to carry. They provide for more learning opportunities in and outside of the classroom.	+	2, 5, 6	
I bought my Macbook after two years and love it. It was a great deal. I do not watch TV so I use my computer to stay in touch with what is going on in the world. I am a secondary education major and having a computer to create technological advanced lessons (not powerpoints) is a great benefit that I have had.	+	3, 5	H
Facebook	?		
I think it is ridiculous that if you have more web classes than campus classes you have to pay more for the computer. Every student pays the same tuition, why should they pay more for the stupid crabby computer that is issued to everyone else?	-	1	C
Without the computer provided by the university, I wouldn't have a personal computer and would be disadvantaged in many of my classes.	+	3, 5	
Using the computers also helps me meet and make new friends around campus ☺	+	4	
They are useful for my classes, but the quality of the computers is low. Cords break easily and other components seem too fragile.	+/-	5, 2	
I like having access to the wireless internet everywhere on campus.	+	2	
I have really enjoyed using the laptop for research.	+	5	
Teachers should not be able to ban computer use during class (especially since students pay for them in their tuition) after all we are paying to take their course, not the other way around!	-	1, 5	B, J
Professors need to be more lenient about electronically submitting assignments.	-	5	J
Too many students don't use their computers for schoolwork even while they are in class. It is distracting and annoying to other students who appreciate the opportunity to be there learning	+/-	3, 5	I
Regardless of technical difficulties from time to time, computers overall make the learning process for university students much easier and more collaborative that if we didn't have them.	+/-	2, 4, 5	L
Buying them needs to be cheaper, after all they are two years old at least.	-	1	A
Throughout my college career I have found the use of my NMU Laptop extremely useful.	+	3	
The use of computers at this university (Northern Michigan University) has made it more difficult to prepare for class, submit assignments, and does NOT help with communication with professors.	-	4, 5	
They are very beneficial to the learning experience.	+	5	
These laptops have been a lifesaver ! Thank you so much!	+	3	
At times it's nice to have it in class but other times I wish some professors would not let students bring them to class since they can sometimes be a distraction.	+/-	5	I
I like it and use it a lot.	+	3	
The Thinkpads are slow and WAY overpriced.	-	1	D, B

Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

Including computers in tuition makes life as a student a lot easier.	+	1	B
The computer issued to me by Northern is of great help and I utilize it every day. I enjoy taking notes on my computer in class, and can take notes more efficiently with the computer; however, many professors arbitrarily prohibit the use of computers in class. This defeats one of the main purposes of issued computers in my opinion.	+/-	3, 5	J
They have helped me do more than I ever could without one, and it's nice to get one as part of the tuition instead of having to go out and spend upwards of \$1,000 on my own.	+	1, 3	B
Sometimes the internet is slow but I love how easy it makes my research. It is really nice to have a help desk that is there to help/fix the computer if I have problems.	+/-	2, 5	E, Z
I think that expanding WiFi and offering it to all students or having it on all the computers would benefit greatly. It is really hard when you don't have wireless/can't afford it.	+/-	1, 2	E, C
It makes it much easier to write papers and do homework when a computer is provided.	+	5	K
We need better computers! The IBM Thinkpads just don't last long enough before they start to run slowly. I'm not saying we all need Macs, but we do need something that is better quality.	-	2	D, H
After 4 semesters of paying for the using of the laptop in our tuition, the purchase price should be much less. Also, taking into consideration that the price of new computers has been coming down.	-	1	A, B
Some professors have gone completely paperless and it makes everything much better as far as waste is concerned. There are some issues with computer malfunction but usually they can be fixed quickly or replaced. I think more teaching should try and go paperless. Other online resources have also been a bit help such as WebCT and the course homepage. The laptops also allow us to use facebook to work on group projects when the entire group cannot meet at the same time. The laptop provided by NMU has been a key resource in my journey through my undergraduate degree.	+	2, 4, 5	Z, L
Better wireless signals around town, and on campus. I do a lot of work from my truck between classes. If your not in a building it is very weak.	+/-	2	E
WiMax has made a huge difference.	+	2	E
Computers that are provided by the university has given me the full potential to research and learn independently. It is a wonderful system for students to communicate with professors and fellow classmates without the hassle of meeting the individual personally considering everyone has a tight schedule to meet. The computer is an effective way to communicate without physical contact and makes situations and discussions much easier and convenient.	+	4, 5, 6	K
The computers that are provided to the Mechanical Engineering students cannot handle the programs that we are expected to use. Like Solidworks and Autocad. They are very slow and often crash which takes students three times as long to complete a project.	-	2	D, E, F
Having computers available to us provided a lot of financial stress relief for many of us students. If Northern didn't have this program in place, I would not have a computer because I simply could not afford it.	+	1, 3	B
Computers are used just as much for students paying attention and not paying attention. Yes, there are students who use them to mess around in class but there are just as many using them for the class. Professions who complain	+/-	5, 3	I, J



Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

about computers and don't let students use them to their fullest need to relax. People will find a way to not pay attention if they don't want to pay attention with or without computers. Don't let the additional tools available to us be wasted in the classroom just because there is some slacker checking their Facebook. It is naïve to think that simply by not allowing computers in the classroom you are going to gain the whole classes attention.			
Wipe Kaspersky Anti-Virus off all of the laptops for a more efficient Anti-virus software.	-	2	G
I am glad that NMU has laptops for their students and it helps significantly with school work but computer problems arise from time to time.	+/-	2, 3, 5	
The NMU computers are as helpful as they are a distraction.	+/-	3	I
These Thinkpads that are school issued are not very good quality and seem to have a lot of problems.	-	2	
It makes things much easier for me; and a lot more convenient.	+	3	K

Evaluating the Effectiveness of the Laptop Goal: Enhancing Student Learning

**Recommendation 6:** A survey comparable to the NMU AQIP TLC survey developed for students should be administered to faculty at NMU and at peer institutions.

DRAFT – Faculty survey

A) Strongly Agree    B) Agree    C) Neutral    D) Disagree    E) Strongly Disagree

1. I use a computer to seek information required by my students
2. I use a computer to clarify or enhance information presented to my students
3. I use a computer to communicate with my students
4. The computer enhances my ability to collaborate or work on projects with my students.
5. My students communicate with me by computer
6. I communicate with my students more than I would if I didn't have access to a computer
7. I use a computer to seek information that is not required for my classes
8. The computer enhances my ability to collaborate or work on projects with my colleagues.
9. I use the computer to communicate with other colleagues
10. My colleagues communicate with me by computer
11. Overall, I encourage the use of the computer to assist with the exchange of ideas and information
12. The availability of computers at my university encourages greater communication and collaboration between students and instructors
13. The computer enhances my ability to learn independently
  
14. The computer I use most often is one that
  - a. I own
  - b. is provided by my university (computer lab or issued to me)
  
15. I am a
  - Professor
  - Associate Prof.
  - Assistant Prof.
  - Instructor
  - Adjunct

Any additional comments: \_\_\_\_\_