Examining Various Futuring Tools for Strategic Planning of Educational Technology at Michigan State University

Candace M. Winslow
Capella University
ED815, The Future of Educational Institutions: Topics and Trends
August 31, 2005
Abstract

Methods of planning for the future are examined and applied to develop a vision and strategic plan for educational technology at Michigan State University (M.S.U.). These methods include Environmental Scanning, Trend Extrapolation, the Delphi Technique, Scenario Planning, and the Futuring Tree. Identifying and responding properly to future conditions requires deep understanding of complex and interconnected issues. Even with considerable expertise in using these tools, a certain degree of uncertainty about the future is unavoidable. Though the long-term research and organizational examination and concession-building normally required for these futuring tools was not met here, it is certain that MSU will compete with other public and corporate educational institutions in the future. To be successfully, M.S.U. must prioritize creating and retaining a workforce that is knowledgeable enough to support, advance, and profit from its educational technology equipment and programs.
Table of Contents

(Feel free to use the Bookmarks tab on the left side of your screen to link directly to each section)

Abstract ............................................................................................................................... 2
Table of Contents ................................................................................................................ 3
Society for College of University Planning ..................................................................... 4
Provocative Ideas and Discussion Vignettes .................................................................. 5
Customizing and Expanding Learning Opportunities at M.S.U. in the Future ............... 6
Connections between the Trends and Issues .................................................................. 8
Extrapolating University Trends ...................................................................................... 9
  Step 1: Select the Appropriate Team. ....................................................................... 10
  Step 2: Identify Baseline Trends. ................................................................. 10
  Step 3: Chart Trends. ......................................................................................... 11
  Step 4: Conduct Environmental Scans ........................................................... 11
  Step 5: Extrapolate Trends ................................................................................. 12
  Step 6: Analyze Cause-Effect Relationships. ...................................................... 12
  Step 7 and 8: Determining Future Threats and Opportunities and Preparing for the Future .......................................................... 13
Delphi Study Process Example ..................................................................................... 13
  Step 1: Identify the Team. ................................................................................. 14
  Step 2: The Main Issue. ..................................................................................... 14
  Step 3: The Questionnaire ............................................................................... 14
  Step 4: Panel of Experts ................................................................................ 15
  Step 5: Round I. ................................................................................................ 16
  Step 6 and 7: Round II and III. ................................................................. 16
  Step 8: Results .................................................................................................. 16
Scenario Development ................................................................................................... 16
  Step 2: Main Issue .......................................................................................... 17
  Step 3: Key Factors Identified ....................................................................... 18
A Future for Michigan State University ...................................................................... 19
Futuring Tree .................................................................................................................... 21
  A Vision .............................................................................................................. 21
  Present State of Michigan State University ................................................... 23
  Key Findings ................................................................................................... 25
Summary ........................................................................................................................... 26
References ....................................................................................................................... 28
Appendix 1: Step 4 of Scenario Planning: Importance/Certainty Topic Rankings .... 30
Appendix 2: Step 5 of Scenario Planning: Develop Alternative Views .................... 31
Appendix 3: Step 6 of Scenario Development: Interpretation ................................... 32
Appendix 4: Backward Planning Network Diagram for Futuring Tree .................... 34
Introduction to Futuring

There are many methods for identifying future operating environments and developing strategic plans to meet those future conditions. Many of these tools are introduced later in this paper. They are applied using primarily Michigan State University as an example beginning with an examination of trends and current issues and ending with development of a futuring tree. However, educational institutions of various sizes and organizational structure can also take a shortcut view to the future by taking advantage of several other organizations’s efforts at futuring.

*Society for College of University Planning*

Emerging issues and trends in academic environments have been outlined by the Society for College and University Planning (SCUP). Those issues are primarily due to global and economic issues and it appears that the U.S. is on a different path from other countries in several key areas.

- Higher education along with all public services is being hit hard by economic slowdowns and changes in government spending priorities.
- The focus of disagreement over diversity on campus is changing as race-based admissions process loses favor in the political and legal arena. Family income disparities in the U.S. widen and rising costs of tuition create interest in economic desegregation.
- International student enrollment is dropping as other countries develop their higher education infrastructure and the US tightens security.
- Regardless of the costs, more and more adults are seeking adult education.
- European countries are already working towards making seamless transitions and credit transfers between countries.
- Except for wireless technology and investments in foreign countries, educational technology investments in higher education institutions are slowing considerably.
- Partnerships with for-profit companies and outsourcing are increasing and are likely to increase in the future as the technology becomes more complex and information security becomes more problematic (SCUP, 2005).

Provocative Ideas and Discussion Vignettes

The North Central Regional Educational Laboratory (NCREL) partnered with the Institute for Alternative Futures and recruited provocative thinkers from its stakeholders to undertake considerable research and analysis of emerging issues in education. Debates regarding the future tended to be centralized around themes which echo those identified by the Society for College and University Planning: quality, technology, equality, the impacts of choice, and the relation of education to social change. (Learning Points Associates, 2005)

NCREL developed three central areas of discussion which were intended to provide a framework around which discussions could develop.

- “Customizing and Expanding Learning Opportunities” offers an opportunity to explore which focus is best -- ensuring that students receive at least a minimum standard of knowledge and skills -- or that all students gain lifelong ability and motivation to continue learning. Which tools or methods are the best investments to meet academic goals?
“Schools as Living System” explores how schools should be measured and financially supported. What should the goals of schools be and what organizational structure can best meet future demands for skilled workforce, lifelong learning, and professional staff?

“Education as Mirror to Social Context” explores the choices on how best to accommodate and perhaps even minimize the differences in student resources, backgrounds, and opportunities.

NCREL has further developed short vignettes to serve as jump off points of discussion. The questions asked for each group are useful in considering a direction for any educational institution. For example, the “Customizing and Expanding Learning Opportunities” vignette offers a method for Michigan State University’s leaders to clarify the University’s values and their views. NCREL grouped the issues in different ways for summarization and discussion purposes. It would be useful for members of Michigan State University’s various colleges and departments to debate each topic separately as presented. However, a thorough examination of the issues is likely to lead planners into the realization that these categories are interrelated and must be considered as well.

Customizing and Expanding Learning Opportunities at M.S.U. in the Future

In the past, federal and state of Michigan funding of the University has been successfully guided by a combined philosophy that education should serve as a way to improve the lives of the citizenry and serve the needs of employers. However, there also been an appreciation for how education and research for their own sake are important endeavors regardless of immediate financial rewards. Industry leaders predict that future work and life skills will require both very specific and high level technical skills and
innovative thinking. Universities should take note that their methods and content of education must support this type of thinking and skills.

Michigan State University must consider what parts of its curriculum remains vital and relevant for future students and what needs to be abandoned. For credibility, it will feel pressure to provide documentation of students’ skills and knowledge. But as more is learned about the differences in how people learn and how people solve problems, the University will want to encourage motivated learning and curiosity which are not easily measured. Educational practices that can walk this line between individualized achievement and institutional goals will require major changes in the thinking of University leaders.

In the past, the highest rewards have gone to those faculty and administrators who brought the most prestige and funding to the University. In the future, the University will need to consider adding another dimension to evaluating faculty – ability to teach, and in particularly, teaching through technology. Here there appears to be a choice that can cut either way since the customers (employers and students) are attracted by the prestige of instructors’ research and writing, while those same customers’ success is inevitably dependent upon the quality of instruction.

This dichotomy can be multiplied by considering the topics of the other vignettes. Whereas employers and society will need more educated citizenry, the diversity of students’ cultural and economic backgrounds make standardized instruction difficult. Whereas employers and society are demanding more productive citizens, funding for higher education is decreasing and lower and middle income families are struggling. Whereas industry leaders will need students who gained higher level knowledge and
thinking skills through top-notch instructional practices and technology, there is obvious reluctance to fund the training and salaries of professional educators.

As the economy and culture becomes more globalized, these issues will become even more complex. Even greater disparities amongst students will be encountered (Education Millennium Development Goals, 2005; Zhiyong, 2005; Digital Divide). United States educational institutions (K-12, adult education, higher education, continuing education and training programs) will need to open up to other country’s students, languages, cultures, and of course, to their money.

Attempts to divest decision-making power to a wider audience, might unintentionally run up against cultural and economic forces that continue to limit learning (Rothstein, 2004). To prepare our next generation for a global economy, they will need to be tutored in different cultures and languages (World Learning for Business, 2005), but we are still struggling with communicating a common agenda across our states. We are also still struggling with meeting the language, racial, economic, gender, and cultural differences within our own schools (Learning Points Associates, 2005).

**Connections between the Trends and Issues.** By exploring the seemingly alternate viewpoints, it becomes clear that the issues are complex and interrelated. Clearly building a future workforce is dependent upon finding a balanced approach in managing all three issue areas –student achievement, fiscal resources, and equitable service. Unfortunately, the choices in any area are bound to affect each other. It is certain that society and educational institutions will include or be affected by widespread fascination and dependence upon technology, the increasing influence of multinational corporations on
the economy and employment, and pressure to find the best model for establishing and ensuring successful programs.

Perhaps the least painful choice is to explore how technology and online instruction can efficiently meet the needs of employers and a diverse student body. There are real improvements in the understanding of cognitive psychology and motivation which can be incorporated by educational technology to provide individualized instruction (Clark, R., 2003; M.I.N.D. Lab, n.d.). There are developments in computer language translations that could assist in bridging such gaps. There are developments in computer-based assessment. Perhaps what remains are available resources to connect teachers, technology, and the wide variety of students.

Extrapolating University Trends

In order to understand the true nature of a specific trend and the direction it will take, most futurists recommend examining historical developments. Just as examination of a stock’s performance during the week is inferior to looking at its performance for the year, so too, the future of education institutions is best predicted upon knowledge of the longer view.

The College of Social Sciences at Michigan State University is an example of an institution of higher learning that is evolving and will require continuous improvements to make it competitive in the future. Alexander and Serfass’ (1999) methods for trend extrapolation can provide insight into the factors that have produced trends and organizational changes in the past that are likely to continue influencing the future. It is interesting to consider how trends towards globalization and educational technology will
affect the University. Perhaps this information can be used to guide the College in its decision-making.

*Step 1: Select the Appropriate Team.* Though the Alexander and Serfass suggest a single team of 12-18 members, it would be better to have some representatives prepare for the Team’s work by meeting first with members they are representing. For example, because parents can have a wide difference in socioeconomic backgrounds, a group of parents who represent the diversity of the student body. This could include parents of international students, in-state and out-of-state students; parents of students who are funding their education through a variety of sources including financial aid; first generation through third generation alumni, and parents of students entering a wide range of schools within the university.

Similarly, having the views of only one or two industry representatives on the Team could inaccurately skew the vision of industry. In Michigan, the auto industry has always exerted an overwhelming influence on government and education policies. This has led to a myopic view of the economy including blinders to other job markets, new technologies and products, alternative production systems, communication systems, and lifestyles. Undoubtedly, a strategic planning team put together by MSU would include one or two automotive industry representatives. However, if representatives from many industries were first brought together to brainstorm internal and external trends, a broader, more realistic picture might emerge. The industry representative(s) would hopefully take this to the larger Team.

*Step 2: Identify Baseline Trends.* The results of discussions and brainstorming in the team lead to discussion of the specific issues at the university. It is helpful to identify
both strengths and weaknesses of the institution. Background information should be collected and analyzed. For universities, this might include researching topics such as comparative prestige or department reputation, student demographics, financial health including investments, endowments, and government subsidies, buildings, grounds, and equipment, utility infrastructure, orientation towards research, liberal arts, political and business connections, the local and national economy, staffing characteristics, faculty characteristics, and the subject and content of educational programs. The enormity of this task requires narrowing the focus of research.

**Step 3: Chart Trends.** Using only the baseline trends, a chart can be created to visually demonstrate changes over time. This is called a trendmap (Alexander & Serfass, 1999). It can be difficult to get historical information on significant events, as well as motivations for changes within the institution. It is helpful to enlist team members who have a long history of participation with the subject of the trend extrapolation process since documents and records may not be available. It is helpful to consider historical organizational issues that may place the organization in a unique position. For example, in charting trends for Michigan State University, it would be important to note events and influences stemming from 1) the extraordinary amount of land owned by the University, 2) the automotive industry, and 3) the internationally recognized agriculture and natural resources programs.

**Step 4: Conduct Environmental Scans.** The creation of a “trendmap” allows for examining how historical trends are connected and related to emerging issues such as those already discussed having been uncovered by SUCP and NCREL. Alexander & Serfass (1999) suggest a benchmarking process. The National Education Association,
Chronicle of Higher Education, and various accreditation commissions can be sources of benchmarking information if it is believed that they provide the most current best practices and program models that have been thoroughly researched.

**Step 5: Extrapolate Trends.** The addition to the trendmap of current issues completes the foundational list of factors that will likely result in continued developments in those areas. For example, a specific factor may appear to be diminishing or increasing in its importance. The rate of change may be slowing or increasing. The direction of movement may be obvious in looking at the trend. In looking at the College of Social Sciences for example, the following trends and relationships might be identified.

**Step 6: Analyze Cause-Effect Relationships.** Additionally, it should become clear that some factors are affecting different areas of the analysis. Some trends originally considered separate may meld together into a single larger issue. Or influences may appear to contradict or at least negate their impact on the institution. Alexander and Serfass (1999) suggest diagramming the relationships of the trends to determine which are the most influential on the organization’s future.

The College of Social Sciences within Michigan State University was the institution used for this analysis, but obviously some of the trends might apply to other universities. An example of some trends that might be identified during Step 5 and a preliminary analysis of their relationships is provided below.

![Image of trendmap with interlinked boxes for various trends and relationships.](image-url)
Step 7 and 8: Determining Future Threats and Opportunities and Preparing for the Future. Determining how the trends can affect the organization should provide the impetus needed to prepare a strategic plan to meet the demands and opportunities that will be encountered. For example, consider the last trend in the list above which indicates that there is evidence that government funds for public services will continue to shift away from issues identified by faculty as important or interesting towards those identified by corporate and political interests. In the College of Social Sciences, there is already an observable trend away from traditional past justice projects such as community-based policing, domestic violence, or delinquency prevention towards national and corporate security topics such as terrorism, private security, and critical incidents. In response to this trend, the College of Social Science may want to focus upon research, technology, and curriculum development which can apply to both emphases. It is a way to hedge the bets. Information management systems, crime mapping, research processes, and psychological profiling are possible topics. Obviously, these final steps should incur extended research and discussions in order to iron out a united vision and specific actions.

Delphi Study Process Example

In developing plans for the future, one method for organizational leaders is the Delphi Technique. Though there are some criticisms that the process can be subverted (Stuter, n.d.), it does provide a way to gather the opinions of a large number of experts or stakeholders. To demonstrate this process, consider the following example. The University recognizes several indications that there will be significant changes in
education due to 1) developments in the multimedia and distance learning field; 2) changes in the job market, and 3) increasing nature of the global economy.

**Step 1: Identify the Team.** A critical element of the Delphi technique is its reliance upon subject experts. Thus it is important to include as many specialists as possible in those areas identified as important to the future of the university and leaders in the field of higher education. Additionally, an attempt should be made to ensure that a diverse group of stakeholders from the University participate.

**Step 2: The Main Issue.** The Team’s first task is to narrow the focus of study to a single main issue. All members of the team are asked to anonymously choose a single issue from the five given above. This issue will then be developed during the survey process. The slight majority of the initial Team participants identify the job market and economic forces to be their priority. Educational technology and enrollment were also highly rated in importance.

From this data, the main line of inquiry is stated as,

“How should the University address changing job market and other economic forces in the future?”

**Step 3: The Questionnaire.** The Institute of Public Policy and Social Research (IPPSR) at MSU is enlisted to assist in the development of a questionnaire. The Team is divided into two smaller focus groups each assigned to work with an IPPSR representative to develop its own set of questions which will be compiled into a single questionnaire. IPPSR will monitor the phrasing and sequence questions to minimize bias (Bhaskaran, n.d.). IPPSR recommends a 5-point Likert scale be used with respondents asked to make predictions for the next 20 years.
A short list of sample predictive questions developed from this process are listed below. Notice that some questions may appear to be contradictory in order to keep the process unbiased. What is the likelihood of:

- Future shortages of skilled labor will require investment in employee recruitment and retention strategies?
- Local and state communities and industries will become the primary supporters and customers of the University?
- Foreign students will put additional competition on local and out-of-state students.
- Relatively lower wages and higher education overseas will create job competition for University alumni?
- Private educational institutions, corporate training, and distance education will drive the University to outsource many courses and services?
- Private corporations and business leaders must be given more input into the curriculum and program development of the University in order to accommodate rapid change in products, markets, services, and their resulting job needs?
- Overseas study programs and foreign language skills will become litmus tests of a quality education?
- Transportation and housing costs will become unmanageable for the great majority of students?

**Step 4: Panel of Experts.** Approximately 30 different organizations with a total of 100 individuals are identified for participation in the Panel of Experts. A large group of experts are Presidents and other high ranking staff at universities around the country. Several representatives from the National Education Association are included.
Representatives in education and training departments of several multinational corporations are asked to serve. Several communications and educational technology companies are asked to appoint representatives. Representatives from the auto industry, the Department of Agriculture, U.S. and Michigan Departments of Commerce are represented to give a view of past, present, and possible future influences. Several prominent economists and several reputable futurists are included. An attempt is made to ensure for every conservative voice, a liberal voice is included from the same field.

**Step 5: Round I.** The survey requesting the experts to rate their opinion of possible future courses for the University are collected using IPPSR electronic survey procedure. After sending out the survey, the responses are tallied and the list of predictions for the University are narrowed down. A shorter list of predictions is developed.

**Step 6 and 7: Round II and III.** The shorter list of predictions are sent out for anonymous rating by the experts again. The results are tallied. If at least 50% of the experts responded to the Round II survey, a third set of will be conducted (Step 7). The shorter list of predictions is sent out for anonymous rating by the experts again. The results are tallied.

**Step 8: Results.** The final results are a consensus of the many experts’ opinions of likely future environment for the University and a clear direction to take in order to address influential job markets and other economic forces.

**Scenario Development.**

Perhaps one of the most intriguing and creative methods for building a vision and strategy for the future, is through the use of Alexander and Serfass’s (1999) Scenario
Development process. For a truly brilliant professional example, visit the National Education Association’s website at http://www2.nea.org/he/future/market.html. The following is an abridged version of what the process would look like in examining instructional delivery and educational technology for the next 20 years.

**Step 1: Team Selection.** University insiders chosen to be part of the team include professors and department heads from the School of Education. They will provide guidance on theory and research on promising advances in instructional delivery, as well as proven educational practices. Programmers and leaders from Virtual University, the MATRIX – Center for Humane Arts, Letters, and Social Sciences Online, and M.I.N.D. Lab will be asked to participate as these are all organizations located on the MSU campus who are at the forefront of educational technology and human-computer interface research and design.

External stakeholders and customers chosen to be part of the team include employers and business leaders from Michigan and around the continent. Representatives from the small business community are also asked to sit on the team to represent their future interests. The National Education Association and the

**Step 2: Main Issue.** Based upon the results of previous visioning, trend analysis, and a Delphi study, the Scenario Team comes to a consensus about the main issue they would resolve. *How can MSU take greater competitive advantage of evolving distance education technology?* What steps should MSU take to allow it to effectively compete with other universities and education providers in the future in the area of distance education? What is the appropriate amount and direction of investment in educational technologies and personnel?
**Step 3: Key Factors Identified.** The team might create a list of issues that are possible. Notice how there isn’t an attempt to identify the direction of a trend. At this juncture, only issues which can affect the future are identified.

- Ease of travel
- Ability to change residence (for students, faculty, and support staff)
- Education needs of students and potential students
- Training/Employee skills needed by business/industry - Job market
- Training/employee skill needs of society, families, communities, government
- Funding/resources
- Availability of labor skilled in educational technology/communications
- Direction taken at other universities and community colleges in distance education
- Level of competition from of corporate training/for-profit education
- Continued development of distance learning technology and related communications infrastructure.
- Costs of classroom education
- Costs of equipment/software rights for distance learning technology

**Step 4: Ranked by the Team.** These issues are then judged by the team on their relative importance and relative certainty in affecting the future of the University as demonstrated in the following table which allows for increasing analysis of those issues fully in the High Importance/Low Certainty quadrant. Note that many of my arguments for placing a factor in a particular quadrant may not be valid. In a real world planning
session, considerable research and expert consultation would be needed to inform the
decision on the importance and certainty of a factor for the question. (See Appendix 1)

**Step 5: Axes of Uncertainty.** From there, the team must develop alternative
viewpoints on those items. (See Appendix 2). Diametrically different viewpoints should
be fairly easily created if the future is truly uncertain in those topics.

**Step 6: Scenario Development.** Michigan State University might then discover
that it was faced with four different scenarios which could occur in the future. In the
future, it was certain that educational technology and communications development will
increase access to online education. The job market and globalization of the economy
will increase demand for highly specialized, technically skilled labor. But issues of travel,
lifestyles, and political developments might create four different futures. (See Appendix 3
for more detail.)

*A Future for Michigan State University*

One possible future for Michigan State University’s School of Social Sciences
would be the result of travel becoming easier, cheaper, and more commonplace and the
increasing competition from corporate training. It will certainly benefit from decreasing
its instruction and research from its current location in East Lansing, Michigan. For the
next few years, the University should monitor trends in these areas in order to modify its
investments and policies accordingly.

Background. In the future, travel has become more attractive and commonplace for
several reasons. Families and friends are distributed around the world. As businesses
move towards almost exclusive multinational status, employees and customers access
products and services from every corner. Professional and business relationships are seen
as increasingly important due to research on communications and decision-making. Though they still telecommute, conduct online research, and frequently chat using the latest technology, advances in transportation make it fashionable to visit in person. Those who can afford it take advantage comfortable accommodations for long distance travel since they are able to remain productive using wireless technology. Students frequently choose to commute long distances for certain campus-related activities since mass transportation is fast and cheap. However, they primarily work remotely.

Big companies become frustrated at the inability of universities to develop the very specialized skills and knowledge of equipment which they want employees to have so they continue to create their own in-house training programs. Unable to compete, the University initiates two programs in response. First, they allow students to partner with the company of their choice during their education period in order to tailor their studies around that company or a specific industry. As an example, if a marketing student is required to write a paper on comparative political systems, he might ask his corporate mentor advice on whether this could assist her in a current project. Or the student might ask the mentor whether she has insights gained from working within different countries. The mentor might direct him to a corporate training program on the topic or might eventually recommend a student enter a division of the company based upon his demonstrated abilities in a special area. In this way, the student becomes tied to the company and the company becomes tied to the University.

The second response that the University takes is to further break away from reliance on instruction and research on the East Lansing campus. In addition to continuing to invest in distance learning, it establishes several remote learning centers in
countries that control large industries and customer bases such as Mexico, China, and some Russian provinces. Campuses are developed into self-sustaining economies. Students and their government sponsors prefer the campus setting where they can maintain some control over the culture while giving students instruction on cutting-edge research and technology. Campus housing is always available for students who frequently move between locations. For example, if their corporate connection recommends it, they might move to China during their Junior year. Or perhaps a personal relationship makes it convenient to attend classes in Mexico.

**Futuring Tree**

Strategic planning experts do not believe that institutions and individuals are impotent pawns of forces that are shaping the future. We can do more than respond to trends and react to inevitable advances. A standard method for bringing about desired change is to begin with a vision. This concept is incorporated into creating what Alexander and Serfass (1999) call a futuring tree. It has also been called backward planning. In this method, not only is the vision of the future clarified, but progressive steps taken to create that future are identified.

*A Vision*

Discussion can be polarizing on what the purpose of and preferred direction of education will be. However, consensus can be developed if examined through a visioning process. What do we want education to look like? What we want will be decided by answering the question of who will decide what the goals of education will be in the future? This isn’t as easy as it seems. It causes a circular argument back to what do we want education to look like. Do we want it to be what our business elite say it should be?
Or do we want it to be very specific to what young individuals and their families want from it. In the short-term at least, do they want the same thing? Or do we want education to mold the public in ways that we imagine will be useful for future generations. Hopefully, our educational institutions and government leaders are seriously considering the policy questions.

M.S.U. serves a population of students and educators that is diverse in geographic location, culture, physical ability, and financial resources by offering many instructional delivery methods and top-rate educational technology. Educational technology used at the University greatly advances the speed and depth of learning by students by providing the most esthetically pleasing and cognitively-based instructional methods. Transfer of targeted knowledge and skills is greatly enhanced by the use of the most up-to-date educational technology for all types of users. Educational technology benefits the University instructors, researchers, and students by providing a forum and structure that is quickly accessed, intuitively organized, stable, and versatile. The learning management system and University developed media are respected and highly utilized because of its exceptional quality and ease of use. Knowledgeable and plentiful programmers, artists, instructional designers, and other staff work with quality equipment and software to produce, improve, and disseminate top-rate media quickly. University instructors are able to quickly improve their instructional delivery as there are ample resources, examples, and professionals available to guide them in their discovery and development of educational technology methods and tools.

The vision of the University’s future educational technology status can be broken down into the following main themes which are also the areas to focus on development:
- Diversity of users/accessibility
- Quality of instructional delivery
- Reliability of system
- Support for instructors and learners

**Present State of Michigan State University**

Only through honest examination of the current state of the University’s educational technology can leaders determine what has to change. Both the direction and the distance are important for realizing the investment required for change. This can itself be a very time-consuming process since it requires research and consensus. The following is developed from a very limited view. Currently, Michigan State University’s College of Social Science educational technology can be described in the following way:

- Offers ANGEL learning management system, but others still using LON-CAPA especially since it holds enormous amounts of science and math assessment resources.
- Funding is fairly low for development of courses. The entire Virtual University department which provides ANGEL course development assistance is staffed by about 8 full-time staff and 8 part-time student assistants.
- University is still struggling with desire to push use of more educational technology which requires a central management. Currently each department must fund its own educational technology budget and often funding is program specific and grant specific. Thus there is still a great degree of variability in implementation of educational technology services and resources.
Many of the University units are continuously seeking employees who are knowledgeable in web design and online instructional technology. However, there is very limited support for current employees to learn these skills.

Knowledge in educational technology and online learning is very limited. Perhaps less than two dozen people in the University could be considered experts in the equipment, programming, design, or theory of online learning. These individuals continue to receive the limited funds for seeking more knowledge. When there is a question about the ANGEL system, everyone at the University calls the same two people.

There are no grants or programs to encourage others to research best practices, to benchmark, to develop personal knowledge or skills in this area. Ph.D.s are keying in pages of material and posting their Powerpoint presentations in the belief that this constitutes an online class.

The University currently does not use SCORM or taking advantage of existing media or open source resources.

There isn’t an efficient method for staffing educational technology initiatives. Many departments are not using instructional designers who could bridge gap between programmers, artists, and content. Secretaries are simply keying into the ANGEL system the professors’ lectures. People with masters degrees in theatre are organizing content for criminal justice courses. People with masters degrees in criminal justice are creating graphics for courses.
• No surveys or studies have been done to determine what the students needs are or will be in the area of educational technology, accessibility, commuting, financial supports, language supports, etc.

**Key Findings**

After working through the futuring tree process, it becomes obvious that everything important to the entire system can be accomplished by working on the Reliability of System theme. An unreliable system will deter people from using it. An unreliable educational technology program will soon become unpopular and will likely cause more damage to learning than improvements. If it is reliable, it will also be fairly easy to use, and will be reliable because it is built upon a sound foundation of equipment, software, research, technologists, and funding. The quality of instructional delivery is dependent upon educational technology being user-friendly to a wide and diverse audience of users and instructors. It can only evolve effectively if there is plenty of technical support and few problems.

The results of this process highlight the importance of investing heavily in staff who will develop, maintain, and improve upon the educational technology software, hardware, and methodology. Equipment investments, student satisfaction, and competitiveness with other learning institutions are all connected to staffing in some way. Details of how this result was arrived at are shown in the sample futuring tree in Appendix 4. Again, all of these issues can be addressed by ensuring the very best research and people are brought together to build the system. This all will of course require attention to funding details and human relationships as well as University-wide support.
Summary

It is gratifying that there was considerable redundancy found between futuring tools and the principles and methods of the fields of organizational development and leadership. Michigan State University will need to become agile, flexible, yet efficient in their organization. As can be expected, education is influenced like other institutions by societal and technology trends, as well as advances in educational delivery and changing expectations in services. In looking at these areas, it is clear that Michigan State University will also need to customize and expand learning opportunities.

Though this exercise was considerably abbreviated from a full-scale strategic planning effort, it did provide a more detailed and specific direction for investing resources which ensures Michigan State University will remain a top quality institution far into the future. M.S.U. cannot afford a slow or fractured approach to educational technology. Students will be drawn to interactive, individualized, highly engaging presentation of course content which provides them with more skills and higher level thinking. Unfortunately, M.S.U. appears to be slipping behind corporate and community colleges in taking advantage of developments in the educational technology and communications fields.

It is quite possible for M.S.U. to capitalize on its unique heritage and existing resources, while exploiting advances in educational technology. But clearly there must be a shift in priorities and thinking in order for effective changes to occur.

1) M.S.U. must be responsive to corporate and societal needs for highly skilled technicians with both critical and creative thinking.
2) M.S.U. must double its commitment to human resource development as the ability of its employees at all levels in the area of educational technology will be critical.

3) M.S.U. must replace or at least demote its paradigm of education-as-place in favor of a philosophy of education-as-*process*.

The difficulty of futuring lies in sifting through, understanding, and prioritizing the complex and interdependent trends in order to find those that are both most likely to significantly impact the environment. Technology trends and other developing societal issues are constantly evolving and are inter-related with political and economic changes. The complexity of the relationships requires considerable research, expertise, and extensive analysis for understanding. In narrowing the possible avenues for action, choices must be made between seemingly contradictory information and conflicting experts’ advice. It becomes clear that virtually all choices result in both positive and negative impacts. Thus, the importance of building a unified and detailed vision for Michigan State University’s educational technology becomes critical. The vision will help guide its choices and hasten the creation of the desired future.
References


### Appendix 1: Step 4 of Scenario Planning: Importance/Certainty Topic Rankings

<table>
<thead>
<tr>
<th>HIGH Importance</th>
<th>UNCERTAINTIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREDETERMINED</strong></td>
<td>• Future travel</td>
</tr>
<tr>
<td></td>
<td>• Funding/resources</td>
</tr>
<tr>
<td></td>
<td>• Labor market</td>
</tr>
<tr>
<td></td>
<td>• Continued development of educational technology, communications/online access</td>
</tr>
<tr>
<td></td>
<td>• Job market will almost certainly demand highly specialized, technically skilled labor.</td>
</tr>
<tr>
<td></td>
<td>• Increasing influence of multinational corporations</td>
</tr>
<tr>
<td></td>
<td>• Changes/advances at other educ. Institutions.</td>
</tr>
<tr>
<td><strong>HIGH Certainty</strong></td>
<td>• Costs of classroom delivery</td>
</tr>
<tr>
<td></td>
<td>Expected to continue to rise due to increasing costs of real estate, construction, and energy.</td>
</tr>
<tr>
<td></td>
<td>• Education needs of society, non-profits, government - Team agreed that although unfortunate, for the next few decades, society would continue to prioritize businesses. Many previous duties of government would continue to be outsourced to business.</td>
</tr>
<tr>
<td><strong>LOW Certainty</strong></td>
<td>• Student educational needs</td>
</tr>
<tr>
<td></td>
<td>Though perhaps important to quality education, the Team rationalized that improvements in educational technology would provide at least as effective in meeting various instructional delivery needs.</td>
</tr>
<tr>
<td></td>
<td>However, many people argued that changes in the pace of society and multimedia would affect future students’ expectations, attention, and motivation. There might also be great differences between students from different cultures.</td>
</tr>
<tr>
<td></td>
<td>• Student lifestyles</td>
</tr>
<tr>
<td></td>
<td>Though it was agreed that students would become less physically and socially attached to their families and specific communities, there was considerable debate on whether students would become more or less attracted to the campus setting to fulfill their needs.</td>
</tr>
</tbody>
</table>

| LOW Importance | |
|----------------| |
## Appendix 2: Step 5 of Scenario Planning: Develop Alternative Views

<table>
<thead>
<tr>
<th>VIEW 1</th>
<th>VIEW 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening of political borders leads to freer travel for education and employment</td>
<td>Increase in formal government violence between countries</td>
</tr>
<tr>
<td>Standardization of education between countries facilitates transfers and distance learning</td>
<td>Increase in trade and educational protectionism</td>
</tr>
<tr>
<td>Skilled educational technologists &amp; communications specialists remain affordable as international resources open up.</td>
<td>University labor costs for qualified Ed Tech labor increases dramatically as their skills become increasingly in demand.</td>
</tr>
<tr>
<td>Travel for professors becomes mandatory for career advancement, research, and university/business collaborations.</td>
<td>Travel for professors is significantly restricted due to labor shortages or fears of “brain drain”</td>
</tr>
<tr>
<td>Professors and graduate students increasingly elect to live and work near a central campus to avoid hassles with disruptions to travel, utilities, and political upheaval in other areas.</td>
<td>Qualified professors increasingly request allowances to telecommute, even across countries, to take advantage of remote economic advantages/exchange rates.</td>
</tr>
<tr>
<td>Incoming students arrive well-prepared for learning advanced topics.</td>
<td>Large numbers of incoming students need remedial instruction.</td>
</tr>
<tr>
<td>Advances in transportation systems make all forms of travel (commuters &amp; international) more convenient to students.</td>
<td>Travel becomes more problematic for students as violence targeted against civilians and public transit increases.</td>
</tr>
<tr>
<td>Universities receive increased funding from the business sector to improve the workforce.</td>
<td>Business sector draws away education funds by developing corporate training programs that provide industry-specific training. Many for-profit education &amp; training companies create competition for university.</td>
</tr>
</tbody>
</table>

### SUMMARIZED AXIS of UNCERTAINTIES

<table>
<thead>
<tr>
<th>Travel becomes easier and more attractive.</th>
<th>Travel becomes an unnecessary inconvenience.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job market requires a large enough number of technically skilled employees that major universities capitalize on economy of scale to create large cohorts of distance learners for technical courses.</td>
<td>Companies become frustrated at the inability of universities to develop the very specialized skills and knowledge of equipment which they want employees to have so they continue to create their own in-house training programs.</td>
</tr>
</tbody>
</table>
### Appendix 3: Step 6 of Scenario Development: Interpretation.

**Note:** Certainties are shown in the shadowed areas. Uncertainties lie below those.

<table>
<thead>
<tr>
<th>SCENARIO 1: Increasing Demand/Profitability for Distance Learning</th>
<th>SCENARIO 2: Competition with Corporations Limits Profitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Continued development of educ. tech./communications/online access</td>
<td>• Continued development of educ. tech./communications/online access</td>
</tr>
<tr>
<td>• Job market will almost certainly demand highly specialized, technically skilled labor.</td>
<td>• Job market will almost certainly demand highly specialized, technically skilled labor.</td>
</tr>
<tr>
<td>• Globalization of economy and job markets will continue</td>
<td>• Globalization of economy and job markets will continue</td>
</tr>
</tbody>
</table>

Travel becomes easier and more attractive. The job market requires a large enough number of technically skilled employees that major universities capitalize on economy of scale to create large cohorts of distance learners for technical courses. Many more foreign students apply and are encouraged access to University courses. American students choose to live abroad and in developing countries like China in order to gain global cultural experience. However, they still choose the higher quality American University education and take advantage of distance learning programs from remote areas.

<table>
<thead>
<tr>
<th>SCENARIO 3: Increased Demand for On-Site Education &amp; Site-Specific Training</th>
<th>SCENARIO 4: Increasing Demand for Distance Learning Globally</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Continued development of educational tech./communications/online access</td>
<td>• Continued development of educational technology./ communications/online access</td>
</tr>
<tr>
<td>• Job market will almost certainly demand highly specialized, technically skilled labor.</td>
<td>• Job market will almost certainly demand highly specialized, technically skilled labor.</td>
</tr>
<tr>
<td>• Globalization of economy and job markets will continue</td>
<td>• Globalization of economy and job markets will continue</td>
</tr>
</tbody>
</table>

Travel becomes easier and more attractive, at least for the wealthy. Students choose to commute long distances, parking and public transportation meet their needs. Big companies become frustrated at the inability of universities to develop the very specialized skills and knowledge of equipment which they want employees to have so they continue to create their own in-house training programs.

Travel becomes an unnecessary inconvenience. Job market requires a large enough number of technically skilled employees. Advances in communications systems and language translation technology allow major universities to capitalize on economy of scale. They begin to offer developing countries and thousands of smaller companies the ability to collaboratively prepare enormous numbers of
Unable to compete the University establishes several remote learning centers in countries that control large industries and customer bases such as Mexico, Cuba, and some Russian provinces. Campuses are developed into self-sustaining economies. Students and their government sponsors prefer the campus setting where they can maintain some control over the culture while giving students instruction on cutting-edge research and technology. Campus housing is always available for students who frequently move between locations.

skilled labor. This allows those participating countries and companies to compete globally since they have an endless supply of workers near their production and service facilities. Their employees are also given opportunities to develop relationships with students around the world under strict supervision of their government sponsors. In this way, some control over the philosophy and culture is maintained while students instruction on cutting-edge research and technology. This is very important since "brain drain" is a real concern to these developing countries and small companies.
Appendix 4: Backward Planning Network Diagram for Futuring Tree

- University Instruction is benefited by up to date Educational Technology
- Reliability of system
  - Knowledgeable staff – experienced &
  - Ample size & speed central processor
  - Excellent back up system and equipment in place
  - Top performance Networking
- Invest in equipment
  - Designed and maintained to work with a wide range of systems currently in use.
  - Language translation tools added
  - Establish best practices, templates, examples, ...
  - Employ plenty of staff who can design effective instructional media
  - Provide enough help desk staff and technical support staff -- expanded hours
- Support for instructors AND learners
- Quality of instructional delivery
- Supports diversity
- Initiatives
  - Strong recruitment
  - Constant hiring
  - Constant training

- Same as above
- Find funding
- Invest in researching best equipment, software, LMS, ...
- Develop pay structure to attract & retain qualified candidates
- Develop internal candidates
- Advertise quality of LMS & equip
- Upgrade cable
- Add wireless hardware to all student and employee systems
- Work with local telecommunications providers for reg impr

- Conduct research
- Develop funding
- Hire best technologists
The process and diagramming were developed primarily using the Alexander & Serfass (2005) book. However, the following bibliography provided me additional food for thought during this course.

Bibliography


M.I.N.D. Lab. Located on the web at http://www.mindlab.org


M.S.U. Virtual University Design and Technology Unit. Located on the web at http://vudat.msu.edu/

Michigan Virtual University. Located on the web at www.mivu.org/
