Course Outline – Sustainable Product and Market Development for Subsistence Marketplaces

Fall 2009
Mondays 5:00-8:00 pm

Course Description
Sustainable Product and Market Development for Subsistence Marketplaces - Students in business, engineering, industrial design and other areas will spend five weeks of virtual immersion in subsistence contexts, including analysis of life circumstances in subsistence through interviews, simulation, and videos, and development of conceptual models of poverty, needs, products, and market interactions. Next, the course will focus on emersion of principles for business and engineering using a rich set of cases and a wide range of guest speakers. Student groups will formed to balance technical and business skills and match interests with our company sponsors. Groups will generate and evaluate a long list of possible ideas, and design market research to be conducted during an optional international field trip over part of the winter break. Students have the option to enroll in a spring course which will focus on taking the product idea to a prototype and a business plan.

This course is differentiated from other courses offered at the university in the extent of experiential learning and in its highly cross-functional nature. It is differentiated from cross-functional experiential new product development courses offered elsewhere in the nation by focusing on products for low-literate, low income individuals in subsistence marketplaces, such as in transitional economies, like India and China.

Background
Recent work has begun to provide broad insight into the role and nature of innovation targeted at the 4 billion living in poverty in the global marketplace, also referred to as the bottom of the pyramid. These subsistence marketplaces have been described in terms of their size and accessibility, with brand conscious, connected customers willing to accept new technology. The literature has emphasized the market development imperative in terms of creation of the capacity to consume, the need for new goods and services, dignity and choice for the poor, and the importance of developing trust between buyer and seller. Several principles of innovation have been discussed including finding sustainable solutions, understanding functionality, innovating with process and deskilling work, educating low-literate consumers, designing for hostile infrastructure, and designing innovative distribution chains. Issues of importance to business research and education about the nature of product and market development for these distinctly different marketplaces will be addressed through our Laboratory Course on Sustainable Product and Market Development for Subsistence Marketplaces.

New product development lab courses are not new; however, what is new here is a course that focuses on developing products and services to serve the needs of those living in subsistence marketplaces. Overlaying the content in a typical new product develop lab course will be a separate module that develops contextual understanding of subsistence marketplaces. This type of immersion in the unique context will set the stage for new product development.
The course spans issues from business to engineering. It covers, at one end, the bottom-up understanding of buyers, sellers, and marketplaces beyond literacy and resource barriers. At the other end, it covers the technologies that could be used to develop innovative products. In between, the course includes issues in product and market development as well as the nature of research methods to employ.

The course will address a number of issues, a few of which are listed as exemplars.

- What are the characteristics of successful and unsuccessful products for subsistence marketplaces?
- How should products be designed for such marketplaces?
- What is the nature of distribution channels for successful versus unsuccessful products?
- How should market research be conducted throughout the new product development process? How should research be designed to obtain feedback about concepts, prototypes, and distribution channels from low-literate, low-income consumers and distribution channel members?
- How do buyers and sellers make decisions and participate in subsistence marketplaces?

**Unique Learning Opportunities**

The unique and pioneering nature of this course lends itself to some learning opportunities for students over and above the content described above.

- An opportunity to compare, contrast, and, therefore, sharpen Marketing skill sets for traditional marketplaces. To enroll in this course, it is not at all necessary that students have clear plans to work in subsistence marketplaces. On the contrary, experience in a radically different context, as different as can be, and comparison and contrast, can serve to sharpen existing knowledge. Lessons learnt for subsistence marketplaces can in turn be applied in other marketplaces.

- An opportunity to contribute to knowledge creation in this area. This is the first course of its kind we know of and there is no book out there. We expect project reports from students to form the basis for future learning material to be disseminated widely through publications.

- An opportunity to broaden one’s perspective across, cultural as well as literacy and resource barriers.

**Place in the Curriculum**

The target students are Master’s students in engineering, marketing and other areas of business (MBA’s) and a few select areas in the college of liberal arts such as cross-cultural psychology, sociology and anthropology. In the MBA program, the courses will count toward concentrations in marketing, and in some other areas.

**Important Administrative Issues**

A number of issues including intellectual property and to internal immersion costs and participation will be discussed in class and will require signed agreements. The actual cost of the field trip to be bourne by students is also contingent on the number of
participants. In providing financial support for the field trip, priority is given to graduate students. However, every effort is made to extend support to all students enrolled in the course. In the event of lack of resources or of sufficient demand, the field trip may be cancelled.

Readings
Cases from the book, Fortune at the Bottom of the Pyramid, by C. K. Prahalad will be used.
Recommended books
- Fortune at the Bottom of the Pyramid - by C. K. Prahalad
- Enabling Consumer and Entrepreneurial Literacy in Subsistence Marketplaces – Madhu Viswanathan, S. Gajendiran, and R. Venkatesan
- Capitalism at the Crossroads – Stuart Hart

Articles on online reserve will be used
Detailed article reading list provided as appendix

Grading
Group Project...................................................... 50%
Class Participation & Assignments........................ 50%

Attendance & Participation
50% of the grade for this class is for participation in in-class assignments and discussions, and tutorials. Therefore, attendance is very important and a necessary condition for participation. Students who do not attend class regularly cannot participate effectively and can easily lose one or more letter grades. In-class work will involve presentations and write-ups of cases and other assignments throughout the semester.

Project
The course emphasizes hands-on experience and applications. Therefore, a sizable portion of the grade is for a project where you will design a new product and develop a sustainable marketing plan. You will work in a group which will serve as a resource for completing several assignments and a final presentation and written report. Each individual's contribution to his/her group will be assessed by peer evaluation. The peer evaluation form is attached to the end of this handout. A deduction in the points earned for group assignments will be made in proportion to the group peer evaluations. This often leads to reduction of an individual's overall grade by one or more letter grades. Free riding will be identified & penalized in this course.

Grading
The two most important aspects for grading are in-class work and participation in the group project. Therefore, lower performance in class work (i.e., missing class-work for more than 1 class) or in participation in group work (as indicated by peer evaluation below 100%) can lead to reduction in overall grade by one or more letter grades.
Part 1 – Immersion

The aim of this part of the course will be to provide an opportunity for students to immerse themselves in the context of subsistence marketplaces through cases and findings from research. Whereas the field trip will provide an opportunity for actual immersion, the first 5 weeks of the course will attempt to create a learning environment to simulate such immersion.

Week 1 (Aug 21)  Orientation/Introduction to the Course
Group Formation Exercises
Poverty Simulation – Robin Orr, Cooperative Extension,
University of Illinois

Week 2 (Aug 31)  Understanding the Subsistence Context – Individuals,
Groups, and Society
Analysis and Profile of Interviews and Videos

Week 3 (Sep 14)  Understanding the Subsistence Context – Individuals,
Groups, and Society
Analysis and Profile of Interviews and Videos
Developing Conceptual Models of Poverty
Guest speaker

Week 4 (Sep 21)  Understanding the Subsistence Context –
Products and Markets
Analysis of Interviews and Videos
Developing Models of Needs, Products, and Markets
Guest Speaker

Week 5 (Sep 28)  Understanding the Subsistence Context - Summary
Comparisons and Contrast of Literacy and Poverty in
the US versus India
Readings:
Viswanathan, Madhubalan, Jose Antonio Rosa, and James
Harris (2005), “Decision-Making and Coping by
Functionally Illiterate Consumers and Some Implications for
and Market Interactions in Subsistence Marketplaces: A
Study in South India,” in Product and Market Development
for Subsistence Marketplaces: Consumption and
Entrepreneurship Beyond Literacy and Resource Barriers,
Editors, Jose Rosa and Madhu Viswanathan, Advances in
International Management Series, Joseph Cheng and
Part 2 – Emersion

The aim of this part of the course is to extract general principles on buyer and seller behavior, market research, and the marketing mix elements for subsistence marketplaces while contrasting them with traditional marketplaces.

Week 6 (Oct 5)  Product Design Primer
Guest Speaker

Week 7 (Oct 12)  Technology
Assignment - Case – ITC e-Choupal
Group Projects – Idea Generation

Week 8 (Oct 19)  Products and Distribution
Assignment - Case – Annapurna Salt
Understanding the Subsistence Context - Implications for Market Research
Guest Speaker
Group Projects – Idea Generation

Week 9 (Oct 26)  Promotion and Pricing
Assignment - Case - Lifebuoy Soap
Group presentation of ideas
Group Projects – Idea Screening and Evaluation

Week 10 (Nov 2)  Marketing and Market Research
Group Projects – Idea Screening and Evaluation

Week 11 (Nov 9)  Marketing and Market Research
Group presentation of idea screening and evaluation
Group Projects - Idea Screening and Evaluation and Development of Market Research Instruments

Week 12 (Nov 16)  Marketing and Market Research
Group presentation of market research plans
Group Projects – Idea Screening and Evaluation and Development
Week 13 (Nov 28)  
Field Trip Planning and Orientation
Group Projects - Development of Market Research Instruments

Parts 1 and 2, immersion and emersion, will lay the foundation for students to embark on specific product and market development research projects.
Optional Field Trip – 10 day trip between December 26 – January 15 (approximately)

Trip Objectives and Plans

Immersion in subsistence marketplaces through first hand observation of the influences of poverty, literacy, and culture

- Individual and group interactions in urban and rural settings
- Observations in urban and rural settings

Learning about a diverse set of organizations and their initiatives in subsistence marketplaces

- Field trips to observe profit and non-profit organizations

Market research for projects

- Individual and group interviews in rural and urban settings
  Discussions with company sponsors regarding projects

Option of registering for Spring Course – Sample Schedule and Topics are in the Appendix
Assignments

**Immersion**

In this part of the course, there will be a number of individual assignments. Using materials such as poverty simulations and interviews, students will write first-person profiles of individuals in poverty, draw broader impressions about living in subsistence, and build conceptual models of poverty and related factors and behaviors. A broader appreciation of lives and living in subsistence will then be followed by a focus on the economic realm. Students will use interviews to derive the set of needs, products, and markets for individuals living in subsistence.

**Emersion**

In this part of the course, each group will be assigned to lead the discussion on two cases. Their responsibility will be to distribute broad discussion questions and lead the discussion. The other groups will submit write-ups. These write-ups will be due before class on the day of the case and with a maximum limit of 2 single spaced pages. The write-ups as well as the class discussion will assume thorough knowledge of the case and focus on analyzing the material and not on describing the facts available in the case. As is clear from the nature of the assignments, everyone is expected to have carefully read each case and analyzed and discussed it with their group members. Each group will appoint a leader for each write-up whose name will be listed in the assignment. Everyone in the group will have a turn at being the leader, who will be responsible for consolidating the discussion.

The analysis of each case will focus on the following issues:

- **Needs and Consumer Behavior**
  - Specific need being served
  - Relevant consumer behaviors
  - Product and market context
  - Larger context of life circumstances

- **Market Research**
  - Examples of methods used
  - Suggestions for methodological improvements

- **Management and Engineering Issues**
  - Technology
  - Products
  - Distribution
  - Promotion
  - Pricing

- **Recommendations for Product and Market Development for Subsistence Marketplaces**
  - Specific lessons learnt for group project
Group project

Group Formation

The aim of this stage is to enable interactions between students and allow for the formation of a group with balanced functional skills and interest in the project topic.

Week 1 - Group Formation Exercises

Week 4 - Group Formation

Idea Generation

The aim of this stage is to generate a wide range of ideas, essentially erring on the side of inclusion. Brainstorming sessions and focused meetings to which students bring a set of ideas are suggested approaches. This stage can be facilitated by reviewing video and interview based material to consider needs and ways to address them, a market based approach. Alternatively, technologies can be considered that could lead to innovative product ideas. Groups will be asked to summarize their discussions to the rest of the class.

Week 7 - Group Projects – Idea Generation

Week 8 - Group Projects – Idea Generation

Idea Screening and Evaluation

In this stage, the list of ideas are narrowed carefully to a smaller list. Each idea is carefully considered and the group decides on one at the end of this process. Groups will be asked to summarize their discussions to the rest of the class.

Week 8 - Group Projects – Idea Generation, Screening and Evaluation

Week 9 - Group Projects – Idea Screening and Evaluation

Week 10 - Group Projects – Idea Screening and Evaluation

Development of Market Research Instruments

The aim of this stage is to develop qualitative and quantitative market research instruments that are ready for use during the field trip.

Week 11 - Group Projects – Idea Screening and Evaluation and Development of Market Research Instruments

Week 12 - Group Projects – Idea Screening and Evaluation and Development of Market Research Instruments

Week 13 - Group Projects - Development of Market Research Instruments
Confidentiality and Intellectual property are handled in a straightforward manner for the purposes of this product and market development course. In order to provide relevant, real world opportunities for students, the professors have sought out corporate sponsors who have agreed to work with the students and the University on selected projects course. As a condition of their participation, such corporate sponsors often require that they maintain **ownership and control** of the resulting student solution and intellectual property. They also require strict confidentiality. Students electing to work in this course will be asked to sign documents that indicate the student’s acceptance of these terms, as a condition of participation in this course.

It is important for the students, the advisors, and the corporate sponsors to have a complete understanding regarding confidentiality and the handling of intellectual property considerations for projects offered in this course.

**Ownership:**
Under the University’s *General Rules*, The University owns intellectual property developed by anyone using University resources, facilities, funds and equipment. Intellectual property developed in this class utilizes significant University resources to support the projects and the trip to India and is owned by the University. Corporate Sponsors often require assignment of the Student’s intellectual property as a condition of their participation and sponsorship in this course. In 2001, the University decided to facilitate such interactions and support the required transfer of ownership to the corporate Sponsor, either directly between the Students and the Sponsor, or through the University.

**Confidentiality**
Attached is a simple student non-disclosure agreement (NDA). It is structured to cover (1) all information disclosed by the companies to the students and (2) all information and results generated by the students during the course of their projects. The reports generated by the students are kept strictly confidential, and are released only after receiving written permission from the original sponsoring company.

**Agreements**
Each student participating in this course is expected to sign either (a) the confidentiality and acknowledgement of University ownership documents such as attached or (b)

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1 In order to support the company’s needs and encourage interesting corporate projects, a few years ago, the Urbana Campus Vice Chancellor decided that, as an exception to the University’s General Rules, the University would not claim an ownership interest in the students’ intellectual property developed in such student class projects, as long as there was only minimal use of University resources. This exception enabled the student to work directly with the company, just as the student would under a consulting arrangement, and to sign the required company documents.
confidentiality and ownership documents provided by the company. The documents required for each project will be available prior to election of the projects but must be signed prior to first team meeting or visit to the sponsoring company. If you have questions or concerns about signing such documents, please contact the Course Chairman or the Faculty Director.

**Inventions**

In such an event that the student team’s solution appears to be patentable, the student should talk to the Faculty Director to determine ownership and subsequent next steps. Teams should be aware the projects are to be their own original independent work. Project solutions should not be based on preexisting University intellectual property rights or of intellectual property rights of others.

Please contact the course Chairman or the faculty director for further details. As intellectual property encompasses more than just inventions, (such as the copyright in your reports), please feel free contact us if you have questions. We can schedule times for representatives from the OTM to come to our classes and to be available for questions.

John Clarke,
Course Chairman

Madhu Viswanathan
Faculty Director
NONDISCLOSURE AGREEMENT
For Sustainable Product and Market Development for Subsistence Marketplaces Course

CONFIDENTIALITY:
By my signature below, I confirm my obligation to keep confidential certain proprietary information, as described below, that I may receive or have access to in connection with my performance of the work required for the above-referenced course during the period of September, 2007 to June, 2008.

Confidential Information shall include:
(1) Business and technical information disclosed by Corporate Sponsors for my Project or for any of the Class Projects
(2) My Project results and reports (unless specific permission is obtained for release to third parties) and other student class results and reports

I agree that all Confidential Information shall be maintained in trust and confidence and shall not, directly or indirectly, be disclosed, except as permitted under this Nondisclosure Agreement. I also agree to use all reasonable diligence to prevent disclosure of the information to any third party that is not under an obligation of confidentiality with respect to such Confidential Information to the University or to Corporate Sponsor and to refrain from using the Confidential information for any purpose other than for this Class.

I understand that I do not have any obligation of confidentiality with respect to any information that:

(a) Was already in my possession on a non-confidential basis prior to receipt from the University; or
(b) Is in the public domain by public use, general knowledge or the like, or after disclosure hereunder, becomes general or public knowledge through no fault of mine; or
(c) Is properly obtained by me from a third party not under a confidentiality obligation to the University; or
(d) Is explicitly approved for release by written authorization of the University.

I understand that my obligations under this Nondisclosure Agreement will continue after this class has ended.

ACKNOWLEDGED AND AGREED:

_______________________________________________
_________________
Date
ACKNOWLEDGEMENT OF ASSIGNMENT OF INTELLECTUAL PROPERTY
For
Sustainable Product and Market Development for Subsistence Marketplaces

ASSIGNMENT OF INTELLECTUAL PROPERTY
The General Rules Concerning University Organization and Procedure, can be found at http://www.uillinois.edu/trustees/rules.cfm.

Article III, Section 5 of the General Rules covers ownership of intellectual property.

“Except as otherwise specified in this Article or by the University in writing, intellectual property shall belong to the University if made: (1) by a University employee as a result of the employee’s duties or (2) through the use by any person, including a University employee, of University resources such as facilities, equipment, funds, or funds under the control of or administered by the University.”

This course, including the trip to India, was developed with, and is offered to Students through the use of significant University resources. Therefore, the University owns the intellectual property, such as the inventions resulting from your work in this Project.

I agree, upon request, to execute an assignment document transferring ownership in such intellectual property to the University.

ACKNOWLEDGED AND AGREED:

_______________________________________________

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Date
Course Agreement

This is to state that, by enrolling in this course on Product and Market Development for Subsistence Marketplaces for 2009-10, I agree to abide by all the rules and procedures described in the course outline and explained during communications about the course in the preceding semester and during the first class by Professor Madhu Viswanathan. These rules and procedures include but are not restricted to those relating to intellectual property, grading, and participation in the field trip.

Name ___________________

Signature ______________________

Date______________
Appendix – Sample Schedule and Assignments for Spring Follow Up Course

Spring Course Schedule
Monday – 5:00-8:00 pm

The aim of this part of the course is to develop an understanding of a systematic and structured approach for designing sustainable products and developing business plans that address the issues of economic, social and ecological sustainability. This project-based course will serve as a capstone experience in business and engineering that incorporates issues of sustainability at the intersection of these two areas. It will cover conceptual design, system (architectural) design, detailed design, cost modeling, and testing & prototyping methods. In addition, it includes writing project mission statements, business plans, and other related topics at the intersection of business, design, and engineering. The course will overlay traditional product design and business plan development with topics covering sustainable product design, sustainable supply chain management, and design and communication of sustainable value propositions.

The course is a project based experience that will draw from two sets of students. Students who enrolled in the course on sustainable product and market development for subsistence marketplaces in Fall can continue with this course, building on concepts developed in Fall and refined during the international immersion trip over winter break. Students interested in sustainable product design and business plan development may enroll for the spring course as a stand alone learning experience, including second year MBAs students and MS Tech students. (Some of these students would have been introduced to the topic through a first year MBA course entitled Sustainable Marketing Enterprises.) For such students, project topics will be chosen that provide opportunities with local entrepreneurs and larger companies. Thus, the course provides an opportunity for learning about sustainable product design and business plan development in resource-rich and resource-poor contexts.

This course together with other current offerings, aims to provide a set of learning experiences for graduate students in business and engineering that lead to integrative understanding of the central role of sustainability and the challenges and opportunities in this arena.

Week 1 (Jan 26)  Introduction to the course
Semester Overview
Debrief of International Immersion for students from Fall course
Brainstorming of project ideas

Week 2 (Feb 2)  Guest Speaker
Project Team Presentations of possible ideas – (5 min per team up to 15 min discussion)

Week 3 (Feb 9)  Overview of product development
Concept generation and selection
Overview of Market research for concept testing
Student presentation of 3-5 Concepts
Reading on concept generation and selection (Ulrich and Eppinger, 2008)
Week 4 (Feb 16)  Customer needs and engineering specs
Student presentation of criteria and narrower set of concepts
Assignment to develop detailed design/specs
Reading on customer needs and engineering specs (Ulrich and Eppinger, 2008)

Week 5 (Feb 23)  Conceptual Design, Prototyping and Testing
Recommended Reading: Frontier Design: A product usage context method," ASME paper by Green et al. 2006
Reading on prototyping (Ulrich and Eppinger, 2008)
Student presentation of chosen concept and results from concept testing

Week 6 (Mar 2)  Sustainable product design (Design for replacement, Design for longevity
Dematerialization)
Overview of product testing

Week 7 (Mar 9)  Product testing

Week 8 (Mar 16)  Midterm Presentations
Faculty Consulting & Team Meeting
Detailed Design Due – PowerPoint presentation and a written report

Week 9 (Mar 23)  Spring Break

Week 10 (Mar 30)  Financial Modeling and Sustainable Business Plans

Week 11 (Apr 6)  Designing Sustainable Supply Chains

Week 12 (Apr 13)  Designing and Communicating Sustainable Value Propositions
Sustainable Business Plan Development
Financial Modeling and Manufacturing Plan Due

Week 13 (Apr 20)  Faculty Consulting Sessions

Week 14 (Apr 27)  Final Business Proposal Presentation walk though

Week 15 (May 4)  Final Business Proposal Presentations
(Last Class Session)
Written Detailed Business Plan, Prototype, and Engineering Plan
due May 8 by noon
Peer evaluations due May 8

Several guest speakers have been invited to present.
Text and Readings

Chapters from the Ulrich and Eppinger text on product design will be used as readings along with articles available on online reserve.

Articles and cases on online reserve will be used.

Case Studies

In this part of the course, each group will be assigned to lead the discussion on two cases. Their responsibility will be to distribute broad discussion questions and lead the discussion. The class discussion will assume thorough knowledge of the case and focus on analyzing the material and not on describing the facts available in the case. As is clear from the nature of the assignments, everyone is expected to have carefully read each case and analyzed and discussed it with their group members.

The analysis of each case will focus on the following issues:

- Needs Assessment
  - Specific need being served
  - Relevant consumer behaviors
- Technology Appropriateness
  - Why is the technology appropriate & how does it work
  - Suggestions for improvements
- Engineering Issues
  - Product Design: comment on design and its innovation
  - Industrial Design: comment on design and its innovation
  - Manufacturing Technology: explain and comment
- Recommendations for Design & Development for Subsistence
  - Specific lessons learnt for group project

Grading

Group Project...................................................... 50%
Class Participation & Assignments......................... 50%

Attendance & Participation

50% of the grade for this class is for participation in in-class assignments and discussions, and tutorials. Therefore, attendance is very important and a necessary condition for participation. Students who do not attend class regularly cannot participate effectively and can easily lose one or more letter grades. In-class work will involve presentations and write-ups of cases and other assignments throughout the semester.

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Grading
The two most important aspects for grading are in-class work and participation in the group project. Therefore, lower performance in class work (i.e., missing class-work for more than 1 class) or in participation in group work (as indicated by peer evaluation below 100%) can lead to reduction in overall grade by one or more letter grades.

**Group Projects deliverables and deadlines**

**Mission Statements, Business Plan & Project Schedule**

At this stage, the project team delivers its missions statement and preliminary business plan. This includes figuring out the purpose of their existence as a start-up company, identifying major stakeholders, target markets, and milestones.

**Conceptual Design**

The aim of this stage is to develop sketches of the one or two most promising alternative solution concepts.

**Detailed Design**

In this stage, your conceptual design is to be detailed by providing detailed drawings, engineering specifications, material selection, and preliminary cost analysis.

**Financial Modeling and Manufacturing Plans**

**Development of Prototype and Business Plan**
Appendix

Relevant Readings on Subsistence Marketplaces²

Understanding Low-Literate Consumer Behavior – Weeks 1-5


Understanding Subsistence Marketplaces – Weeks 1-5


Viswanathan, Madhubalan, Srinivas Sridharan, and Robin Ritchie ““Resource-Poor, But Network-Rich: Understanding Consumers and Entrepreneurs in Subsistence Marketplaces”.

Research Methods in Subsistence Marketplaces


Product Development for Subsistence Marketplaces


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² As this is a nascent area and we have pioneered research in it at the University of Illinois, most of the readings are from our work.

Viswanathan, Madhubalan, and Srinivas Sridharan “Sustainable Product Development for Subsistence Marketplaces”.


**Relevant Readings on Product Development**


Urban, Glen L. and John R. Hauser. "Ch. 9: Customer needs and perceptual mapping:


**Relevant Readings on Marketing and Management for Non-Business Students**


