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DESIGNING MULTIDISCIPLINE CASES

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Abstract

By developing one overall multidiscipline case for one or several courses in an academic program, different learning challenges from multiple disciplines can be addressed in order to enhance the total learning goal. To achieve a learning goal, a generic case could be designed to bridge different disciplines in a systematic way. The important challenge is to design the case, which in its content as well as format, addresses the goals of the course and eventually also the objectives of the program as a whole.

This paper addresses how to design such an overall multidiscipline case. Six design dimensions are identified to use when designing, producing, testing, and using a case of any type. The design is seen as an overall learning experience, which simultaneously encompasses three aspects. First, the learning experience must start with an understanding of student knowledge levels in the different disciplines. Second, the faculty of the disciplines must articulate what kind of learning goals they would like to achieve with the different courses. Third, the case should address the objective(s) of the course both in its content and working (i.e. pedagogical) formats.

Only when the three areas of student learning, faculty learning, and subject are intertwined, will the best learning arena be created. A generic case could be a valuable tool in supporting more holistic and reflective learning.

KEYWORDS: Multiple discipline learning, design of overall cases, case construction process, bridging disciplines, bridging academy and industry, holistic learning

INTRODUCTION

When a course or a whole program is designed, three aspects should be considered − student(s), faculty, and subject. The subject could be divided into a) the content (e.g. what issues should be dealt with) and b) the format (e.g. pedagogical framework; for example a business case) that the University uses to create an overall learning arena. These aspects must be utilized together as a whole, when designing a learning situation.

The learning experience must start with an understanding of the student's knowledge levels of the different disciplines. It is from this understanding that the students form their individual learning experience. In addition, their expectations must be articulated and then managed by themselves and the faculty. The faculty of the involved disciplines and subjects must articulate what kind of learning goals they would like to achieve with the different courses and academic curriculums. As mentioned, the learning goal must include a deep understanding of student's previous knowledge of the different

disciplines and subjects that are addressed. The subject or discipline should be divided into the content and the format. This paper is the development of one case study to use across multiple disciplines, which will address the areas of student learning, faculty learning, and learning with cases.

LEARNING FROM THE STUDENT PERSPECTIVE

In order to understand a case as a vehicle to learning, it is important to understand the learning phenomena from the perspective of the student. Saljo [1979] carried out a study that led to five different understandings of what learning consists of among adults. The answers were classified into five categories:

1. Learning as a quantitative increase in knowledge. Learning is acquiring information or "knowing a lot".
2. Learning as memorizing. Learning is storing information that can be reproduced.
3. Learning as acquiring facts, skills, and methods that can be retained and used as necessary.
4. Learning as making sense or abstracting meaning. Learning involves relating parts of the subject matter to each other and to the real world.
5. Learning as interpreting and understanding reality in a different way. Learning involves comprehending the world by reinterpreting knowledge.

Ramsden [2002] evaluated these learning categories and refined them into two groups − external and internal. The first three categories he considers to be focusing on an "external" and less complex view of learning. The final two categories address a more "internal" (i.e. personal) aspect of learning. Learning is here viewed as something you as an individual do to comprehend the outer reality.

LEARNING FROM THE FACULTY PERSPECTIVE

To understand the learning and the outcomes of learning in universities and higher education, it is important to understand the learning phenomena from the perspective of the members of the university especially the faculty. Lecturers expect students to expand and sometimes fundamentally change their knowledge (i.e. understanding) of a discipline and a subject under study. By designing a course or several courses in a program with category four and perhaps five [Salsjo, 1979] in mind, a more lasting and deeper level of knowledge and competence of the subjects under study could be achieved. Learning is really about changing the view of reality and therefore both the students view and faculty view of a learning situation could be contrasted and debated.

The definition of learning follows the one first put forth by Marton [1988] and then further elaborated by Ramsden [2002]. In order to understand how students learn, faculty could consider the concept of different approaches to learning as presented by Marton [1988]. In his model of logical structure of approaches to learning, he divides learning in the *what* (i.e. content) and *how* (i.e. format) aspects. The what/content is concerned with the meaning of the subject and the how/format is presenting the structural aspects (the act of experiencing, of organizing the learning process).

The two main aspects are each divided into two sub aspects. W*hat* is divided into deep and surface learning. Deep learning focuses on what the course subject is about and surface learning focuses on the separate "signs", for example the word-sentence level of a text in an assigned literature. *How* is divided into holistic and atomistic learning. Holistic learning preserves the structure, focusing on the whole in relation to the parts, and atomistic learning hinders a more holistic learning by focusing on the parts.

Ramsden [2002] defined learning as:

"…a change in the way we conceptualize the world around us. According to this way of looking at learning, a conception of an aspect of subject matter can be thought of as a sort of *relation* between a person and a phenomenon…a conception is not a stable entity within a persons mind; it is a way that the person relates to the world outside the person. The "world outside" includes the subject matter of academic disciplines: the principles and concepts the discipline uses to explain phenomena and ideas, and its characteristics ways of discovering and explaining. When we talk of a student understanding something, what we are really saying is that she or he is capable of relating to a concept or topic in the way that an expert in that subject does".

This means that faculty and experts in our different academic disciplines must find the "right and best" ways of addressing and communicating each special field of expertise with other faculty members representing other disciplines in the overall case. Hopefully, this should result in a coordination of mutual learning goals being addressed across different courses for example of one academic program.

LEARNING WITH CASES

The authors of this paper have, at different universities in USA and Sweden, taught and researched in the areas of Economics and Management. National Louis-University, established in 1886 and headquartered in Chicago, Illinois, provides degree completion field programs in Tampa, Florida, USA. The University consists of three colleges, and Dr. Paula Jordan is an Associate Professor in the College of Management & Business (CMB).

Lund University, established in 1666 and situated in Lund, Skane in the south of Sweden, consists of a large multiple of colleges. Carl-Johan Asplund, Associate Professor, is a faculty member of both the Lund Institute of Technology and The Executive Foundation at the School of Economics and Management.

One of the main vehicles for enhancing learning at both institutions has been the use of the case method. Leenders and Erskine [1989], discuss what constitutes the case method. It originated at the Harvard Business School in 1909 when managers from different companies united to discuss the various dilemmas they faced. Students followed-up with discussion regarding these dilemmas, they wrote an analysis of the business situation, and gave recommendations for action. The first book on the case method was written in 1921 by Copeland [Leenders & Erskine, 1989].

A precise definition of the case method is given by Gragg [1954].

> The case method is … "A method of instruction in which students and instructors participate in direct discussion of business cases or problems. These cases, usually prepared in written form and derived from actual experience of business executives, are read, studied and discussed by students among themselves, and they constitute the basis for class discussion under the direction of the instructor. The case method, therefore, includes both a special type of instructional material and the special techniques of using that material in the instructional process"

The abovementioned authors use the case method in a similar way as Gragg [1954] and incorporate, in addition to the executive perspective, perspectives from other internal and external stakeholders on a business situation. By bridging these perspectives in the overall case, important and often very problematic and conflicting views can be addressed on the current business situation(s).

The overall case becomes a vehicle in creating a learning arena between the student's perspective and the instructor(s) perspective. The multidiscipline business case could therefore serve as an advanced communication and learning tool in the process of developing alternative, and sometimes new, interpretations and understandings of the business situation under study. For example, the students could experience the concept of strategy from first the marketing view and then enrich their understanding by adding strategy from the perspective of Economics. The instructor(s) could intervene in the case learning process by bridging the facts, knowledge and issues from other related disciplines with the purpose of providing the students with a deeper level of knowledge to complete a more holistic assessment of the current business situation.

DESIGNING AN OVERALL CASE

In order to achieve a learning goal, a generic case could be designed which bridges together the different disciplines in a systematic way. The important challenge is to design a more generic case, which in its content as well as format, addresses the purpose and goals of the course and eventually also the objectives of the program as a whole. Six design dimensions are presented for use when designing, producing, testing, and using a case study as discussed in this paper. These design dimensions can be used for any type of case study. The *six design dimensions* are as follows:

1. Articulate and decide on the purpose and learning goals of the course and/or academic program.

2. Organize the overall case structure. Here we use the case difficulty cube method developed by Leenders, M.R, Muffette-Leenders, L.A and Erskine, J.A [5]. This model is used for designing, collecting and communicating the case logic to the students, the company (if they want to be involved), and the faculty members.
3. Contextualize the case. This includes the selection of an appropriate company or organization for the discipline under study, including both the societal and business environments of the focal company or organization.
4. Design a logical database and construct the case for the storage and use of the collected and developed data material. Company and societal facts should be checked and confirmed by different stakeholders for the use at the university. A fictitious case or sections could also be developed and incorporated in the database and case.
5. Prototype the case (i.e. pretest the case). Here the developed case is tested both in the student context and in the faculty context. The case is debated and eventually altered and/or refined.
6. The final version of the case be written and applied in a learning situation.

The second design dimension, organizing of the overall case structure, was presented in a previous paper (Asplund & Jordan, 2004). This paper presents the whole framework for designing a multidiscipline case.

SIX DESIGN DIMENSIONS

The *first design dimension* focuses on the purpose of the case (i.e. the function that the case serves as a learning vehicle in, for example, a course and/or executive training seminar). Here the faculty articulate, discuss and decide on the main purposes and learning goals of the course and/or program. Some important issues to consider are:
a) Selection of the case and the case method to appropriately promote and support the learning goals in the course or program;
b) That key questions are addressed in the case (see also the analytical principle in the case difficulty cube developed by Leenders, Muffette-Leenders, & Erskine);
c) That the key disciplines are included in the case;
d) That the full commitment and cooperation from all participating faculty members is obtained.

The structure of the case is the *second design dimension.* Focus is on how to organize the overall case structure. This second dimension is very important because it serves several functions. It gives content to the actual design of the case and at the same time it acts as a learning/communication tool with and between the participating stake holders; faculty members from different disciplines and individuals from an organization or business firm.

The case difficulty cube method developed by Leenders, M.R, Muffette-Leenders, L.A, and Erskine, J.A [1997] is used for designing, collecting and communicating the case logic to the students, the company (if they want to be involved), and the faculty members. In Muffette-Leenders, Erskine and Leenders [1997] they describe designing the case with three main "principles" − Analytical, Conceptual and Presentation.

The Analytical Principle focuses on what the student or participant should do in relation to the case. Often the participant is placed in a role as a decision maker required to make a decision within a limited range of options. The analytical task(s) of the case range(s) from three different degrees of difficulties starting with evaluating a business decision to a situation where the student/participants themselves assess the situation and identify problems, issues and challenges.

The Conceptual Principle focuses on the student's and participant's application of theory, models, and concepts to a situation in the case; i.e. problems, focal issues and different challenges. These theories can come directly from textbooks in the actual course, from earlier courses, or from current theories in use that the participants are facing in their daily work. This principle could be also be used to determine different degrees of difficulty starting with the application of a single theory or concept to the identification of one or several theories or models. This could then be integrated into an overall framework for a deeper understanding of the issues under study.

The Presentation Principle focuses on the format of the case. This format can range from a short, well-organized case to a semi-organized case, sometimes including irrelevant material and missing pieces of information. The case could be two to 30 pages in length. In the classroom situation, shorter cases are often used, due to the limited amount of time available for case seminars. It is proposed that when faculties decide to apply the method of the overall case, they should start with the understanding of the case difficulty cube. There is much knowledge about the case difficulty cube developed by Leenders and Erskine, 1989.

By adding a fourth principle, called the Purpose of the Course or Whole Program, a deeper, in-depth analysis can be achieved. This principle centers on Martons [1988] two sub aspects of learning, i.e. the what and how aspects. Before constructing the overall business case, all faculty should bridge (and debate) the "what" and "how" aspects of the course and program in order to design the actual overall business case.

Of course, in practice, there will be an ongoing repetitive process between all four principles during the case construction phase, the application phase and the evaluation phase. The "emerging goal" would be promoting and communicating the multiple learning qualities of the overall business case in addressing the different disciplines in a holistic way. By designing an overall business case, a "how" vehicle can be developed that supports the holistic learning mode among students as well as faculty, focusing on the whole in relation to the parts of the subject and discipline. Learning is here viewed as an ongoing process that means relating parts of the subject matter to each other and relating both to the individual and the hers and his outer context(s).

The *third design dimension* determines to what extent the context(s**)** of the studied firm or organization should be included in the case. This is of considerable importance in the understanding and solution of the key issues and in attaining a fuller view (i.e. system view) of the situations addressed in the case. In the context of the case, this should preferably include both the societal and business contexts of the company or organization. In the societal context, driving forces such as political, economical, cultural, and technological are included in the analysis. In the business contexts suppliers, customers, competitors and new entrants (new competitors) that want to participate in the industry under study are included. These different kinds of contexts interact and mutually affect each other.

If a case is chosen to be placed in an actual company (a fictitious company can be used) the selection of an appropriate company or organization for the disciplines under study is very important. There is a growing interest from organizations and firms to actively participate in this kind of cooperative project between industry and academy. It is very important to involve the organization or company and their contact persons from the start of the case construction process. Considerable data is gained by this approach which can be used in identifying current key issues used in the case. The case project can prosper from the growing engagement and involvement of all participants. In the case construction process, new data and insights can be obtained if the industry and academy representatives engage themselves in co-production and see themselves as an integrated team.

Design of a logical database for the storage of the collected and developed data material is the *fourth design dimension.* Database refers to both the case itself and the actual storage of the data that constitutes the case. Occasionally all data is used and at times some of it is stored for later use. The most used process is the written case format in a document with or without exhibits, figures or/and pictures. Here, the best format for the target group should be used. Mainly working with classical cases, the short written format with a case ranging from three to eight pages is best. Often the participants have read the case in advance so that key questions/issues presented in class can be discussed in depth in a face-to-face setting. In the near future, more multimedia case formats can be used, for example a combination of written text on paper, movies and sounds downloaded from the internet or external media sources ranging from newspapers to Internet homepages.

The faculty prepare seventy percent (70%) of the case including the questions, and the participants prepare thirty percent (30%) by getting additional data to be used in solving the key questions. It is also very important that the representatives of the organizations and firms clarify and confirm all data used. All societal and industry facts should be checked and confirmed by different stakeholders for the use in both organizational and academic contexts. A fictitious case or sections could also be developed and incorporated in the database and case.

The *fifth design dimension* is to prototype the case (i.e. test the case). Here the developed case is tested in both the student and faculty contexts. This could first be done using a voluntary group of

students and/or executive participants in order to get an understanding of the case as a learning vehicle where both its technical and pedagogical qualities are evaluated. A learning tool that could be used is to evaluate the individual participant's expectations *before* using the case, and then do the same evaluation *after* the case seminar. By doing this, personal statements and group reports can be obtained in the discussions afterwards. The faculty who act as case teachers should complete the same evaluation procedure. By comparing these two evaluations from students and faculty, much new material and insights can be gained. The case version is then discussed and eventually altered and/or refined.

The *sixth design dimension* calls for the final version of the case to be written and applied in a learning situation. The case should, once more, be "quality certified" from the perspectives of all included disciplines and their faculty members so that a right balance is given among these in order to address the key issues in the case. If the same multidiscipline case is used in an entire academic or executive program, for example among business administration or engineering students, the same case can be applied several times, and by different disciplines to highlight different perspectives in a decision-making situation.

CONCLUSION

When designing teaching cases, it is of the utmost importance that each discipline's view articulates what kind of knowledge and competences they would like to achieve in individual courses and in the program. A well-coordinated faculty within a college/university and/or university department should address both what (i.e. content) and how (i.e. the pedagogical format) the discipline could/should be delivered. In order to enhance a more holistic learning among students and other participants, the designing of a generic, overall case, which bridges together the different disciplines in a systematic way by using the *six design dimensions,* should be used.

Academic learning that takes into consideration several pieces of data coming from different stakeholders perspectives could help the student to become more aware and constructively critical in addressing a challenging business situation. The design of the overall case should address in its content, as well as format, the goals of the course and eventually the objectives of the academic program as a whole.

Bridging here also includes articulating different stakeholders' perspectives in addressing important, and often very problematic and conflicting, views on business situation(s). One key factor in designing the overall business case is the cooperation and eventually the co-production between the students, the organizational representatives, and the faculty members. This dimension rests on the belief that faculty are of the utmost importance in leading the case production process towards the end result which is a well-designed multidiscipline case.

By bridging multiple disciplines through the use of one business case, the designing, production, and use of such a case could also function as a high speed and holistic communication and learning vehicle. Such a vehicle could engage students (and faculty) to reflect, interpret, and reach a fuller understanding of business and societal realities in multiple ways. By presenting challenging and complex issues in the different business and non-business contexts through the use of one case, the students, company, and faculty as a team could improve and enrich the current knowledge base of a subject and discipline. Hopefully, this can also support the university's effort to create a holistic view of the professions that students aim for, while simultaneously upholding an academic reflective mind. New working formats are needed to bridge the two complementary worlds of academy and industry. Perhaps a multidiscipline case can be that kind of bridge.

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