Systems Analysis with attitude!

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Abstract

Have you ever been overruled by your students in critical decisions relating to their learning? Have you ever attended your own classes as a guest consultant with pre-defined scope of input? Have you ever suffered from the fact that each student is different, and you have a standard program for all? Have you ever empowered your students, and watch them exceed your expectation? The only important question is whether you have the courage to throw out your safety nets and Do It. For those who are looking to be involved in an exciting, challenging, stimulating and rewarding teaching exercise, Systems Analysis with attitude is definitely it. Interested! We were too when we attempted this experiment that we do recommend to collegues in this always-evolving analysis discipline.

1. Introduction

The analysis exercise of an information system is a complex, challenging and stimulating organisational process that a team of trained business and systems professionals undertake when studying a business problem or an opportunity. Although advances in information technology continually give us new capabilities, the analysis of information systems is driven from an organisational perspective. An organization includes information business planning, information management and people issues as well as information technology elements.

An important educational objective in information systems analysis is to develop students with keen problem-solving abilities. This can be difficult to achieve in the traditional tutorial format where complex problems require a more open ended problem-solving approach, and where the integration of knowledge from different subjects may also be required.

All too often, graduates enter the work force unaware of the nature of the work and organisational environment and semi or ill equipped to respond appropriately. They need opportunities in industry and commerce. Schemes, which provide linkages between industry and tertiary educational institutions, where students can obtain real-life experiences, are invaluable. As well as providing problem solving and practical analysis training, such schemes also provide students with an awareness of the interface that exist between the values and needs of the workers and the dynamic nature of the work environment.

2. Our experience

The necessity for providing experiental learning has long been recognised by the academic team in the School of Business Information Technology at RMIT University. The Systems analysis course is offered as a single semester course to students in the Business Faculty. Our three objectives in delivering the course were:

- To promote analysis and problem solving techniques using the systems approach
- To develop skills for working in teams; and
- To enhance communication skills which involved a symbiotic relationship between the content and the process.

The participants are students from various business disciplines (business computing, business administration, marketing, library and information management, logistics, accounting …etc). Enrolments numbers vary from 100 to 170 students. The course was delivered in a 3 hour per

week block, over 12 teaching weeks, in class sizes (preferably) no larger than 25 students.

In the past, delivery of the course has tended to be in the standard (one-hour lecture followed by a 2 hours tutorial session) format with students forming small syndicate groups (4 students) for the semester to complete two assignments and an end of semester examination. Feedback on the course has been varied from *"I see its value for business"* to *"I never want to do this again"*.

Traditionally, practical based subjects, like systems analysis, were a labour intensive and expensive way of teaching. A three-hour practical session would take a full day to prepare, and another half of day to re-evaluate. Also, the practical tutorials were recipe type driven and discouraged deep critical and imaginative thinking on the part of the students. The most difficult concept to impart was, that understanding individual analysis and modelling facts, are, as good as, understanding how they work together in a system. This holistic approach was very difficult to foster in students who only needed to memorise isolated facts to pass their assessment.

During the second semester of 1998, the Systems Analysis team decided to try a new approach. This eventually resulted in very positive feedback from students at the end of the course. Comments included: *"Very hectic, busy, pressured, yet exciting and fun – an exhilarating time"*, *"Systems Analysis is an interesting course to learn and the way it was taught was even more interesting"*, *"Format of the class is a refreshing change from other courses studied"*, *"Learning experience was full of fun and will live on as good memories"*.
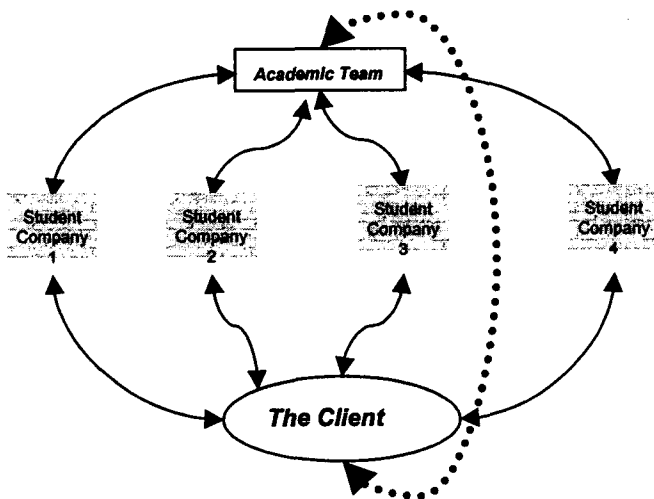
So, what did we do differently ? The content changed very little, What did change was how the course was delivered,

the degree of responsibility and involvement placed upon the students, and how the students were assessed.

3. The Delivery

The Systems Analysis course was conducted as a major project with some 30 separate tasks with deliverable's due on specific dates. Each class was a separate project team (a service company in its own right) with the academic lecturer becoming the teams' facilitator (Not the leader!). Each weekly class was run as a project meeting with a student chairperson and note-taker(s). The meetings were combinations of presentations, reporting, planning, problem solving and decision-making activities, mini-lectures and general discussion. The academic lecturer had the final say in most of the issues; however, students were given the power to over-rule the lecturer if two-thirds of the class voted to do so. Each 'company' maintained records of all meetings in a "Project Log/Folder" and the final deliverable was a "System Study Report" that comprised the results of all defined tasks. At the end of semester, a "Celebrating Systems Analysis" exhibition was held to present the client with the final report.

Our selected clients were real (aged care hostel, chain of five video stores, rugby union football club, food supply wholesaler, ...etc). Each project involved the participation of several stakeholders from the client's organisation in interviews, meetings and correspondence. For their part, students were required to go to client's premises and deal with users at first hand.

4. Project dynamics

Each systems analysis project was carried out by a project team. The project facilitator (academic lecturers) allocated tasks to small task groups that consisted of 2 to 3 students. The composition of the task groups varied from task to task to ensure a balanced distribution of workloads and to take advantage of the varied experience, discipline and talents of the members.

The tasks were categorised into four groups:
• Systems analysis and modelling activities;
• Production of sections of the systems proposal;
• Formal presentation; and
• Co-ordination and project maintenance activities (chairing meetings, note taking, librarian of project records, exhibition planning and setup).

Each student had to be involved in all categories and had to perform at least six tasks. These included analytical and problem solving-type tasks, stand-up presentations, system modelling, documentation and administration. The project team was also required to maintain a "project log" that

included meeting agendas and minutes, discussion notes, correspondence, progress and status reports and task group submissions, as well the various draft models and documents presented for review to the client.

5. Assessment

Assessment was based on the degree, amount and quality of each student contribution to the task-groups, to the project team meetings and their final written submission(s). Higher marks were given for the completion of an individually researched project (previously approved by the project facilitator). On average 10% of the students opted ta take this extra assessment.

Part of the final submission was a Quality Audit Report, which included each student's personal evaluation of the project team's efficiency and effectiveness in the development of the final submission. This covered aspects such as: What activities were well done? What could have been done better? How? There was also room for reflection on the student's own learning experience during the semester. What was learnt? What was not? Why not? This particular document gave the teaching team some extremely valuable feedback.

6. Improvements and suggestions

The nature of the course made for clear dependencies between the task teams, with the output of one group frequently impacting on the work of another.This meant that some teams had to work to a very tight schedule and more importantly, there was no opportunity to remedy the mistakes of a previous task group. The system is going to be amended and provision will be made in future for verification of proper task completion before the handover stage. One improvement tok the form of an interesting new concept that was developed in one the classes. This involved the appointment of 3 decision makers whose role was to keep the discussion moving forward and to push the class to resolve "stalemate" situations.

As expected, many students would have been more comfortable with a tightly structured format. However,
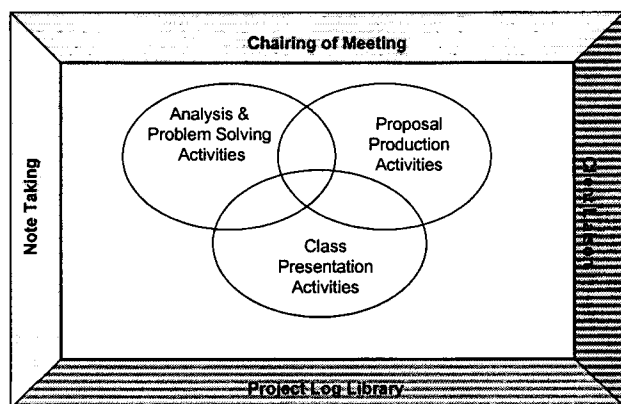
staff were, and remain, of the opinion that in a university environment, students should be able to come to terms with and take control of and responsibility for their own learning. In the event and overall, the students surpassed staff expectations in this regard, demonstrating the initiative and responsibility necessary for completing the project.

The fact that the finished work was going to be exhibited at the end of the course helped maintain enthusiasm, focus and purpose in the groups. Most students gained a lot from the teamwork environment (although at times they were partially opposing!). The requirement for membership in at least 6 different task groups (2-3 students) forced individuals to develop team building and learning skills and the related presentations appear to have helped the team's learning achievements. What also added greatly to the overall quality of learning experience was the fact that nearly 40% of the students were from overseas. This added an important cultural dimension to the exercise, and on occasions the existence of different traditions and cultures was a real eye opener. At the beginning, the international students tended to remain silent and lacked the confidence to voice their opinion or take sides in an argument. By the end, they were very active, and most importantly, they were greatly appreciated and respected by the rest of the class.

One particularly interesting piece of feedback, again leading directly to a change in the system, came in a suggestion from one of the students. The proposal was that we make use of the university's international cooperation program to find potential clients in other countries. While presenting a number of different challenges such a step could provide innovative opportunities for both students and staff. The idea is under active consideration.

7. Conclusion

In embarking upon this exercise the staff were convinced that shifting the inintiative and responsibility for their own learning towards the students could have the effect of dramatically imporving learning outcomes. Previously some of the students did not think enough about the problems at all. The solutions were often just handed out, and the students were not getting what they needed for learning. With this new proposed model, the students got into the spirit of the whole thing as well as the traditional lectures. It created a really good learning environment.

What is important to note the need for caution in making the decision to try a new approach. Carefull attention was given to the various parameters that lead to our decision to try this approach; the subject matter, different learning styles for different students, experience of the teaching

team, resources, our contacts with industry, ...etc., all these issues will lead to an important message that academics should realise that this proposed approach may not be suitable to all courses.

The aim was and remains that of empowering the students and thereby enabling them to do things differently and to 'break the mould'. Traditional teaching approaches have tended to restrict the free spirit of the students. This different approach has been an attempt to present the students with an environment that can simulate the conditions for recreating the kind of pioneering vitality that successful business leaders generate when startingup their companies.

In summary, we should not forget the fundamental role of the academic lecturer, who, in one was very concerned about students' learning and engagement in the course, but on the other, has to remain clam and collected throughout the process to enable this self learning to occurs. Believe me it takes lots of discipline to make it work. As the course progressed the staff witnessed significant changes in some of the students. In essence this has entailed a broadening of outlook on the part of technically oriented people in response to the stimulation produced by a business team environment. A framework that is more relaxed and comparatively easy to operate, observe and measure replaced a rigorous and educationally intense learning environment that was difficult to measure or observe. This informal environment encouraged active participation where much of the theory, techniques and analysis issues were learnt by "doing" rather than by the "absorption" method. In effect this has enabled students to design their own learning space, introduce their own perspective's and learn by doing. To have real involvement and enthusiasm from students requires real challenges and real questions, asked by the students themselves. This means, to some extent, promoting student ownership of the learning process.

"Exhausting, stimulating, pressured, a real test of our project management skills.... Let's do it again next year."
The Systems Analysis teaching team!

Acknowledgements