# Rich Cases: a framework for interactive case studies in Information Systems teaching

*Elizabeth Guy, Lyn Pemberton & John Knight*
School of Information Management, University of Brighton

© EURODL 2000

## Abstract

A realistic understanding of the work in which people are engaged is vitally important for students of Information Systems design: the success of any system they design depends crucially on its "fit" with this environment. Case studies are used in many disciplines, particularly those operating in a business working environment, in order to ground students' learning in contexts that are as realistic as possible. However, while real-life business settings are rich and complex, cases used in Higher Education are relatively impoverished.

We describe the Rich Cases project, which aims to harness the power of multimedia and the Internet to the case studies approach by developing and testing example cases for use in Information Systems teaching and to provide a framework for colleagues in IT and elsewhere to create their own Rich Cases.

**Keywords:** *case study, analysis, design, Information Systems teaching*

## 1 Introduction

Over the last decade it has become increasingly recognised that understanding context is a precondition for designing software that adequately supports the work of its users. By *context* we mean everything relevant in the organisation ? or increasingly the home - that effects how the software will be used and therefore impacts on the design requirements. This can involve the external environment of the organisation, including rapidly changing technology and the political and financial climate, the organisation's internal culture, policies, procedures, standards and goals and, importantly, the expectations, feelings and expertise of the eventual end-users. Add to this list the dynamic of organisational change and the fact that many businesses now expect to use computer technology to effect transformations in the way that they work, and we can see that designing effective and appropriate information systems requires a mastery of context.

For teachers of Information Systems (IS), and also of Human-Computer Interaction (HCI), the challenge is to develop teaching methods that will help students become effective analysts and designers. The traditional skills used in modelling data and processing, or the operations performed by the single user interacting with a computer, although still important, are no longer enough to train effective software designers. We must also equip students with the ability to investigate and understand the complex problems that face organisations and the work that software is designed to support. This suggests that a more realistic understanding of the work in which people are engaged is vitally important for students of Information Systems design, as the success of any system they design depends crucially on its "fit" with this environment.

For over 30 years now, teachers in disciplines operating in a business working environment? Business Management in particular - have used the Case Method to ground students' learning in contexts that are as realistic as possible. However, while real-life business settings are rich and complex, cases used in Higher Education are relatively impoverished and static, typically consisting of a booklet of text handed over to students in preparation for a class discussion. In this paper we compare the needs of IS and HCI students with the outcomes offered by text-based cases and argue that an interactive form of the method, supported by new technology and appropriate teacher intervention, has the potential to provide the learning experiences needed by novice designers of complex interactive information systems.

## 2 The importance of context in information systems teaching

To illustrate the rich and "messy" contexts that students need to appreciate we have summarised a case, based on the authors' consultancy experience, that we use in teaching. The Slap Shack case has been used with students on a Masters level IT conversion course to give them practice in using Checkland's Soft Systems Methodology for the analysis of ill-defined problem situations. It could equally well be used in other situations, for instance to teach interactive system design, project management or documentation design.

### The Slap Shack

The Slap Shack is a UK based publicly owned company that manufactures cosmetics and sells them in its own UK stores. It also franchises the retail side of its business throughout the world. Set up in the 1970's by entrepreneur Pat Chouli, the Slap Shack has developed from its hippie roots selling home made cosmetics to a small but significant market share of the global cosmetics industry. For some time, however, all has not been well at the Slap Shack. Although the company maintains a strong brand image through its ideologically motivated campaigns (against animal testing and stereotypes of beauty, promoting ethical trading and the use of natural products) its old customer base has moved on. The company has failed to win the loyalty of younger customers and it has become vulnerable to competitors who also market their products as "natural" but who are not tied down by the Slap Shack's genuinely ethical approach to business. Although the company continues to grow (expanding into new markets by opening franchises throughout the world), its market share

has shrunk as new competitors have successfully taken over some of its turf.

Over the past year the Slap Shack has been involved in a radical (and frequently painful) reassessment of what it does and how its does it. The production department and the UK shops have been subjected to this appraisal process, and now it is the turn of the international operation to come under scrutiny. The Slap Shack wants to look at the relationship between the company ? based in South East England and its franchisees. A key problem is that of communication between franchisees and Head Office. The Slap Shack needs more and better information about what is selling where, while the local franchisees often complain that products and marketing campaigns thought up in the UK are not appropriate for their local market. There have been some embarrassing examples of cultural blunders, with protests against "lewd" posters and so on. The current thinking from Head Office is that the company should use email to allow franchisees to send their sales figures easily to the UK. Some employees, however, think that technology may have a negative effect in reducing direct communication between the Slap Shack and its international partners. Ms Chouli, in particular, has always preferred face to face contact to email, and her views carry a lot of weight in the company. Many of the older established members of the company share her views and feel that a too ready embracing of new technology is in some way a betrayal of the company's past ideals. Some employees, including the UK IT department, are keen on technology but rather frightened of speaking against the Founder. Some franchisees also have their own ideas about the implications of installing a constant hot line to and from Head Office and fear for their independence.

Currently the case is presented as several pages of text:

- a description of the problem scenario with a number of issues the students need to investigate
- "transcripts" of interviews with stakeholders, some of whom give conflicting views on the organisation's problems
- a "transcript" of a focus group with franchisees and selected UK staff.

Implicit in this material are the problems that we want the students to think about:

- the difficulty of effecting change in a resistant and heterogeneous organisational culture
- the fact that requirements are often not known or articulated but are jointly constructed with stakeholders through negotiation
- the importance of history and situation in forming the different world views of stakeholders

The problem we have is giving students access to the richness of the case without defeating the purpose of the exercise by "spelling it out" in reams of text. An experienced and sensitive analyst might glean this much from reading company reports, carrying out formal interviews, acting as a "fly on the wall" at meetings, reading the newspaper business pages, chatting over lunch, tuning into informal talk on the way to a meeting, joining internal email groups or using other methods. But how can we give our students practice in uncovering and interpreting this sort of material? What methods are available of bringing these complex, informal and often contradictory aspects of the workplace into the classroom?

## 3 Methods for bringing the workplace into the classroom

The teaching strategies used by IS tutors to give students a taste of the workplace include inviting industrial speakers to give guest lectures, using commercial film material and arranging site visits for student groups. However, all these solutions have obvious limitations. For instance, the industry speaker will only speak for an hour and will be unavailable after that, the film commentary can't respond to students' questions and gives only a partial view of the work situation, and groups of students peering over each others' shoulders as they strain to follow detailed explanations of unfamiliar processes may find it difficult to understand what they are looking at.

Projects and placements are another approach to integrating the student into a commercial environment. These are generally highly successful, but they are difficult and time consuming to set up. Moreover, they are unsuitable for students in the early years of a degree course. The student might just be lucky enough to be in a position to gain access to all the different sorts of knowledge needed in an in-house project, but s/he wouldn't have been trained in what to look for and how to represent and use this knowledge. The project is an excellent teaching tool for senior students, but students beginning their professional education need a different approach.

## 4 Approaches to using cases in IS teaching

### 4.1. Traditional textual case studies

One way of bringing the real world into the classroom is to use the Case Method, which gives students a limited kind of access to a real-life situation, but in "training wheels" mode. The classic Case Method is associated with Harvard Business School [1], which has used the method for over 30 years. In this model:

(a) case is a partial, historical, clinical study of a situation which has confronted a practicing (sic) administrator or managerial group. Presented in narrative form to encourage student involvement, it provides data - substantive and process - essential to an analysis of a specific situation, for the framing of alternative action programs, and for their implementation recognising the complexity and ambiguity of the practical world. [2]

The case description is a kind of literary genre. It consists of a lightly-fictionalised description of a specific moment in the evolution of a business, bringing together a number of narrative strands, usually from the point of view of a particular agent in the case, with whom the students are to identify. The narrative moves to a crisis, a cliff-hanger moment, at which the students attempt to answer the question "What should X (the agent) do now?". The Harvard case is typically studied over a week or two in the context of a graduate business class. Students are required to study the case descriptions in preparation for a large-class discussion, in which the tutor calls on individual students to set forth their solutions to problems raised in the case. The students - very bright, mature and highly motivated - prepare thoroughly for the discussion. The culture of the School is competitive and individualistic and the discussion sessions are highly charged, even, to some, stressful.

Although pervasive in the graduate business school context, traditional textual case studies have obvious

limitations for Information Systems teaching:

### They are not interactive

A piece of paper cannot talk back, so students cannot verify their understanding of case details or ask for extra information. Textual cases are also rather impersonal, in that there is little chance for the students to build up an idea of the personalities of the agents involved in the case. Ideally, students need to learn about people and how to negotiate knowledge with them, but traditional cases give little scope for "people-handling".

### They are not immersive

Traditional cases are presented as textual narratives, which means that a great deal of re-representation of reality has to take place, transforming the messiness of everyday workplace interaction into a neat plot-line. As case representations are media-poor, some types of information are almost impossible to transmit in this way. Students gain only a limited view of the work they are aiming to support or transform, whereas this is exactly what they're lacking.

### They are used in competitive rather than collaborative mode

In the Harvard model, the really important function of the case is to stimulate whole class discussion in which individuals can shine. However, much professional work, certainly Information Systems Analysis and Design, is carried out in teams, and the skills for groupwork are an important learning requirement.

### They do not evolve

The classic Harvard-style cases are static. Requirements are set out in the case documentation and cannot be modified. It is important for Information Systems students to be confronted with the phenomena of shifting requirements and changing information flows. People will change their views over time, sometimes as a result of the analyst's intervention, and information will be communicated bit by bit, over time, again, as a result of the analyst learning what questions to ask as the analysis and design processes develop. Easton spotted this limitation as early as 1982 when he suggested "live" cases, which would be capable of evolving in some way, perhaps via interaction with a member of the organisation under study [3].

The textual "cliff-hanger" model is, however, quite useful for teaching the business decision-making aspects of Information Systems, if not for the analysis and design aspects [4].

## 4.2. Modified textual cases for group analysis and design

Of course the use of cases has become pervasive in many disciplines and many variants of the Harvard approach have been developed for use in a range of contexts. For instance, in our own institution, we use cases as the basis for group assignments, asking students to assume the roles needed in a systems development team to create a solution to the client's problems. We also incorporate aspects of what Cope & Horan [5] call "role-play cases". This involves staff members holding consultation sessions with each student group, while playing the role (to a greater or lesser extent depending on the thespian aspirations of individual tutors) of the group's "client".

Cases used in this way have proved effective and popular with students, but they do have limitations and drawbacks. The major limitation is that despite the best efforts of role-players, the experience for the students is still a limited one. The case is still represented via talk and text, and the students still do not get out into the world to gain an idea of the work activities supported by the IS system they are to design, so that the students have no knowledge of the complex social and business environments in which business systems are developed [6].

There are also drawbacks concerned with the time factor. The need for each group to spend time with a tutor is very demanding of the tutor's time, and perhaps not very efficient, as the tutor can find herself repeating the same information to eight or ten groups at different times. Appointments with the tutors and multi-member groups can also be difficult to arrange, particularly when part-time students are involved.

Despite these problems, we are persuaded that this approach to using cases in teaching, an approach which is more like taking part in an unfolding drama than being asked to carry on from a critical point in a narrative, has the potential to answer our teaching needs, i.e. to provide a rich but safe environment in which to practice the collaborative application of the professional skills used in IS design. However, we need a better implementation of the method if we are to go further.

## 5. The potential of new technology

Some of the problems identified in our discussion of traditional and interactive/role play case study approaches have the potential to be solved by new technologies such as email, the World Wide Web and digital multimedia.

The addition of *non-textual media* has the potential to overcome the lack of realistic texture in text-based cases, for instance via representations of virtual workplace visits, photos of people and workplaces, videos of interviews and recordings of meetings or micro-work sequences. *Hypertext* can be used to communicate the fragmentation and ambiguity of real experience. *Communication tools* such as email and bulletin boards can give the interactivity of the role-playing case method while avoiding the associated problems. Knowledge sharing, gradual unfolding over time and "anytime-anywhere" participation can be facilitated by using the *World Wide Web*. The aim of the Rich Case project at the University of Brighton is to harness the power of multimedia and the Internet to the case teaching approach by developing and testing example case studies for use in Information Systems teaching and providing a framework for colleagues in IT and elsewhere to create their own Rich Cases.

## 6. Rich Cases

The Rich Case approach is based on a structured collection of multimedia resources to be used for solving

IS problems such as those confronting IS analysts and interaction designers. The structure is an open one, which can be varied to suit different teaching requirements, but we have implemented the Slap Shack case in it, to demonstrate the functions we think are indicated. The mode of use in this example assumes that a case will be used as a substantial part of a semester-long module based on a piece of group work. Groups of students are constituted by the students themselves, or by the tutor, and introduced to the case in general terms via a face to face discussion session. The groups then work together over several weeks to fulfil the assignment associated with the case, supported by occasional lectures to introduce analysis, design and evaluation techniques as appropriate. Each group is asked to imagine themselves to be members of a commercial design team engaged on designing a new communications strategy, whose other members are virtual. This gives a "cover story" for the prior existence of interviews between stakeholders and virtual design team members, and generally gives the tutor flexibility in her interventions as she can influence events, where necessary, in a naturalistic way, by acting in the role of a virtual team member.

### 6.1. The Slap Shack example

The site consists of three areas, each providing different types of resource. The first, corresponding roughly to the company's premises, supplies resources about the workplace in question. The second is an area where students can consult the assignment brief and find guidance on carrying out their work, and can be seen as an analogue of the University, the place where student/tutor interaction takes place. The third provides a group work area for the students and is neither the University nor the company workplace but a collaborative work space, where the work of analysis and design is planned, consolidated and documented. An attempt is made to distinguish these spaces graphically.
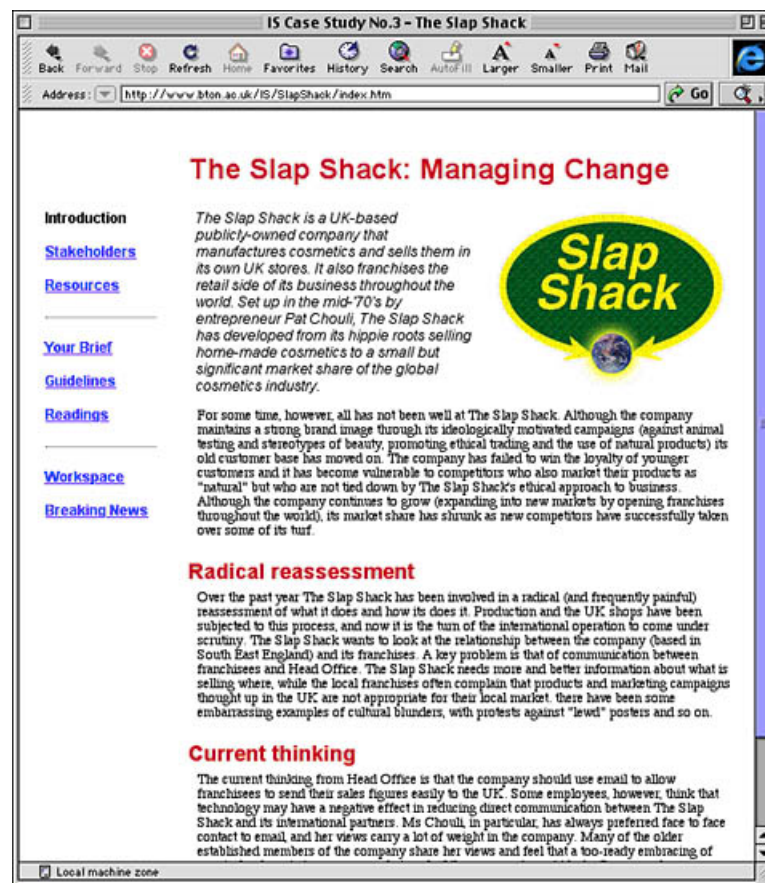


*Figure 1: The main screen, displaying an introduction to the company*

Figure 1 shows the main screen, displaying an introduction to the company in the case. This is made as close to real life as possible through graphic design and use of a "company logo". The company-related resources include statements, accompanied by photos, of *stakeholders*, i.e. people involved in the design of the proposed communication system. In Figure 2 we see statements from:

- Ms Chouli herself, setting out her ideas for the company's future
- a franchisee from Qatar, who is annoyed at recent advertising campaigns that have proved useless as the images used would have been completely unacceptable in his country.
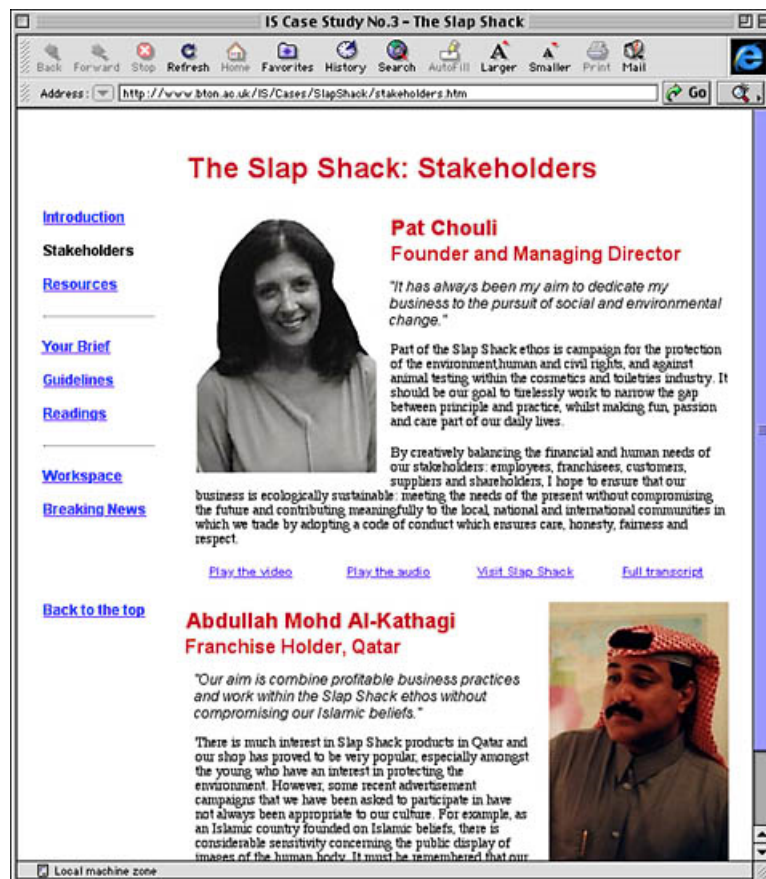
Figure 2: The stakeholders screen displaying statments from Ms Chouli & Mr Khathagi, a Qatari franchisee.

The full system might also display a franchisee from Japan, explaining why the company's ethical policies mean little in his own context, the Slap Shack IT manager in the UK, some members of the finance department and so on. The list of desirable information sources, as in real life, has no end. Some of the stakeholders, in the guise of tutors playing their roles, will be available to the students via email.

Other resources include various types of pre-existing company documents - charts of recent company results for the countries where franchises are situated, surveys on technology use in those countries, a recommendation from the internal IT Department, memos from the management team and so on. External documents might include a simulated newspaper report of the opening of the first Slap Shack store, to give historical context and perhaps some information on the cultures of the countries where the featured franchisees operate.

The resources are augmented dynamically over the course of the semester, as the company provides information in response to the requests of the design team. For instance, the transcripts of email interviews with stakeholders may be posted here. Similarly, internal meetings and focus group meetings may take place in the absence of design team members and the results ? transcripts, photos, seating plans, copies of flip charts ? be posted in the Resource section. Figure 3 illustrates the record of such a meeting.

In the teaching area of the system, the students find instructions and support for carrying out the assignment. The assignment brief is accessible here together with an outline schedule showing class meetings and deadlines. We have included links to the Web sites of accepted gurus in the area, e.g. to a home site for Checkland's Soft System Methodology, and to some large consultancy organisations, so that students can match their practice against the best in the outside business world. This constitutes a modest move in the direction of encouraging the students to join a professional community of practice [7]. Also included are templates for the interim reports that the students are required to submit. These documents, sometimes "seeded" with hints or boilerplate text, form a kind of scaffolding for the students' learning [8].

In the groupwork part of the system we give students access to the BSCW (Basic Support for Co-operative Work) system, a free co-operative work environment for the World Wide Web which gives email, bulletin board, meeting and document sharing facilities [9]. Each group is assigned its own meeting space on a local BSCW server. There is also a whole-group space, where tutors (in the role of a member of the Design Company), can give news updates or contribute discussion points in order to steer the entire group to consider a point they hadn't spotted.

## 6.2. Potential Advantages and Drawbacks of Rich Case

### 6.2.1. Enabling learning through activity and observations

The Rich Case allows students to gain safe experience in practising fundamental skills needed in their careers: they need to plan and set up interviews and focus groups, question clients by email or other means, design questionnaires, analyse the information obtained, formulate ideas and write reports. They can also *learn* these and other skills by observing their "virtual colleagues" in action. For instance, to learn interview or facilitation skills, students can have access to the transcript of an interview apparently carried out by another team member or watch a video of a focus group facilitated by a colleague. This gives students practice in taking on professional roles in a protected environment.

*Figure 3: The resources section, displaying a video of a meeting between Japanese franchisees and UK representatives*

### 6.2.2. Providing a richer, more realistic experience

While traditional cases are by nature simplified, supplying accurate and relevant information in just sufficient amounts to allow students to discuss the case productively, Rich Cases can make the situation much less clear-cut. Whereas a textual case is basically linear and well structured, the hypertextuality of the Rich Case can add messiness so that the students have to find their own structures in material. Clients may struggle to articulate requirements, deliberately withhold information or cover up some underlying issue in the organisation's internal politics. Information may be accessible via different routes. The case designers can also add irrelevant, ambiguous or contradictory information, leaving it to the students themselves to judge its reliability and relevance.

Since tutors can take on the roles of virtual team members or clients, they can give guidance, hints and instructions to advance the students' work as they think necessary, without coming out of role: again this adds to the realism of the case.

### 6.2.3. Working in a dynamic, changing world

The analysis and design activities we are teaching are not punctual, one-off events, but a series of problem-solving episodes running over several weeks or months (or years, in some real life projects). The Rich Case approach makes it easy to emphasise the temporal aspects of the process. The company premises and groupwork areas can be updated to reflect supposed changes in the company and the project: personnel can change, financial or technological circumstances may shift, new ideas can be introduced and so on. The tutor can introduce real-world complications such as absence of key personnel through illness and cancellation of planned meetings, though only after carefully gauging the students' ability to deal with such changes (see below). Perhaps more important is the fact that the students themselves contribute to this changing context, with the quality of the information they produce dependant on the quality of their investigation.

### 6.2.4. Fitting our context and culture

Many good educational technology projects fail to thrive because their designers simply assume that teaching staff will recognise the merit of the new technological solution on offer and make an effort to adapt their teaching practice accordingly. We think this is unrealistic, particularly as the need for sensitivity to current work practices (in this case, our own and those of our colleagues) is precisely the message we are trying to convey to our students. New technology, in Universities as elsewhere, will only be adopted voluntarily if a) it is in line with the culture of the institution and b) if it involves individual staff in minimal disruption and extra workload.

The Rich Cases approach fits our own teaching culture (and that of most other UK IS teaching departments) because it is basically an elaboration of our existing practice. Case-based problems are

already central to our teaching, group assignments are used in almost every module, professional skills are highly valued and great emphasis is placed on the quality of the process as well as the product.

To address the second point, ease of adoption, we have deliberately chosen as simple an implementation model as possible. Individual staff members wanting to take a step towards teaching via Rich Cases can take a template written in the simplest HTML and slot in their own content. As a first step, therefore, a tutor can simply make the textual version of an existing case available on the Web in the Rich Case template. As time and creativity permit, other resources can be added and the case can truly become "rich". The system is modular, in that the three areas do not depend structurally on each other. This means a staff member can choose to adopt only the company premises part of the system, leaving tutor-student interaction and groupwork unmediated. Although a Rich Case integrates multimedia elements, these are photographs, scanned images of paper documents and audio and video recordings, relatively simple to capture and display. This means that adopting tutors do not need a high level of skill with multimedia graphics: this a point that distinguishes our "home-made" approach from a similar method, HyperCases, used by Kendall and Kendall to support their text book on IS design [10], making extensive use of 3D graphical walkthroughs. Nor do Rich Cases need intensive technological support, since they use only simple HTML. More complex technologies could be integrated, involving user modelling, automatic updating and so on [11] but would currently act as an obstacle to adoption by those at the "chalkface".

### 6.3 Potential Drawbacks

We have discussed the fit between Rich Cases and our teaching culture, and suggested that teaching staff would recognise the approach as congruent with current practice. Congruence with the students' learning culture is a related but different matter. Although many students will be pleased at the flexibility and anytime-anywhere availability of Rich Cases resources, we expect resistance from those more traditionally minded students who have internalised the "teacher as fount of knowledge" model of education and are unhappy with a more student-led approach. This conflict of models already exists when cases are used in group work, and may well be more overt when students are exposed to the new system. This will be a subject to be explored in evaluation studies.

The pedagogy to accompany the resources needs to be carefully designed to support the student groups in order to reduce the danger of their feeling lost and directionless. Some commentators [12] go so far as to suggest that complex multimedia cases studies are not suited to undergraduates, who are not yet mature enough to direct their own learning. Our experience with non-digital cases argues against this position [13], but there is a danger that mediating the case study via Web might make students feel unsupported.

A further danger to be aware of comes with the tutor's new ability to add ambiguity, conflict and practical obstacles to the case as the students work on it [14]. This is a facility to be used with great circumspection if tutors are to avoid sowing confusion and despair among student groups who are unused to the goalposts moving in mid-project. Students need to be well prepared for the new possibilities opened up by the Rich Case approach.

## 7. Conclusions and further work

We have discussed the use of the Case Method in IS teaching and have used this discussion to motivate the Rich Cases project. In this paper we have concentrated quite narrowly on the case material accessible via the system, i.e. the "company premises" and its contents, and many other aspects have been left unexplored. This is mainly because the materials are the aspect that we have changed in a deliberate and planned way. We do not intend at this point to make major modifications to either the current general pedagogical approach (the concern of the "University" area) or to the group work strategies we recommend to our students (activities for the "Workspace"). We intend, when "going live" with the Rich Case method, to work with students more or less as we do currently, while of course remaining sensitive to the possibility of the need for changes and trying to avoid the documented errors of earlier pioneers [15].

However, we can predict the areas on which we will need to reflect. Primary amongst these will be the role of tutor and particularly the amount and type of tutor activity needed in various roles - facilitator, moderator, project manager, librarian, devil's advocate and so on. Tutor interventions often fall into the category of contributions to scaffolding students' learning, and the whole area of scaffolding will also be a major focus [16]. A third focus will be implementation modes. Currently we assume a relatively long-term study period, involving groups working together, mainly in an asynchronous manner. However, we could experiment with supporting different modes of use, integrating them with our usual pattern. For instance, Kendall & Kendall [17] have developed a multimedia IS case to support individual learning in conjunction with a text book, while Nulden and his colleagues in Göteborg are concentrating on interactive multimedia cases to teach project management to groups working in synchronous, "workshop" mode [18].

As for the "Workspace", this group working area is also rather under-explored at the moment, but the robustness of the BSCW system and the fact that we have used it successfully in other group project work in IS analysis and design lead us to be reasonably confident that students will find there any facilities they require. As the project develops, we shall report on the use made by our students of the groupware and implement any changes that seem indicated [19].

Yet another important aspect we have not tackled is the place of the Rich Case approach in the wider context of theories of teaching and learning. The project's theoretical orientation has much in common with approaches such as Problem Based Learning [20], Experiential Learning [21], Goal Based Scenarios [22] and Activity Centred Learning [23], all currently gaining ground in many disciplines as ways of turning away from teacher as fount of knowledge. In all these approaches, the focus is on "designing activities that help learners develop the ability to carry out socially formulated, goal directed action through the use of mediating material and social structures" [24]. Such models are distinguished from teacher-centred and student-centred approaches, both of which "leave intact the questionable presumption that learning consists of the transfer of intact chunks of knowledge from either the minds of the teachers into the minds of their student or from computer-mediated instructional materials into the minds of students" [25]

Each of these aspects will be explored further as the project moves from design to implementation. One full prototype case has already been constructed for use in an Interaction Design class, and will serve as the basis for a pilot study. Once this has been evaluated with students and any modifications made to the system or the supporting pedaogy, we plan to carry out an empirical study comparing textual and enriched versions of the same case. At the same time, we will be exploring possible extensions to the functionality of

the system. For instance, live group interviews with "stakeholders" via Web-cams, links to real-world experts acting as mentors [26] and temporary membership (given appropriate permissions) of professional discussion groups as a form of induction into the professional community, are all likely developments.

### References

[1] Barnes, L.B., Christensen, C.R., & Hansen, A.J (1994). Teaching with cases at the Harvard Business School. *Teaching and the Case Method.* Harvard Business School Press: Boston, Mass.

   Lynn, L.E. (1998). *Teaching and Learning with Cases: A Guidebook.* New York: Chatham House.

[2] Barnes, L.B., Christensen, C.R., & Hansen, A.J (1994). Teaching with cases at the Harvard Business School. *Teaching and the Case Method.* Harvard Business School Press: Boston, Mass., p.44.

[3] Easton, G. (1982). *Learning from Case Studies.* London: Prentice Hall, p.3.

[4] Work, B. & V. Gay. (1999). Using the Case Method in Teaching Information Systems to Undergraduates. *Proceedings of UKAIS 2000.*

[5] Cope, Chris & Pat Horan. (1996). The Role Played Case: an Experiential Approach to Teaching Introductory Information Systems development. *Journal of IS Education.* Vol. 8 (2), pp. 33-39.

[6] *Ibid, p.33.*

[7] Wenger, E. (1998). *Communities of Practice: Learning, Meaning and Identity.* Cambridge: Cambridge University Press.

[8] Tiessen, E.L. & D.R. Ward. (1999). Developing a Technology of Use for Collaborative Project-Based Learning. *Proceedings of CSCLÕ99*, pp. 631-639.

[9] BSCW. (2000). Overview and downloading at http://bscw.gmd.de

[10] Kendall, J. & K. Kendall. (1999). Systems Analysis and Design. 4th Edition. Prentice Hall. Web page with HyperCase available at: http://www.camden-www.rutgers.edu/dept-pages/business/kendall/sad.html

[11] Naidu, S., A. Ip & R. Linser. (2000). Dynamic Goal-based Role-play Simulation on the Web: a Case Study. *Educational Technology & Society.* 3(3), pp. 190-202.

[12] Easton, G. (1982). *Learning from Case Studies.* London: Prentice Hall.

   Barnes, L.B., Christensen, C.R., & Hansen, A.J (1994). Teaching with cases at the Harvard Business School. *Teaching and the    Case Method.* Harvard Business School Press: Boston, Mass.

[13] Work, B. & V. Gay. (1999). Using the Case Method in Teaching Information Systems to Undergraduates. *Proceedings of UKAIS 2000.*

[14] Kendall, J. & K. Kendall. (1999). Systems Analysis and Design. 4th Edition. Prentice Hall. Web page with HyperCase available at: http://www.camden-www.rutgers.edu/dept-pages/business/kendall/sad.html

[15] Hara, N. & R. Kling. (2000). Students' Distress with a Web-based Distance Education Course. *Proceedings of Distance Learning 2000.* San Diego, CA.

[16] Greening, T. (1998). Scaffolding for Success in Problem Based Learning. *Medical Education Online.* Vol. 3 (4). Available at: http://www.utmb.edu/meo/

[17] Kendall, J. & K. Kendall. (1999). Systems Analysis and Design. 4th Edition. Prentice Hall. Web page with HyperCase available at: http://www.camden-www.rutgers.edu/dept-pages/business/kendall/sad.html

[18] Nuldén, U. & H. Scheepers. (1999). Interactive Multimedia and Problem Based Learning: Experiencing project failure. In *Journal of Educational Multimedia and Hypermedia.* 8 (2), pp. 189-216.

   Hardless, C. & M. Nilson. (2000). Interactive Multimedia Scenarios and Role Playing. *Proceedings of CHI 2000*, pp. 325-6.

[19] Kolodner, J.L. & K. Nagel. (1999). The Design Discussion Area: A Collaborative Learning Tool in Support of Learning from Problem Solving ad Design Activities. *Proceedings of CSCL 1999*, pp. 300-307

   Jefferies, P. & I. Constable. (2000). Using BSCW in Learning & Teaching. In *Educational Technology and Society.* 3(3), pp. 169-178.

[20] Boud, D. & G. Feletti. (Eds). (1991). *The Challenge of Problem Based Learning.* Kogan Page Ltd.

[21] Cope, Chris & Pat Horan. (1996). The Role Played Case: an Experiential Approach to Teaching Introductory Information Systems development. *Journal of IS Education.* Vol. 8 (2), pp. 33-39.

[22] Schank, R.C. & C. Cleary. (1995) *Engines for Education.* Hillsdale, N.J.: Lawrence Erlbaum.

[23] Gifford, Bernard R. & Noel D. Enyedy. (1999). Activity Centred Design: Towards a Theoretical Framework for CSCL. *Proceedings of CSCL 1999*, pp. 189-197.

http://www.educat.hu-berlin.de/publikation/casestud.html

[24] *Ibid.*

[25] *Ibid.*

[26] Hoag, A. & T.F. Baldwin. (2000). Using Case Method and Experts in Inter-University Electronic Learning Teams. *Educational Technology & Society.* 3(3), pp. 337-348.

**Authors**

Elizabeth Guy, Lecturer

Dr. Lyn Pemberton, Principal Lecturer

John Knight, Research Officer

University of Brighton, School of Information Management
Brighton
BN2 4GJ

E-mail: E.S.Guy@brighton.ac.uk

E-mail: Lyn.Pemberton@brighton.ac.uk

E-mail: John.Knight@brighton.ac.uk