

Developing a managed learning environment using 'Roundtables': an activity theoretic perspective

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Abstract

The current focus on the development of systems contributing to a managed learning environment (MLE) in universities in the UK has prompted institutions to examine how administrative systems and support for learning and teaching fit together. However, it is difficult for academic and administrative staff to find opportunities to describe their needs to developers. This paper focuses on a project at University College London to examine systems for academic administration. A Roundtable discussion group (Kemp *et al*, 2002), was created to identify issues central to participants' perspectives. The paper uses Activity Theory (Kuutti, 1996) to analyse its outputs, and examines how the methodology has influenced the process of developing the MLE.

Keywords: managed learning environments, activity theory

Introduction

This paper seeks to explore the perspectives offered by Activity Theory when applied to a research project to examine the issues involved in implementing a Managed Learning Environment (MLE) at University College London (UCL). The project was designed to research existing working practices, particularly in administration, as well as the electronic systems supporting these practices. By gaining an insight into the ways in which people worked within the existing combination of technical systems, communication channels and administrative tools, the future development of systems could be informed and refined in order better to match the needs of people using them. This in turn would support the overall activities of the university in learning, teaching and research. A further aim of the project was to examine the changes in roles across the university, and the ways in which administration supports learning and teaching in a higher education institution in the UK.

Developing a managed learning environment

It might be assumed by planners and technical developers in a university that the development of an MLE follows directly from the introduction of technology into other areas of a university's administrative and academic work. Administrators have benefited from the use of e-mail and meeting software, as well as the web (Whitchurch, 2000). Senior administrators similarly have benefited from easily available institutional data on which to base decisions (Holmes, 1998). Evidence is emerging that academic course development and delivery is gradually being enhanced through the introduction of

learning technologies (e.g. Steel & Hudson, 2001). However, the MLE represents a different project entirely. Its ideal is the linking of academic and administrative systems across an institution, with some or all of these systems being made available via the Internet, and facilitating greater access to groups of staff and students in managing their own courses (JISC, 2001). The wider intention is to release administrators' and academics' time from 'routine' administrative tasks in favour of more analytical, problem-solving activities.

The MLE is also a response to change across the sector. This reflects studies undertaken for the Dearing report (NCIHE, 1997), which found that administrative and support staff roles in higher education were changing in a number of significant ways. Changes in the delivery of higher education (such as modularisation and semesterisation) involve administrators in course planning to a much greater extent, with academics delegating more responsibility to them. The introduction of new technologies in various separate divisions of the university (such as the library and individual academic departments) has brought groups of 'new professionals' into the university. Their roles cut across administrative and academic work, and between central and departmental roles (Gornall 1999, Beetham 2001). Wider debate in education research examines the changing roles of academic staff, who are now involved to a far greater extent in the administration of their courses (Henkel, 2000). Some writers perceive these combined changes of role and of technology as part of the continuing debate on the role of higher education in becoming 'flexible' to the demands of the marketplace, government and industry (Jakupec & Garrick, 2000).

While it is not the focus of this paper to review the literature around these changes, nor their political dimensions, it is important to emphasise that the development of the MLE is not a neutral enterprise, and it will not be received as such by the various groups whom it affects. The wider introduction of technology to administration may well be perceived as a threat by existing groups of administrators (Whitchurch, 2000). Learning technologists whose experiences are drawn from a wide range of projects in varied contexts (Oliver, 2002) may have very different views from technical developers about how the university should move towards an MLE. Academic staff and senior staff may have negative perceptions of how the change will affect their work, if they subscribe to the debate outlined earlier and explored by Henkel (2000) and other writers.

Aside from these social and cultural issues, it is important to note the technical difficulties of developing the MLE. Although a high percentage of higher education institutions (HEIs) in the UK have bought or developed a virtual learning environment (VLE) such as WebCT (<http://www.webct.com>) or Blackboard (<http://www.blackboard.com/>) for academic purposes (Jenkins, Browne & Armitage, 2001), none has yet implemented the MLE fully (Condrón & Sutherland, 2002). The reasons for this are complex: first, neither internal nor external funding has traditionally been attached to the upgrading of administrative systems, let alone their innovative use (Frackmann, 1994). Another possible explanation for this is that administrative systems were evolving simultaneously, but without the web. The arrival of web-based databases and portals acted as a catalyst in the development of standards that could permit the linking of more and more systems. By the end of the 1990s the prospect of such a 'portal' for university courses and administration was beginning to receive serious

consideration. However, the set of discrete 'legacy' systems universities use complicates the processes of binding them together.

Mindful of these complex cultural and technical issues, we wanted to investigate how this joining of systems could best be done at UCL: reflecting patterns of work rather than 'glossing over' them, identifying where people using university systems currently experience problems and trying to record them, ensuring that technical developments took account of users' expectations and our specific technical arrangements. However, this investigation was itself complicated by the short timescale of the research project and also the fact that it needed to engage with people in all constituencies of the university.

In the next section, our use of the Roundtable methodology (Gilbert 2001, Kemp *et al* 2002) to overcome these complications will be discussed. Following that, the theoretical perspective used to interpret the process and its outcomes will be presented.

Roundtabling

In terms of implementing a project of this kind, which needed to address a wide range of interests and interest groups within the university, a number of methods from learning technology research were felt to be of relevance and potential usefulness. In order to explore most fully the social nature of administration within departments, information support roles which cut across a range of disciplines and practices, and learners' abilities to 'navigate' around their own institutional systems (be they technical or regulatory), we needed to gather data from a wide range of people. Therefore, focus

group and interview techniques were considered, as was a case study approach to document existing strategies and technical developments in different academic and administrative departments. While each of these methods eventually played a role in the research, their overall direction was unified and given a specific frame through the use of the Roundtable methodology (Gilbert 2001, Kemp *et al* 2002), developed for cross-institutional projects concerned with the introduction of learning technologies.

The Roundtable methodology is presented by the USA's Teaching and Learning Technology Group in its document *Collaborative Change: Improving Teaching and Learning with Information Technology* (Gilbert, 2001). An adapted version of this document, *Roundtable: a collaborative change approach to promote the effective implementation of learning technologies* (Kemp *et al*, 2002), was developed by a JISC-funded project for the UK sector. While the UK adaptation differs in some elements of its presentation, and is somewhat less prescriptive than its US counterpart, both offer a methodology comprising the following key elements:

- A group known as a Roundtable is convened to address the introduction of a large-scale change involving new technologies (specifically learning technologies) to a higher education institution. It is to function separately to existing committee structures, and should not be proposed as a forum, committee or under any other title which might lead to its purpose being misconstrued. It is designed to encourage frank discussion and information sharing, and in particular to bring together people who do not usually collaborate or have occasion to discuss their working practices.

- The Roundtable is planned by two or more people from any division or department in the university. They may also involve others in a Development Team to plan and construct the Roundtable proper. The methodology provides a set of activities for the Development Team to complete in order to establish, firstly, that a Roundtable is needed for a specific reason, and then to enable the compilation of a list of potential members, a ‘champion’, and obstacles (practical and/or political) that may be faced.
- Membership should include representation from across the institution: academic staff from a range of faculties and departments (some with experience of adopting learning technologies, some without); support staff from a range of divisions (library, information technology (IT), management systems); administrators from departments and central divisions (registry, communications teams) and representative(s) of senior management to carry forward the work of the Roundtable in the institutional hierarchy.
- The Development Team may cease to meet if it is eventually subsumed into the Roundtable as a whole; alternatively it may continue to exist as a steering group for the Roundtable.
- After the planning process has been completed (this can vary in duration from a number of weeks to perhaps one year), the Roundtable is launched. It must then focus on setting its agenda and progressing this. The methodology again offers a range of activities which can be used to help map out this agenda, the potential obstacles the Roundtable may face in meeting it and the sub-groups or ‘Working Groups’ it may need to achieve its objectives.
- The agenda is actively progressed outside Roundtable meetings and through the Working Groups where these have been set up.

- The Roundtable process may continue for several years, and may be adapted to focus on newer technologies as these arise or to address different institutional strategic developments in relation to technologies.

The timescale of the project necessitated some adaptation of this methodology, since it outlines a process which is intended to continue over a number of years. A shorter process was planned with as much of the essence of the methodology as possible being retained. A Development Team, consisting of five people, was convened quickly and met infrequently, although members did join the Roundtable group and provide a steer for this at intervals. The Roundtable itself met six times in the course of one calendar year, but ended with the conclusion of the research project. While it managed to attract an initially representative group from across the university's departments and administrative divisions, membership decreased. Although specific meetings targeted particular groups, by the final two meetings members were coming largely from 'home' territory: departments close to that in which the project was located, and comprising mainly learning technologists and IT support officers. The impact of some of these issues will be explored in more detail below. The group produced six output documents, which have been forwarded to relevant people and groups within the more formal institutional hierarchy. Two of these documents are to be incorporated into an institutional strategy; one has been passed to the institutional communications team, and another to a formal administrators' group. All documents will also form part of the project reporting, going ultimately to the institutional Academic Committee. This short description of the process highlights some of the main 'events' associated with the Roundtable, and to which we will return later.

Using Activity Theory

The development of a university MLE, as described earlier, affects the whole community of users of university systems. This impact is not only technological, but also social and cultural. As such, it resembles the kind of change seen previously, albeit on a different scale, in separate sectors of the university: the introduction of technologies to support learning and teaching in academic subjects, and the computerisation of administrative systems. While the advent of new technologies supporting learning and teaching has seen the emergence of a whole new discipline (Conole, Oliver, Cook, Ravenscroft & Currier, 2002), emphasis has not been given in the same way to the impact of new technologies on administrative processes. In particular, the web has the potential to transform these processes in universities – if we can deliver online learning and teaching materials to anybody, at any time, and anywhere, then the administrative systems allowing that person to register and become a student on a course, and gain a named award, must follow quickly.

If this kind of change is envisaged, then it seems reasonable to suggest that theories and methodologies which have already proved informative and illuminating in the academic context should prove to be so again in relation to the development of the MLE. From the theoretical perspective, we can consider the MLE in terms of its socio-cultural impact, and draw on social theories of learning, which have already had a strong influence on research in learning technologies. The importance of discipline (Becher, 1989) and community (Lave & Wenger, 2002) are relevant, as is the concept of learner ‘literacies’, particularly with respect to new technologies but also in respect of differing subject areas (Morgan, Russell & Ryan, 2002). However, for our purposes in this

analysis, Activity Theory (Nardi, 1996) appears to offer the most potential since it seeks to describe holistically a human activity, its context, the community involved in it, and the tools that community is using.

Some key elements of Activity Theory will now be reviewed, however the theory will not be described in depth here. Many researchers have included helpful overviews of Activity Theory in their treatments of case studies or in the presenting the theory to others for consideration in different subject areas. For examples, see Issroff & Scanlon (2002) and Kaptelinin & Nardi (1997).

Activity Theory has its basis in Marxist philosophy and the Soviet cultural-historical school of the late 1930s (Russell, 2002), and proposes a psychological model focusing on 'artefact-mediated and object-oriented action' rather than behaviourism. In Activity Theory, the unit of analysis is human activity, but this is mediated by the tools used, which may be 'material' or 'symbolic' and motivated by particular goals. Vygotsky's view is social: that individual consciousness is built through interactions with other people. However, Vygotsky's mediational model of human activity (Russell 2002, Scanlon & Issroff 2002) shown at Figure 1 does not fully reflect this social dimension. It was not until later development of the theory, in particular by Engeström (1998) that the model was extended to include the community, division of labour between individuals involved in the activity, and the rules (tacit or explicit) by which the activity is carried out.

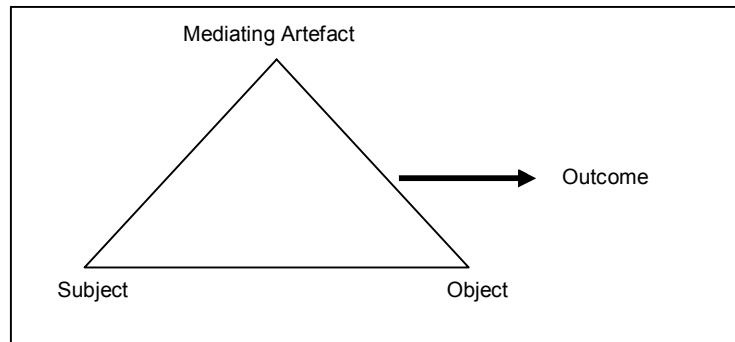


Fig. 1: Vygotsky's Mediation Model (from Russell, 2002; Issroff & Scanlon, 2002).

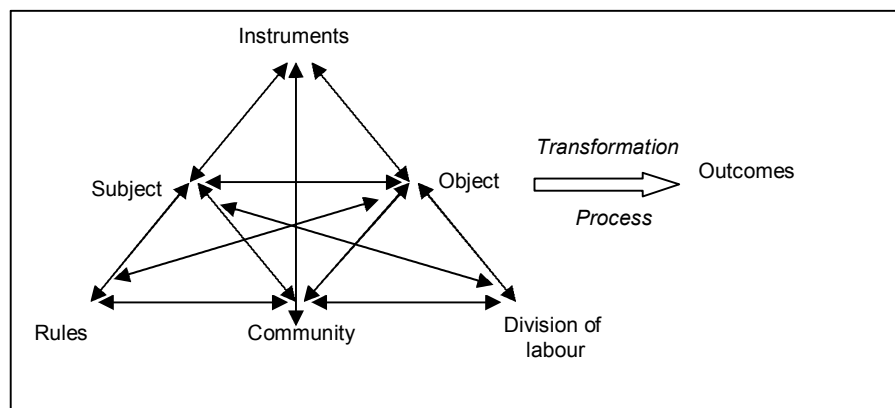


Fig. 2: the structure of human activity (Engeström, 1998).

The transformative effects of activities are emphasised in some readings of Activity Theory: that is, the action of the subject using the tools to transform the object into an outcome (Issroff & Scanlon, 2002). This is commonly incorporated into the diagrammatic models as shown at Figures 1 and 2. The process of examining activities and using the diagrammatic models is intended to highlight where there may be breaks or contradictions in the system. These may be unexpected or unanticipated, and as such inform a change in the system or account for problems in the realisation of the object.

The theory accommodates the idea that there can be one or more activity systems overlapping as part of a larger activity. This is discussed in Engeström's (1998) later work, in terms of a potentially shared object between two activity systems. Engeström's extension of the model, and also the work of Nardi (1996) and Kuutti (1996), have given rise to discussion of levels of operation within an activity, with different activity systems at each level. Both Nardi and Kuutti (1996) bring this into their field, Human Computer Action (HCI). As Kuutti's discussion in particular has relevance to our analysis it will be reviewed in a little more depth below.

Analysing the Roundtable process using Activity Theory: some perspectives

Perspective 1: mapping the Roundtable process as an activity

A basic Activity Theoretic mapping of the Roundtable process as implemented during this research project is shown at Figure 3. This suggests that the Researcher as subject sought to use the Roundtable process as a tool, with which to meet the objectives of the project – and to transform these into project findings that could lay the foundations for future technical developments to result in the university MLE. In this activity system, the community involved is that of the university as a whole, with the Roundtable methodology acting as 'rules' for the activity.

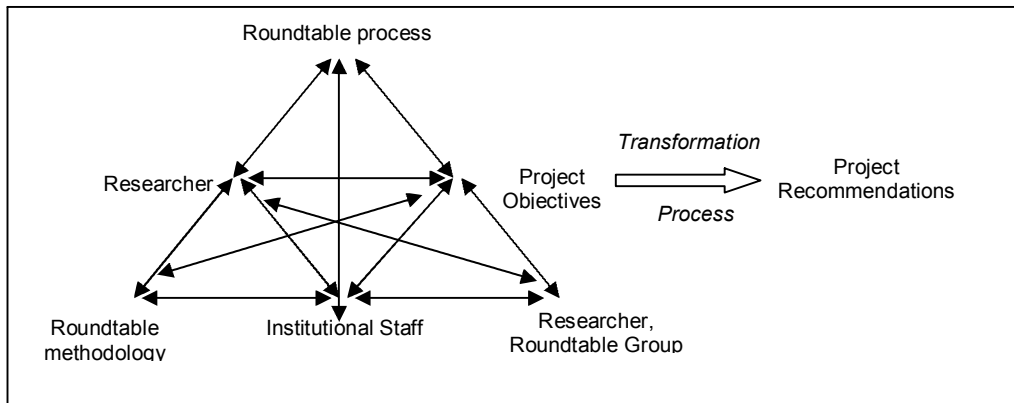


Fig. 3: a basic mapping of the research project's use of the Roundtable process

The division of labour is more difficult to categorise, however, and appears to uncover a contradiction in the activity. The Researcher ultimately undertook all of the work set out by the Roundtable in its agenda and objectives. This is interesting because it may help to explain why the membership of the group altered and later decreased as the process continued. The Researcher undertook a series of sub-projects defined by the Roundtable, in the interests of allowing members to frame work they felt needed to be done as a priority, but preventing that process from giving them a further burden of work. However, this decision contradicted the 'rules' of the methodology which state that work should be sub-divided between working groups of the Roundtable, and each should take responsibility for progressing that work. There may have been a sense in which the members of the group felt a loss of ownership of the activity as a result, and therefore that its outcomes potentially would not have the same relevance to them and their interests.

A separate contradiction which may arise here is the extent to which the members of the Roundtable were aware of the methodology, since membership changed in the course of

the discussion strand and it was a new methodology as far as most were concerned. There was only one paper-based copy available for most of the process, and only relevant sections of this were referred to explicitly in meetings without its being copied or circulated more generally to the members. While this was a decision designed to allow the Researcher flexibility in which parts of the methodology to pick and adapt, it may have caused confusion for the participants in the process. This was 'rule-breaking' in the context of the activity system, whereby potential problems were averted by changing the rules but may in turn have generated separate problems as a consequence.

Perspective 2: potentially (un)shared objects

Another view Activity Theory gives us is in terms of potentially shared objects (Engeström, 1998). One of the issues alluded to earlier in the description of MLE development is that of central and departmental working practices, and research indicates that there is a perceived lack of communication and understanding between central support and administrative divisions of the university on the one hand, and academic departments on the other. Using Activity Theory to map an activity system for a department, and then for a central division such as IT support, we can suggest that there is a potentially shared object for both in the creation of a better learning environment for staff and students. However, the 'rules' and resulting 'tools' for administration in an academic department may be somewhat different to those of a systems support division.

Examining only departmental administrative processes, these are likely to be heavily influenced by wider university regulations but also by disciplinary culture and the

priorities of that culture in the department. For instance, financial data may be prioritised in terms of where budgets have come from (research grants or core funding), the timeliness and accuracy of the information, and length of time for which it is stored in departmental systems. This in turn may involve the creation of distinct ‘tools’ for this purpose by the administrator, or the departmental team. Meanwhile, the IT division with its rules, defined amongst other things by budgetary constraints and the technology available to it, provides an alternative tool for the management of the same data across the institution. Where this system does not meet the department’s need or reflect its priorities, the department will opt out and duplicate the data by holding its own records. This gives rise to contradictions in the two activity systems, and in turn impacts on the shared object: duplication of systems and data runs counter to the ideals of the MLE. Interviews with administrators which were conducted as a sub-project for the Roundtable indicated that this kind of contradiction was occurring:

Researcher: Do you find you tend to keep your own records of everything here?

Interviewee: Yes, yeah you do really - you need to. I try and rely as much as possible on the centre, because you know, otherwise you’re just reinventing the wheel, but there are certain things you need to. (Interview A)

we only need this in one place and everyone can access this but.. In fact lots of stuff is held centrally in college yet we all have our own copies (Interview B)

A further contradiction arises in the object itself – although both groups may share the objective of creating a better learning environment, a department may wish to add to this the words “through better academic administration” and a central division (in fact a number of central divisions) might instead add “through better administrative

information management”. There is a difference of emphasis here – departments seem to focus on processes, while the centre may be focusing on data and systems. This is a speculative suggestion, based on the authors’ analysis of some of the discussion that took place, and would need further series of interviews to obtain supporting data. However, the existing data indicates this potential difference in point of view.

Perspective 3: levels in the Activity system

Even the limited consideration of potentially shared or unshared objects given in Perspective 2 prompts some consideration of the scope of any Activity System which had the development of a university MLE as its objective. Arguably, the main activity of the university could be sub-divided into numerous smaller activity systems which make up the whole, and between which there are shared and unshared objects but also vast numbers of smaller activities (with their own objectives) contributing to the overall object. Kuutti (1996) discusses ways of viewing these kinds of ‘levels’ within the Activity System. In Kuutti’s view, the Activity is a long term one, with objects transformed to outcomes through series of stages. These stages are the shorter-term processes – Actions – which are themselves building on smaller Operations. An Operation will have a planning stage (Orientation) and require steps to be completed (Resources) before becoming regularised as an Action, which then feeds into the Activity as a whole. At each of these levels separate activity systems mapping Activity, Action and Operation may be sketched. However, he emphasises that these should not be seen as rigid representations of the activity but rather a diagrammatic means of making things visible and highlighting where tacit rules or previously unnoticed parts of the activity are at play, as well as the contradictions in the system.

In Figure 4 we have tried to show the three levels in the Roundtable process. The development of the university's MLE is presented as the longer-term Activity at the top level. At the intermediate level are the kinds of activities undertaken to contribute to the development of this enhanced environment for staff and students. These include the Roundtable itself, or the research project. Here, we have mapped the Roundtable as one example of a process feeding into the development of strategies for the MLE at the top Activity level.

At the Operation level is the example of one of the Roundtable sub-projects, a sequence of interviews with departmental administrators. From these interviews were identified issues and working practices which developers of the MLE would need to address or take account of.

Another example that might be found at this level is that of small scale development work undertaken in a department to address its needs in terms of academic administration. For instance, one case study identified by our research project showed how research administration was enhanced through the development of a web-enabled database into which staff entered details of their research publications.

When pieced together, the outcomes of the three systems can be seen to have a relationship: from the Operation level comes the outcome of the set of issues discussed by a Departmental Administrator and reported to the project researcher, leading to greater knowledge of departments' needs, and specific actions they have taken to address their needs. This in turn can be discussed and recorded by the Roundtable

group, and through discussion with colleagues from a wider cross section of departments, informs the overall recommendations from the Roundtable to the senior members of staff developing institutional activities at the top level.

This appears to present us with a kind of cyclical process, but it is important to bear in mind Kuutti's (1996) caution that this kind of analysis is also concerned with highlighting contradictions. He also suggests that at times, the planning and resourcing activities associated with Action and Operation will need to be revisited. One example of this might be when we discover that a departmental solution to an administrative problem is causing data to be duplicated, and therefore potentially making the creation of the MLE more difficult. This may necessitate working back through the levels: for instance, if the Roundtable discussion highlighted the existence of a similar central system that could support what the department is trying to do. Kuutti's model suggests that there could be an interaction back through the levels where a contradiction or a 'break' like this occurs in the Activity: perhaps the Researcher returns to the Administrator, who reviews the departmental arrangements.

However, in practice this would be extremely difficult: the department is resolving its own immediate, local problem. The Researcher is working on a short-term project with no guarantees to the department that the process of dialogue established will continue. Change is then risky, since the department may lose contact with the central developer who recommended it in the first instance. Alternatively it is conceivable that the recommendations for the MLE may never be taken forward by the institution.

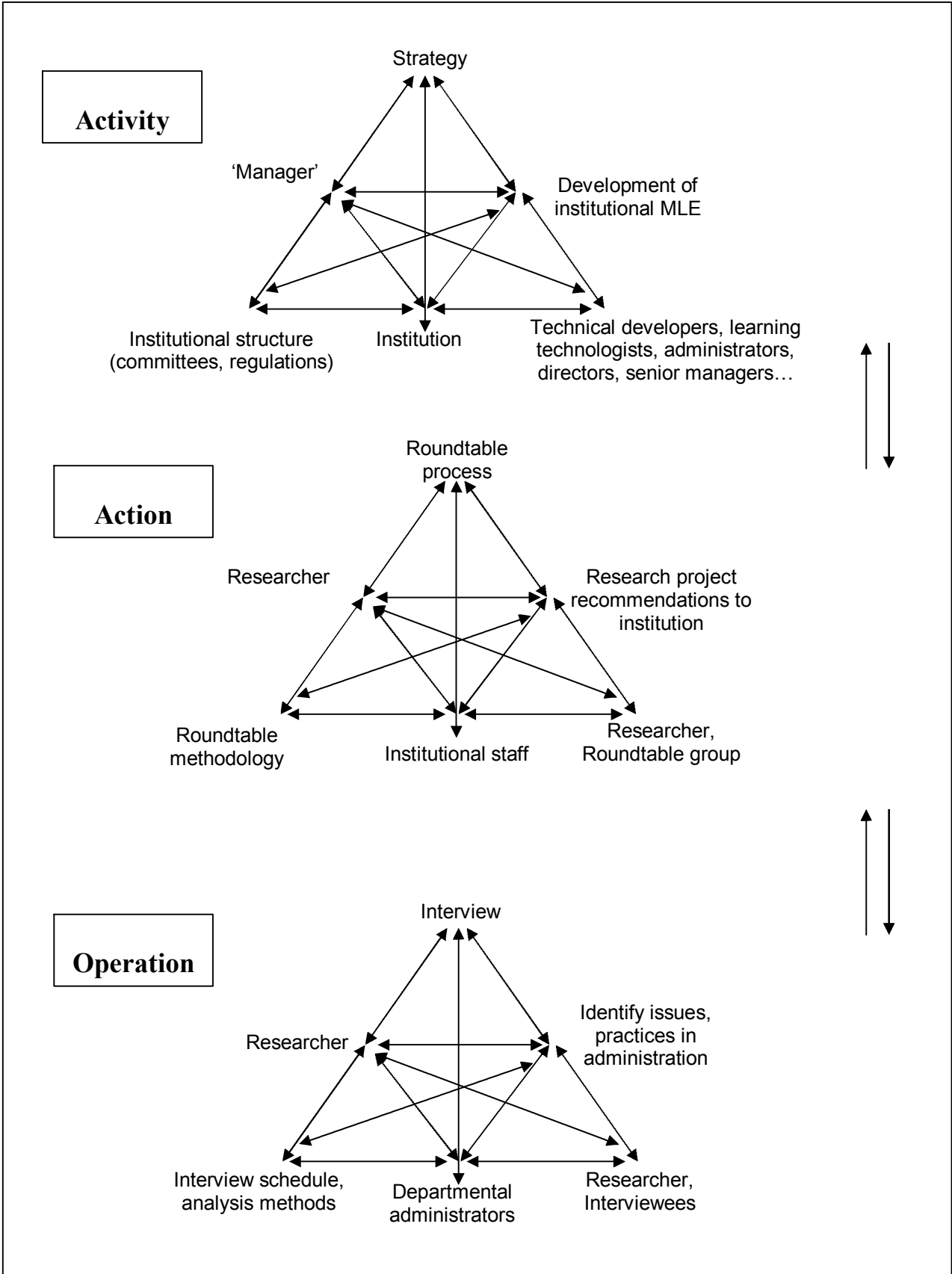


Fig. 4: Activity Theory 'Levels' and the Roundtable process

Discussion

This model of levels within the Activity has highlighted a significant issue for the project and for the future development of the MLE. Having established that this kind of problem can happen with our technical systems, who will then address this with departments who have already come to their own practical solutions? There are other bodies at the Action level, including administrative systems committees, through which departments' concerns can be fed into the overall institutional strategy. The question is whether the Roundtable acting at this level was able to meet that need in a different way. It may be that the Roundtable has been shown to be an unsuitable methodology to use for short-term projects since it needs to exist over some years in order fully to address the concerns it provides space for. As one strand of several activities at this second Action level, it contributes to the overall planning of the MLE. What may be lost in the absence of a Roundtable is the more informal, discursive activity that it is designed to afford.

A separate issue arising when one reviews these three levels of activity is that of community. The community at each level could be argued to be the university: it is the university that has decided to launch a project to make recommendations about the development of the MLE. The administrators interviewed for the sub-project are part of the wider university community, and the subject department at the third level is also part of the university. Of course, it is possible to be a member of more than one community simultaneously (Lave & Wenger, 2002). However, a question that may be worth asking since this node is difficult to define, is where the institution should be active in the

system at different points. Ultimately, the institution stands to gain from each of the activities undertaken at each level: but how direct is its support for those activities and for the people working towards a specific objective? If the university can adopt an ambiguous role in this process, what will be the impact on the ‘subjects’? The earlier reflection on membership of the Roundtable, and how this changed over the course of a year, indicates that this is something institutions need to consider in more depth. For members of staff, and indeed students to ‘buy in’ to the MLE it will need to demonstrate its support for them in terms both of supporting working processes and in giving the resources for the development of technical solutions.

Conclusions

The research undertaken for this project, and in particular the adoption of the Roundtable methodology, have demonstrated that the MLE is not only a series of technical solutions developed to join hardware and software together. It is a process to be sustained and developed – potentially over quite a long period of time. Neither is it likely to be ‘finished’ at any particular point, but rather will continue to evolve according to the institution’s expansion, restructuring or other direction. It will need maintenance in terms of the technologies it employs, but also a responsiveness to changing patterns of work and the ways in which it reflects these.

Activity Theory has helped us to reflect on these kinds of changes as they are happening at the time of this research. It has been possible for us to describe in more detail the processes involved in developing an MLE, and also to suggest that the kinds of ‘breaks’

that may exist in our current systems and processes. It has also helped us to show where and how the Roundtable has been of benefit in giving us a framework for sustained dialogue and interaction across the institution. The Roundtable established for this research project has provided a space for interaction on a short-term basis, and allowed us to fix some of the current 'breaks' we have found. If this is not to be sustained after the lifetime of the project, there may be a need for something else to fill its space at the 'Action' level.

What is important to draw from this is the value of providing a tool for communication at this point in the Activity System. Providing a means for communication and reflection on our evolving managed learning environment has been a valuable initiative. It may be important for other institutions (as well as ours) to consider this as the longer term plans for our MLEs evolve.

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