

TECHNOLOGY, TRANSPARENCY AND COMMUNICATION IN INSTITUTIONS: SOCIAL SOFTWARE IN THE SPLICE PROJECT

Mark Johnson, University of Bolton
Graham Hall, Miranda Edwards, Coleg Harlech

Introduction

SPLICE is a JISC-funded project focussed on the establishment and role of technological habits of teachers, learners and administrators in lifelong learning. Within this broad focus, the relationship between the use of social software and increased professional transparency of teachers within the institution has come under scrutiny. This has revealed some organisational benefits to educational institutions of the use of social software which add a new dimension to the ongoing discussions around the role of social software in education, particularly those concerning the Personal Learning Environment (Johnson and Liber, 2008). Here we are focused on identifying social mechanisms which might explain these organisational phenomena: an objective which we argue is not only important to the project, but to the broader strategic approach to social software within Universities.

SPLICE has generated a range of outcomes which reflect the complexities of the topic of 'technological habit'. However, the task of translating these outcomes into meaningful evaluation and knowledge which is valuable to the sector at large presents some significant methodological challenges. To address these challenges, SPLICE as a whole has adopted an approach which draws on the techniques of Realistic Evaluation (Pawson and Tilley, 2004). By using Realistic Evaluation, the focus is to ensure that knowledge outcomes from the project are useful to people outside the project, so that (for example) if an institutional manager asks "if I do what's been done in SPLICE in my institution, what will happen?" an answer which accurately predicts events (good and bad) can be given. Realistic Evaluation helps because it is a multiple theory-driven process for identifying possible social mechanisms. In doing this, it is distinct from traditional single-theory approaches (for example the traditional 'before' and 'after' case-study), or phenomenological no-theory approaches (e.g. Glaser and Strauss's 'Grounded theory' (1962)) Realistic Evaluation prioritises the process of theory construction and testing as an essential part of construing meaning from project outcomes. As such it is closely allied to multimethodological techniques in the social sciences (Mingers, 2008).

One advantage of taking a multi theory-driven approach is that existing theories can be mapped onto perceived outcomes. This is our purpose in this paper as we consider the outcomes of the project from the perspective of the communications theory of Niklas Luhmann. Thus, this paper concentrates on one possible mechanism, and as such it is part of a much larger evaluative process.

Realistic Evaluation

Central to the Realistic Evaluation approach is the idea that there are discoverable mechanisms responsible for social phenomena, and that better knowledge of these mechanisms can give greater control to practitioners, whether teachers, administrators or learners. In asserting the role of mechanisms in the social world, Realistic Evaluation is rooted in the philosophy

of Critical Realism (Bhaskar, 1977; Archer 1982). Pawson and Tilley argue that the job of evaluation is to uncover those mechanisms through a process which they (following Bhaskar) call Retroduction. In essence, Retroduction involves describing the Context (C) within which a possible Mechanism (M) might be responsible for producing a particular Outcome (O). The relationship between Context, Mechanism and Outcome can be shown as in the diagram below:

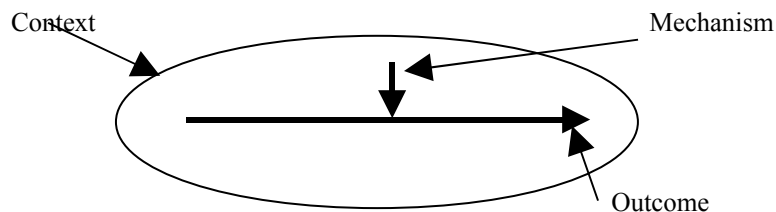


Figure 1: Context, Mechanism and Outcome in Realistic Evaluation

In line with the Critical Realist position, Pawson and Tilley argue that whilst the experience of a project to any particular observer (or stakeholder) might be different (or relative to the observer), those experiences are not *that* different. In other words, they may be the product of a common mechanism working within each individual context. Thus in encouraging individual participants to articulate the mechanisms that they feel to be responsible for what they experience, it may be possible to consider overarching explanatory frameworks which describe mechanisms which are common to each. Such overarching mechanisms can then be considered for their explanatory and predictive power with regard to each individual outcome.

Outcomes and a Theory

Within any learning technology project there are a large number of stakeholders. In SPLICE these included:

- Technical developers
- project managers
- Teachers
- Accounting managers
- Institutional administrators
- Funding body programme managers
- Creative Technology practitioners
- Learners

The project may be viewed as a set of commitments and communications between these different stakeholders. Over the life of the project, each stakeholder establishes a particular perspective on the outcomes of the project. Different stakeholder views of project outcomes are necessarily dictated by the context within which they are situated, and yet the mechanism that lies behind the generation of those outcomes may well be common across the project.

The stakeholders within SPLICE have had different experiences of it. Some learners had highly beneficial experiences, whilst others continued to feel uncomfortable with social software and didn't engage much. Institutional administrators varied in their experiences of the project, from simply managing the project money, to identifying key synergies between project outcomes and institutional objectives. Individual teachers varied in their experiences, from overcoming reticence to engage in new technologies, to transforming their

teaching practices. Software developers experienced a capacity-raising effort, although some users of the software didn't enjoy the fruits of their endeavour. The involvement of Creative Technology practitioners in the project was designed to enrich the learners' social network with real practitioners. These practitioners, like the learners, varied in their experience of the project, from ignoring it to experiencing significant transformation of their technological practices.

Each of these individual stories represents an individual outcome, and from the Realistic Evaluation perspective, mechanisms may be suggested for each of these outcomes, as can the contexts within which the mechanisms operate. It was not unusual to find individuals experiencing very different outcomes from the project (sometimes conflicting with each other). Treating each observed outcome as being the product of a mechanism allows such complex dimensions to be examined.

The process of identifying possible mechanisms is inevitably the result of discussion between stakeholders. This might take the form of "What do you think is going on?", although such a 'blank canvas' technique can be intimidating for some stakeholders. Pawson and Tilley describe a process of mutual teaching and learning about possible mechanisms between researchers and participants. Here, existing theories which might be known to either the researcher or the participant may be explored for their explanatory power as a starting point for deeper investigation. This has been our basic approach here and the theoretical position from which we have started draws on the social theory of Niklas Luhmann.

Luhmann's Theory of Communication

The challenge in creating a unifying framework for describing the variety of outcomes experienced by participants is to create a set of distinctions which can be usefully applied more universally. The first question is, bearing in mind that the distinctions should be applied across the board, what should the theory concern itself with? This is an ambitious question. For to answer it is to commit to a particular view of the purpose of education and its relationship to the broader social world. Pawson and Tilley point out that any theoretical approach is predicated on particular ontological assumptions. It is important, therefore, to be clear about the particular ontological assumptions that are being made. In our theoretical description here, we follow Qvortrup (2005) in upholding Luhmann's prioritizing of 'communication' as the principal category in understanding the project (and for Luhmann, any social system).

For Luhmann, any institution functions to maximize the probability of 'successful communications' between the stakeholders within it. The phrase 'successful communication' has a particular technical meaning which Luhmann describes as a three-stage process of 'information', 'utterance' and 'meaning'. Each of these, Luhmann argues, is a selection from a set of possibilities: first there is a selection of 'what' it is to be communicated, which Luhmann terms 'information'; secondly a selection of 'the medium' – the 'how' something is to be communicated ('utterance'); and finally a selection (by the recipient) of 'what it means'. All these selections are probabilistic. The communication is 'successful' if the process of selections of information, utterance and meaning leads to the production of further selections. As a result, the success of further

communication is deemed more likely and thus the communication becomes self-sustaining (or in Luhmann's terminology, borrowed from Maturana and Varela (1980), autopoietic). The environment of an institution contributes to the success of a communication by attenuating these possibilities – for example, with codes of practice, professional discourse, processes and procedures – more broadly, perhaps, what we might conceive of as institutional 'culture'.

In applying these distinctions about communication to the outcomes of SPLICE, we have to ask whether, and to what extent, a teacher's reticence to engage with video is a communicational problem, or, similarly, learners being reluctant to blog. Luhmann emphasises that communicational practices are not simply linguistic, but understood within the broader concept of 'communicative action' – which includes technical actions as much as it does language. By this definition, the creation of software that doesn't work, or is unusable, has communicational implications amongst the stakeholders of the project. Similarly, the communication between teachers and learners, when viewed through the lens of 'maximising the probability of successful communication' may also be useful to explain the outcomes reported by teachers – particularly in comparing the differences between well-motivated and poorly motivated learners. Furthermore, the broader issue of 'raising capacity' amongst project stakeholders may be seen in the light of raising the probability that individuals will communicate successfully in an increased number of contexts (e.g. with different organizational groups within and outside the institution, the e-learning community, etc).

Social Software, Personal Transparency and Communication

The focus of SPLICE has been on social software, including the use of a social network (<http://splicegroup.ning.com>), micro-blogging (<http://www.twitter.com>) video podcasting and other technologies. Each of these interventions has served to amplify individual practices which otherwise would have been limited to a small community: once online, activities that took place behind the classroom door become available to others. This is an example of the sort of professional transparency brought about through the use of social software that has been identified by Dalsgaard (2008) and which, he argues, carries significant organizational benefits.

Thus, considering the diverse range of outcomes from SPLICE, we need to consider the impact of this increasing personal transparency and the organizational changes that are entailed by it. Transparency applies to both teachers and learners in the project: increased transparency in learners means greater opportunities for peer learning, sharing practices and experience; increased transparency for teachers means sharing practices with a larger community of other teachers and learners. Whilst these increases in transparency might be seen to be beneficial to an organization, personal transparency also presents challenges to the individual. Most typically, many individuals on the project have articulated that they feel uncomfortable at exposing aspects of themselves which may well be considered private. Teachers may feel the classroom to be their private domain, and may not feel comfortable in using video. The learner may worry about the implications of revealing things about themselves in a public space.

Both these positive and negative outcomes are important to the project, for within the realistic evaluation approach, they are regarded as outward manifestations of complex social and personal mechanisms. On the positive side, concrete evidence was gained in SPLICE concerning the organizational benefits of personal transparency on the institution together with benefits to learners which followed from this. At the same time, a lot of evidence was gained concerning the struggle individuals experienced in engaging with social software – often not through any identifiable deficiency of skill, but rather a mistrust of the transparency that was entailed through using it.

Transparency and Communication: the experience of Coleg Harlech

The organizational impact of transparent practice was most clearly demonstrated in Coleg Harlech. Coleg Harlech is a small FE institution which specializes in the education of mature learners seeking a 'second life-chance'. Prior to the project, Coleg Harlech managed separate programmes in Visual Arts and Multimedia. Teaching was constrained to the classroom and groups of learners reserved any inter-disciplinary collaboration to informal social gatherings outside class time. This SPLICE project focused initially on the Multimedia cohort, and teachers and learners joined the online social network for the project. This was a vehicle both for formal sharing of work on the course (including photographs and videos), but also (and more importantly) for informal messaging between different learners – often in the different institutions involved in the project. For teachers, the network afforded the opportunity to experiment with different forms of communication – most notably video.

In understanding the impact of the project on Coleg Harlech, it is useful to apply the distinctions from Luhmann's theory. The social network amplified communication between course participants such that this communication became discoverable to others. Similarly, the videoing of teaching practices had a similar effect. Amplifying communications in this way may be seen as increasing the probability of successful communication as a whole across the institution, since members of the institution who were initially not deeply connected to the project could see the communications underway and engage with them. In practice, this manifested itself in an increasing awareness that there were opportunities for inter-disciplinary collaboration, and a deeper level of discussion took place between departments as more teachers were engaged with what was going on.

Prior to the project, like any institution, the professional concerns of teachers in Harlech revolved around individual learners, the curriculum, timetabling, etc. SPLICE added a new component into these concerns, and one which caused a critical reflection on teaching practice, curriculum and pedagogy. Moreover, staff within the college started to engage in external discussions with the broader e-learning community. Because the focus of the project was on social software and transparent practice, this further stimulated dialogue and engagement. As some learners experienced benefit (and others struggled) from the social software environment, so staff reflected on their experiences. Thus, established patterns of communication within the college were disrupted by the project and gradually Coleg Harlech moved towards a position where teachers (particularly) were engaging in richer communication about their practices with a broader range of stakeholders. One concrete benefit of this process was the combination of the

initially separate Visual arts and Multimedia programmes into a single 'core' module focusing on technology and creativity.

As previously suggested, not all stakeholders had their capacity raised in this way, but all were affected by the project in some way. Nevertheless, the increase in successful communication across the institution is perhaps a useful index of the efficacy of the impact of personal transparency across the organization. This suggests that Luhmann's assertion that institutions serve to maximize the possibility of successful communication can be compared favourably to the overall increase in successful communication produced through personal transparency and may therefore present a way of measuring the value of a particular intervention. Thus we are on the point of suggesting a possible mechanism: that transparency can increase the probability of successful communication and that this can benefit institutional function. Within the Realistic Evaluation methodology, this is one of many possible mechanisms which must be considered for their explanatory power.

Challenges for Transparency and Organisational Change

If our mechanism has any value, then it should be able to have some predictive power too. This means that an institutional manager in a new institution unconnected with the project, on asking "If I encourage the use of social software within my institution, what will happen?", can be given an accurate description of what is likely to happen based on the mechanism we are suggesting. The answer to this question, however, must also consider the barriers to engaging staff with personal transparency. Harlech is a small institution, and this factor facilitated the improved communications that ensued in the project. Nevertheless, Harlech exemplified the diversity of engagement with the technology. Staff and learners varied tremendously in their disposition towards technology – particularly their disposition to personal transparency. "Expect diversity" would be the obvious starting point for answering the institutional manager's question. But then we might continue to say that if the barriers to engaging with transparency can be overcome, then the capacity-raising effects of SPLICE can be reproduced. However, the barriers are significant and SPLICE has paid particular attention to addressing them.

If personal transparency to increase the probability of successful communication is the goal, what measures may be put in place to bring this about? SPLICE has paid particular focus on those who were not interested in engaging with the technology. Over the course of SPLICE, many individuals transformed their personal technological habits. This transformation was brought about through a range of different types of intervention. Within SPLICE, these interventions have been categorized into three groups:

- Rational argument: presentations arguing that the world is changing and that changes to technological are necessary
- Institutional coercion: changes to institutional procedures, assessment regimes (particularly for learners), and the need to satisfy the requirements of the project.
- Creative disruption: Creating activities to give insight into issues of technological habit; engaging in rewarding creative practices which entail online participation.

These three 'levers for change' were applied at different stages of the project, and each one produced some measurable transformation in practice. For example, a number of events were conducted early in the project to talk about social software. This was a 'rational argument' and as a result of it, more people engaged with the SPLICE network, and started to sign-up for some of the social software services discussed (notably Twitter).

As would be expected, transforming assessment regimes had an impact on both teachers and learners, as learners were coerced into engaging with technology where they might not have otherwise done so. In a number of instances, this produced lasting transformation in practice. Finally, drawing on the interdisciplinary spirit of the project, learners were placed in situations they were not familiar with (for example, multimedia learners in the pottery studio), and shown how to make a connection between those situations and online engagement.

Of these three levers, institutional coercion had the most demonstrably significant impact, although it is difficult to isolate it from the other two levers – particularly since opposition to coercion may have been mollified by the application of other levers.

Behind these observed effects of the different interventions we made lie further mechanisms relating to the 'person' which are beyond the scope of this paper. Whilst the mechanisms which link transparent practice with increased communication are borne out by the Harlech experience, the causes for people changing their practices in response to particular interventions are not dealt with. However, to answer the institutional manager's question realistically, identifying a mechanism for the benefits of transparency is only any good if they are also informed about mechanisms for changing practice and overcoming the barriers of engaging with transparency.

Conclusion

Through the example of Coleg Harlech, we have argued that transformation of personal technological habit to increase transparency of professional and personal practice is possible. We have asserted that increasing transparency through social software has direct benefits on the organization of institutions, which in turn can enrich learner experiences. We have further asserted that it is possible to transform technological habit through recognizing 'levers for change' and applying them appropriately.

Whilst there is much discussion in the e-learning community about social software, it can sometimes appear that the only reason to engage in blogging, or Twittering, or anything else is because "it's there". Sceptics will rightly point out that this isn't a good reason for doing it. At the same time, a clearer rationale for engaging in social software is hard to articulate. In this paper, drawing on the experiences of the SPLICE project, we have attempted to do this. The task isn't easy because it entails asking some searching questions relating to the attribution of 'value' in any technological intervention in education.

There are an unlimited number of ways of making distinctions within the education system. To consider the task of evaluation as one of making distinctions to describe mechanisms at work which produce outcomes is the first step, and we have used Pawson and Tilley's approach as a starting point. We

have also produced a set of distinctions which try to account for the variety of experiences in SPLICE through using Luhmann's communication theory. If they are good distinctions, then seeing the system through their lens will produce results which are to the benefit of institutions and learners; if this doesn't happen, then new distinctions need to be examined. However, at this stage, we can point to an instance of practice in Coleg Harlech where Luhmann's distinctions seem to 'fit', where increase in personal transparency has had a real impact on communication structures within the institution, and where these changes have brought about genuinely beneficial experiences for teachers and learners.

Behind all this lie the real challenges of institutional life and the continual struggle to maintain an environment for effective teaching and learning practice. E-learning coordinators, IT managers and Vice-chancellors struggle to steer their institutions in a fast-changing world, and the many opportunities for intervention must be carefully considered. We have argued in this paper that useful evaluation empowers people with the knowledge of what is likely to happen, borne out of previous experience. If that knowledge is accurate and events (good and bad) pass as expected, then the control of those who have the power to steer events is increased.

References

- Archer, M.S. (1995) *Realist Social Theory: the Morphogenetic Approach* CUP
- Bhaskar, R (1975) *A Realist Theory of Science* Sage
- Bhaskar, R (1979) *A Possibility of Naturalism* Sage
- Dalsgaard, Social (2008) *Networking Sites: Transparency in Online Education*
<http://eunis.dk/papers/p41.pdf>
- Glaser BG, Strauss A (1967) *Discovery of Grounded Theory. Strategies for Qualitative Research.* Sociology Press
- Johnson, M; Liber, O (2008) *The Personal Learning Environment and the Human Condition: from Theory to Teaching Practice* *Interactive Learning Environments, vol 15, no. 1*
- Luhmann, N (1995) *Social Systems* Stanford University Press
- Mingers, J (2005) *Realising Systems Theory*
- Maturana, H; Varela, F (1980) *Autopoiesis and Cognition: the realization of the living Boston studies in the philosophy of science; vol.42*
- Pawson, R; Tilley, N (2004) *Realistic Evaluation*
- Qvortrup, L (2005) *Society's Education System – An introduction to Niklas Luhmann's pedagogy theory* Seminar.net – International Journal of media, technology and lifelong learning – Issue 1, 2005
- Tilley, N. (1993), 'Understanding Car Parks, Crime and CCTV: Evaluation Lessons from Safer Cities', Crime Prevention Unit Paper, 42, Home Office, London: HMSO