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Coordination of technology does not equal coordination of information technology: on misperception and maladaptation

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Coordination of Technology does not equal coordination of Information Technology : on misperception and maladaptation

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Abstract

Both technology and IT require a steady increase in capability from the primary phase through the secondary phase (DES, 1990b); the need for coordination of such developments is obvious (NCC, 1990; CCW, 1990). This paper offers some reflections on the distinctly different natures of IT coordination and technology coordination based on evidence gathered from coordinators attending three courses provided in two LEAs. We will conclude that the role of technology coordinator is closely analogous to the role of head of department. The role of IT coordinator is far more problematic. The profile of the IT coordinator obtained from survey data is of a relatively junior member of staff given few resources to carry out a role which most closely resembles that of a deputy headteacher with responsibility for the curriculum. Unless school managers shift their perceptions of the nature of the task, efforts at IT coordination are doomed to failure from the outset.

INTRODUCTION

The STAC Project is involved in research and development on Supporting Technology Across the Curriculum. Part of this work has been concerned with the development of courses for coordinators of information technology (IT) and technology (e.g. STAC 1990b). In the National Curriculum (DES 1990b) both technology and IT require a steady increase in capability from the primary phase through the secondary phase; the need for coordination of such developments is obvious (NCC 1990; CCW 1990). This paper offers some reflections on the distinctly different natures of IT coordination and the coordination of technology. We will conclude that the role of technology coordinator is closely analogous to the role of head of department or head of faculty. The role of IT coordinator is far more problematic. The profile of the IT coordinator obtained from survey data is of a relatively junior member of staff given few resources to carry out a role which most closely resembles that of a deputy headteacher with responsibility for the curriculum. Unless school managers shift their perceptions of the nature of the task, efforts at IT coordination are doomed to failure from the outset. All the evidence presented here was gathered from coordinators attending three courses provided in two Local Education Authorities (LEAs) unless we state otherwise.

SOME CHALLENGES FACING COORDINATORS

Subject Context

Technology coordinators can use a single curriculum document when considering their curriculum area (DES 1990b). However, IT has been placed deliberately in all subject areas of the curriculum. IT coordinators need to consult at least six different documents, or seven in the primary phase (DES 1989a; 1989b; 1989c; 1990a; 1990b; 1991a; 1991b). (An alternative is to read a document which summarises inclusion of IT in subjects across the curriculum (e.g. STAC 1990a)).

The curriculum areas involved are different; technology can still be treated as a discrete subject, but IT is being deployed increasingly across the curriculum in line with National Curriculum ambitions. For example, 58 IT coordinators out of 70 indicated their intention to deliver IT across the curriculum; 13 IT coordinators from the 70 responding saw IT remaining as a specialist subject. Compare this to 43 technology coordinators out of 43 responding who saw technology, or its component subjects, remaining as a subject specialism.

The changes taking place within the two traditional curriculum areas are directionally opposite. Technology is emerging from the convergence of traditional subject areas (design and technology, business studies, information technology, art and design, and home economics) and is striving to define some common core. IT began with a small set of ideas which has enlarged dramatically, and which has changed qualitatively as it encounters new curriculum areas; IT is diversifying rapidly into other subject areas. While IT can be still considered a specialism, its impact across the curriculum is, in principle, profound - as a subject support tool, a cognitive support tool, a social support tool, and in its use as a process or medium to discuss the whole nature of education.

Course Provision

The devolution of technology across the curriculum was ranked eleventh out of 13 factors relevant to the development of technology in schools, in an LEA survey of 43 schools. However, there is a broad consensus that IT should be delivered across the curriculum. Technology coordinators are concerned with the coordination of pupil experience and progress on a discrete course, and have direct involvement in those curriculum activities. Some schools are adopting a policy of delivering IT across the curriculum, without any discrete courses for the majority of pupils. In general, the IT coordinator is concerned with pupil experience and progress across the whole curriculum, and may not be directly involved in curriculum activities; an advisory or support role is more likely. Simply finding out about the nature of pupil experiences using IT is problematic; changing them is even more difficult. Our advice offered on courses for IT coordinators focuses upon being aware of activities that are happening in school, and on involving other subject staff on how to resource

and develop suitable activities in the light of an IT framework developed in the school.

Monitoring and Assessment

Differences in the nature of courses and provision means that monitoring and assessment offer different challenges. The emphasis towards process in technology is creating new demands upon those involved in its teaching, monitoring and assessment. Teachers involved in its delivery need to come to terms with this change in the nature of the subject, especially if they have previously accepted a view of technology as an aggregate of subject specific skills. The role of, and need, for monitoring and assessment in IT has been highlighted by many authors (Anderson 1987; Berkshire LEA 1990; CCW 1990; Day 1990; Evans 1989a 1989b; NCC 1990; North 1990a 1990b), but current methods are experimental or exist in isolation. 56 out of 70 IT coordinators in a STAC survey indicated that they have no monitoring and reporting back mechanism, or that mechanisms are informal. Monitoring and assessment for IT across the curriculum offers particular challenges; pupils are spread across the school, and few staff have the expertise to assess IT capability. Some IT coordinators believe that IT use within subject areas contributes to the general development of IT knowledge by pupils, and so should be monitored and assessed for the contribution it makes to IT skills (indeed, in some schools this is the entire experience of IT for the majority of pupils). If IT capability is assessed in other subject areas the problem remains of whether the purpose for the lesson is to develop IT capability, and if it is not, whether the assessment of IT will drive the lesson in inappropriate ways (see Ridgway and Passey (1991) for a fuller exploration of the role of assessment in driving the curriculum).

Liaison with Others

Liaison for the technology coordinator can be mainly with the group of technology teachers and with the senior management. For the coordinator of IT across the curriculum the liaison involves all staff. Several authors consider liaison to be the most fundamental of all functions of the IT coordinator (Berkshire LEA 1990; CCW 1990; Day 1990; NCC 1990; North 1990a 1990b). The IT coordinator not only needs to liaise with a greater number of staff, but also needs different means of liaison to those employed by the technology coordinator. When coordinating activities and experiences across the curriculum, and resources for all, the frequency of liaison, and positive nature of the liaison need to be maintained. The technology coordinator works largely within a closed system; the IT coordinator must liaise effectively with senior management, and success or otherwise at this level will have a profound effect on the outcomes of the whole endeavour. Most IT coordinators rely upon informal means for this liaison with both heads of department (60 out of 70 responding in a STAC survey) and with curriculum development personnel (43 out of 70 responding in a STAC survey).

People Management

Management of people is clearly an important function for both coordinators. Having interpersonal skills which will allow coordinators to function well will be an asset to either. The type of interpersonal skills needed, however, may well be different. A technology coordinator is concerned with the use of the design and technology process, and might be concerned with teams working as groups in collaboration. Personal skills in technology are likely to be a strong asset in this activity. Skills to form and develop collaborative groups are not the same as those involved in supporting a variety of individual approaches. Skills of consultation and supporting in team teaching situations, rather than being involved in the team, are more relevant to IT coordinators. Highly developed personal competence might not be an advantage if this results in the IT coordinator being perceived as 'techie' rather than 'educational'.

Staff Development

A major function which both coordinators highlight is their need to consider staff development and training. For technology coordinators this generally concerns a particular group of teachers. The staff development is concerned with awareness of the needs of design and technology capability, and ways to work together or in isolation to deliver that curriculum area. Staff development by IT coordinators is quite different, and its success will determine the impact which IT has on teaching within the school (Anderson 1987; Berkshire LEA 1990; CCW 1990; NCC 1990; North 1990a 1990b; Vaughan 1990). IT coordinators need to consider the needs of all staff. Needs analysis should consider subject background, and the ways in which teachers might apply IT to their teaching styles, as well as to individual subject needs (technology teachers will be involved in this group). IT coordinators are not dealing with a small set of mutually agreed good practices; that they are dealing with a wide range of educational options will mean that they are quite unfamiliar with many of them. They also need to be able to liaise with the external support and advisory services which offer school support. This liaison may bring with it another range of issues and problems (expanded in Passey and Ridgway, 1991).

Policy and Planning

Policy development and strategic planning are seen by many as means to overcome all the problems identified, and to move forward in a sensible way. Technology coordinators may need to develop a policy concerned with their curriculum area, but IT coordinators are more than likely to need to develop such a document which applies across the whole school. Many authors have indicated the need and use of formal policies (Berkshire LEA 1990; CCW 1990; Day 1990; NCC 1990; North 1990a 1990b; Vaughan 1990). However, in a STAC survey, only 7 out of 70 IT coordinators indicated that policy and strategy formulation was one of their functions. The process of development, and effective use of policy has been described too rarely (IT Across the Curriculum Advisory and Support Service London Borough of Croydon, 1990; Whole

School Development in IT Project, 1991) for others to use as a model. Many IT coordinators have been disappointed or disillusioned by the ineffectiveness of policies to which they have devoted considerable effort. The task of involving all staff in policy and strategy formulation is problematic.

Time Needs

Technology coordinators need staff time to enable the technology group to work and develop together and are active members of this group. IT coordinators need time for support activities with other staff outside their own curriculum interests. Timetabling is a crucial factor for both. While the need for timetable relief is advocated (Anderson 1987; Day 1990; Evans 1989a), it is rather rare in schools (47 from 70 responses to a STAC survey indicated no time was available to IT coordinators for any development or support purposes).

Resources and Materials

Space is a critical factor to both coordinators. Technology coordinators try to establish adjacent rooms exclusively for use in technology; IT coordinators have a different problem (identified also in Day, 1990) in that they need to try to give fair access to all staff to computer rooms when resources are in limited supply.

Resources are at a premium for both coordinators. Technology coordinators are concerned with resources for a discrete area, and a prescribed number of teachers, usually located within a small geographical area. Staff have needs which are quite diverse, but relatively well defined, and which they can articulate clearly. Technology coordinators commonly have a capitation or financial allocation to manage for that curriculum area. Some equipment is expensive to purchase and has a long expected lifetime, while other materials such as plastic, food, textiles, wood and metal are classified as consumable. Resource needs of subject specialists are dominant over pressures for uniformity. The technology of technology changes rather slowly, and obsolescence (e.g. of a lathe) need not be obvious to either teacher or pupils. Teachers within technology are likely to feel that they 'own' particular pieces of equipment, with all that is entailed for maintenance, and mastery of use both personally and by pupils. The nature of resources for IT coordinators is rather different. The materials themselves are also rather different in form. The IT coordinator must address the whole curriculum, and consider the needs of the whole staff (see Anderson 1987; Berkshire LEA 1990; CCW 1990; Day 1990; Evans 1989a; NCC 1990; North 1990b; Vaughan 1990). Equipment will be distributed throughout the whole school (with associated problems of decisions concerning deployment, security, and maintenance) (see Berkshire LEA 1990; CCW 1990; Day 1990; NCC 1990; North 1990a; 1990b; Vaughan 1990). The IT coordinator may see real virtues in standardisation of hardware and software, and may have to persuade staff to relinquish local benefits from particular features well suited to their curriculum needs, for the common benefits of ease of maintenance,

development of expertise, and the continuity of pupil experience. IT changes rapidly, and old technology is quickly identified as such by both teachers and pupils. Teachers are less likely to feel ownership over a computer which they use only occasionally for teaching. Staff needs are very varied, and this variety is compounded by staff ignorance of what is possible and desirable at present, and by the problem generic to IT in education of the rapid invention of new applications to teaching. Finance appears to be more problematic for the IT coordinator (indicated as an important consideration in Berkshire LEA, 1990). 23 out of 70 IT coordinators who responded to a STAC survey had no financial allocation to manage, and 34 out of 70 IT coordinators had capitation budgets generally for IT as a specialist subject rather than for IT across the curriculum.

Organisational Issues

Many of the problems faced by IT coordinators reside in school organisational structures themselves (CCW 1990; North 1990a). Many schools still are structured discretely and hierarchically, and subject divisions and management divisions predominate. Technology coordination does not pose a great threat to this structure, because technology itself can be considered a discrete curriculum area. IT coordination needs to cross curriculum and hierarchical boundaries. The horizontal nature of this coordination poses a threat to existing structure and values; for IT coordinators this creates a major barrier. Both teachers and managers may feel threatened; IT coordinators need to be both sensitive to this, and have the means and methods to move through such barriers.

On the Nature of Roles, and Pointers to the Future

Technology coordinators' roles are different to those of IT coordinators. The nature of the curriculum area, of course provision, the implications for time, monitoring and assessment, form of liaison, resource considerations, needs for staff development, management of people, organisational considerations, and use and development of policy create major differences in coordinating functions which determine the nature of the roles involved. The extent of documentation, the materials involved, the implications for space, and need for management support create differences too. Technology coordinators' roles are not dissimilar to the roles of heads of department, and indeed technology coordinators are often described as head of technology, or head of technology faculty. The existence of a well understood model which can be adapted readily makes the coordination of technology no more difficult than, say, that of ringmaster at the Coliseum.

IT coordinators' roles on the other hand are not like those of a head of department. The breadth of coordinating functions, and their nature means that their tasks most nearly approximate to a deputy headteacher with responsibility for the curriculum. However, IT coordinators are being appointed who have been IT teachers or heads of IT or computing studies. The modal average incentive allowance for IT coordinators in one LEA is MPG + C. The

status and authority may be too low to allow them to transcend hierarchical and subject barriers. The coordinating functions that are required is large, and the staff development and training needs are vast. The need for management of people is extensive. The low status of IT coordinators, their lack of resources either in terms of time or money, and their lack of influence over management actions are all clear signs that the role is misunderstood by LEAs and school managers.

Anderson (1987) argued that IT coordinators should receive the equivalent of 30 days of training. This has not happened, yet it has been reported that of about 30 LEAs responding, 45% of IT coordinators were felt to be fully competent and 48% partly competent to carry out the functions involved to fulfil their roles (Esterson, 1990). Exactly what criteria these judgments were made against was not stated.

IT coordination is a new task, quite unlike the familiar head of department or head of faculty role. Conventional organisational structures mitigate against its success. IT coordination will fail unless school managers address the problems in new ways. Some more appropriate models are available. Both the mathematics coordinators in primary schools (described in Winteridge, 1989) and the deputy headteacher with responsibility for the curriculum in secondary schools carry out similar coordinating functions. Materials to help IT coordination in school have been developed by STAC, National Council for Educational Technology, MITAC and the Whole School Developments in IT Project. Let us hope that they are effective.

References

Anderson J (1987), 'Information Technology and In-service Education: a change of emphasis', British Journal of Educational Technology, Vol. 18, No. 3

Berkshire LEA (1990), 'Managing Information Technology in Berkshire Primary Schools', Berkshire LEA

Curriculum Council for Wales (1990). Information Technology in the National Curriculum: Non-Statutory Guidance for Teachers, CCW, Cardiff

Day J (1990), Personal Communication, Surrey County Council

Department of Education and Science (1989a), National Curriculum Statutory Orders for English Key Stage 1, HMSO, London

Department of Education and Science (1989b). National Curriculum Statutory Orders for Mathematics, HMSO London

Department of Education and Science (1989c). National Curriculum Statutory Orders for Science, HMSO, London

Department of Education and Science (1990a). National Curriculum Statutory Orders for English, HMSO, London

Department of Education and Science (1990b). National Curriculum Statutory Orders for Technology, HMSO, London

Department of Education and Science (1991a). National Curriculum Statutory Orders for Geography, HMSO, London

Department of Education and Science (1991b). National Curriculum Statutory Orders for History, HMSO, London

Esterson, D. (1990). Evaluating In-Service Education in Information Technology, Paper presented at the ESRC InTER Seminar on INSET Evaluation at Aston University Business School, October 22-23 1990

Evans, N. (1989a). The Role of the IT Coordinator, LTS

Evans, N. (1989b). The Role of the IT Coordinator: Monitoring IT Integration, IT Education/Network User, November/December

IT Across the Curriculum Advisory and Support Service London Borough of Croydon (1990). Managing IT in Schools: Towards a Policy in Secondary Schools, London Borough of Croydon

MITAC (1991). The IT Toolkit, Northern Micromedia, Newcastle-upon-Tyne

National Council for Educational Technology (1990). 'Focus on I.T.', NCET, Coventry

National Curriculum Council (1990). Technology Non-Statutory Guidance: Information Technology Capability, NCC, York

North, R. (1990a), 'Managing the Integration of Information Technology Across the Curriculum of the Secondary School', (Paper given at a European Conference on Technology and Education (EURIT 90), 25 April, Herning, Denmark)

North, R. (1990b), Managing Information Technology: The Role of the IT Coordinator, University of Ulster

Passey, D. and Ridgway, J. (1991). Advisory Teacher Successes: A Case for Self-Evaluation, National Council for Educational Technology, Coventry

Ridgway, J. and Passey, D. (1991). 'How do we know that learning has happened?' (Report on a Debate at CAL '91, University of Lancaster). Available from the Authors

STAC (1990a). Mapping of Information Technology: A View Across the Curriculum for Key Stage 1, 2, 3, and 4, STAC, University of Lancaster

STAC (1990b). 'Workshop Materials from an IT Coordination Course', ACITT Annual Review, No. 2

Vaughan, J. (1990). 'Avondale School: The Management of Information Technology across the Curriculum', Advisory Service Metropolitan Borough of Stockport

Whole School Development in IT Project (1991). Whole School IT Development, IT in Schools County Support Team, Sittingbourne, Kent

Winteridge, D.J. (ed)(1989), A Handbook for Primary Mathematics Co-ordinators, Paul Chapman Publishing Ltd., London