Psycles of Change: Development and Implementation of Databased Curriculum Documentation

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Abstract

The research summarised in this paper examines the context, development and consequent adaptation and use of an online curriculum database and search facility on a school's intranet. The study investigated both the process of development of the system and teacher and organizational responses to it. This paper will cover the latter aspect, the perceptions and reactions of staff before, during and after the implementation of the system.

The main thrust of the research was to investigate existing and emerging issues, and apparent changes in teacher attitudes and classroom practices. Staff surveys were undertaken at three stages during system development; interviews—both formal and informal—were undertaken with staff; formal staff meetings were monitored and minutes analysed; and trends in curriculum were tracked during the research period. Effects the medium might have had on the subjects' perceptions of their own and others' learning were investigated, as well as how and why individuals responded to the digital link making (cross-referencing) environment. Prior opinions regarding curriculum issues, and the effects of the new medium on the subjects' perceptions of their own and others' learning were reviewed. Externally imposed and internal changes in the curriculum during the time of the study were also recorded. Cycles of development of the software were tracked where changes were directly requested and responded to by staff of the school.

Pre-implementation surveys and interviews revealed huge variations among staff in their understanding of the school curriculum and their interest in a broader knowledge of the curriculum. Throughout the research period the issue of semantics arose as one of the greatest barriers to understanding of the curriculum across faculties and year levels. Wide variation in the presentation of curriculum documents was revealed as a factor affecting ease of interpretation for all participants. Security of the system, editing rights and professional integrity were also identified as significant issues.

Introduction

School-wide curriculum documents, where they exist, are monumental printed tomes, rarely reviewed by classroom teachers, and far less frequently the subject of genuine challenge. Repeating the same curriculum year after year, with a possible massage of the semantics to match currently fashionable 'buzz words,' appears to be the way of most schools, although a rhetoric of holistic education, collaboration and change is expounded by most school leaders. Collaboration across disciplines and years is extremely difficult for educators to conduct with consistency, and gaps in the holistic education of students are evident typically only in hindsight.

At the school being studied, an online solution was sought that would enable staff to enter curriculum into a large database, using the school's well-established intranet. The resulting database system came to be known as "The Silversearch." The aim of this new online format was to engage the available technology to empower staff in curriculum formation and review, and to identify problematic areas in curriculum delivery, expediting required change and confirming successful programs. This was to be achieved by using prompted entries and a flexible and dynamic database, with search reports supplying a variety of formats and advanced searches. The cyclic nature of development of the system was accompanied by consultation and an attempt to respond to feedback and monitoring of the staff's attitudes.

Background

In addition to new technology in classrooms, teachers must respond to the increasing demands for reporting, recording and revision, and the consequent escalation in numbers of meetings. Despite the genuine efforts of administration and classroom teachers to respond to theory of best educational practice, the system most often forces a continuation of chronological developmentalism. Particularly in secondary education, a historically consistent yet relatively arbitrary system of faculties and disciplines forms the primary organizational structure for educational institutions. Nineteenth century attitudes of exclusivity of 'discipline,' bordering on secrecy, are sustained if not promoted by this.

Students are often frustrated in their later years at school by the lack of context for their studies and the apparently tenuous connection that many subjects and courses have to students' post-school life, other than one of 'rite of passage'. Externally imposed curriculum at senior level can exacerbate this.

The majority of students remain burdened by repetitions of topics and assessment across faculties and years, a vast oversupply of small 'busy tasks,' omission of some vital learning areas and skills, and repetition in the delivery mode used. All this despite the best efforts of teachers

and some genuine attempts at reform by individual schools.

Current writing and research regarding schools, teachers, curriculum and computers focuses attention on 'information navigation,' 'online' education, email/chat, 'new learning' and the changing role of the teacher. 'Information design' for the new medium is well documented though almost exclusive to the information technology profession. Various curriculum audit systems, teacher professional development tactics, and the changing role of the teacher are also subjects of much research. The database system developed and discussed in this paper was an attempt to address many of these issues at a school level using current media (i.e. via intranet) and to assist teachers directly in their participation in a changing educational system.

Issues Addressed by the Study

Systems established for curriculum documentation vary from school to school. Curriculum overviews for various year levels are familiar documents for parents, teachers and students, particularly used to choose courses for the coming year(s). More comprehensive curriculum guidelines for all subjects are generally the domain of administrators, while classroom teachers deal with detailed work programs. Semantics used in these documents, whether internal or externally authored, vary widely among faculties and through year levels, as do their formats. Consequently, reviewing and analysing curriculum documentation is a daunting task.

Bolter (1991) writes that, in this late age of print, writers and readers still conceive of all texts, of text itself, as located in the space of a printed book. The conceptual space of a printed book is one in which writing is stable, monumental, and controlled exclusively by the author. It is the space defined by perfect printed volumes that exist in thousands of identical copies. The conceptual space of electronic writing, on the other hand, is characterised by fluidity and an interactive relationship between the writer and reader.

Printed curriculum documents are linear in nature and focussed, naturally, on traditional structures—year levels and faculties, timeframes and topics, skills and assessment criteria, with some additions particular to each school. Externally imposed changes to curriculum requirements, even relatively small changes, generally engender a great deal of work. Individual faculties must interpret external syllabuses then respond with their working documents, followed by the curriculum co-ordinators drawing the subject and year level 'parts' together. Once this is published as a school document, many of the participants in the process are unwilling to repeat the work, though they must regularly rewrite parts of the document in various formats as an 'everyday' planning process. The very fact that the documents must be 'published' gives the curriculum a measure of inertia. A static page curriculum website can pose many of the same yearly revision impediments, though with easier publishing.

School sites found on the Internet at the current time generally contain prospectus style presentations; occasionally student work is presented, and limited interaction is sometimes possible. Very few have anything of use as resources for teachers or students reviewing the site, though this may well reflect a general reluctance to share resources, and other concerns regarding copyright or security. During the present study some of these same issues were raised as internal matters.

The use of intranets in school environments varies dramatically according to the levels of access, the hardware set-up of the site, and the ethos and practices of the school. In the school being studied, faculty sites varied dramatically throughout the duration of the study, due to ongoing development of the intranet. However most had some faculty-based details and a curriculum overview, though content varied dramatically and many remained close in structure to their original linear, printed document format.

Students have many different thinking and learning styles, and significant effort is made by educators to accommodate as many styles as possible when presenting information. Teachers also vary vastly in the manner in which they would prefer information to be disseminated. With a large body of information such as a curriculum, conceptualising the whole system and its inherent overlaps, as well as interpreting subject specific semantics is a daunting task. Some educators favour a linear view, finding the holistic aspects unhelpful, while others prefer 'the big picture' prior to knowing their part in the system. Even assuming teachers have the same starting point in any curriculum document review, interpretations can be wildly divergent.

Combining a powerful database, with its inherent ability to respond to a variety of queries, with dynamic html ('self-building' web pages) which allows various presentation styles, is now commonplace in industry. It is therefore logical to extend the facilities of hypertext into the realms of curriculum design, recording and review. Using an intranet/hypertext base, teachers should be able to input and to arrange information for review in a personally preferred format, while contributing easily to the common database for the whole school.

The Research Setting

The subject school is a large private girls' school in Melbourne, Australia. The school has a long history of good academic results and was one of the first schools in the world to introduce laptop computers across the curriculum for all students in Grades 5 to 12 and all staff. Every student has network access on site, and password access from home to the school intranet. The school is divided into four sub schools—Junior (Years K–6), Junior Secondary (Years 7–8), Middle (Years 9–10) and Senior (Years 11–12), plus a child care centre for boys and girls aged 0 to 4 and an extensive community education centre.

The school has a large established network and a non-teacher technical staff of twelve people dedicated to the upkeep and improvement of the extensive onsite

computing facilities (including 2200 laptop computers). Technical staff expertise includes server management, scripting, and hardware and software maintenance (including warranty work).

For each sub-school there is a curriculum co-ordinator who is part of the management team of the school. There is a timetable department with a team of four. It is possible for staff to teach in one sub-school only and, for many senior school specialists, only in one discipline. There are over three hundred staff at the school, the majority are female. For a staff of this size, natural attrition of staff and extended leave (family, illness or study related) can see turn-over of thirty to fifty staff during any one year.

In addition to staffing issues, the period of the research saw some technological changes occur. A changeover of several key administrators (and with them some school processes), introduction of new senior courses, and a five-yearly external review of all school practices (including a full curriculum audit) took place. The methodology used for the study and observations made attempts to accommodate these.

At the school in which this research is based, many deliberate attempts to change learning experiences have been successfully implemented. These changes included the introduction of laptop computers for all students, and significantly lengthened timeframes for class (4 x 75 minute classes per day). In addition, classrooms were structurally altered to facilitate professional development, and an ongoing commitment to research in learning. These initiatives have had ongoing support and lasting impact within the school.

Methodology

Initial stages of the research attempted to establish the context and the existing attitudes and perceived needs of members of staff—as well as those for some senior administrators from other similar schools. This latter group agreed to informal interviews and enabled establishment of a broader picture of school leaders in this context.

A formal survey was then conducted across all staff in the school. This took the form of a series of questions regarding the teacher context, followed by questions on curriculum views. A five-point scale of importance was used, with opportunity for additional comment. A further survey was circulated to all staff who held positions of responsibility. These surveys were completed voluntarily and anonymously.

In addition to attendance at regular meetings of curriculum committees addressing developments contextual to the research, informal interviews with broad sectors of staff were conducted three times during the development, trial and implementation of the online curriculum software. Additional clarification interviews were requested where required.

First Survey of School Staff

The time respondents had spent at the school at which the research was based ranged from 21 years to 1/3 of a year. Though obvious differences were recorded regarding the knowledge of the school and subject syllabuses at the two extremes of this continuum, less marked by difference was the perceived knowledge and 'need to know' regarding the whole school curriculum. It was extremely difficult to track any trends when using duration of employment at the college as the independent variable.

There was apparently no correlation between the likelihood of a person's knowing about the whole school curriculum or perceiving it as important, and her number of years at the school. This concurred with anecdotal evidence given by nine curriculum directors of other large private schools in Melbourne—statements offered in a formal presentation and meeting on this research at a curriculum network for independent schools. Indeed one member of this external group suggested an inverse relationship might exist, though this was not reflected in the findings of the present study.

It was observed that knowledge of the whole school curriculum is largely associated with positions of responsibility taken within the school. The question occurred—do these individuals gain the knowledge of 'the big picture' subsequent to being given the position of responsibility, or did they have a good understanding and interest already and hence were given the position? This was explored further by a follow-up survey and interviews.

Interesting responses were given by three teachers, all of whom had nine years or more experience. They felt their knowledge of the whole school curriculum to be quite poor, but did not consider that sort of knowledge to be particularly useful to them. For example, one respondent, wrote that knowledge of the whole school curriculum was "not relevant to my teaching." The most commonly identified reason for wanting to know about the whole school curriculum was to have a general understanding of the student program. This comment was sometimes accompanied by statements like "Perspective for staff that enables them to understand the development of the whole student."

The two next most commonly cited reasons identified for wanting an understanding of the whole school curriculum included the valuing of collaborative projects, and prevention of repetition. Other reasons included meaningful parent contact, enrichment opportunities, remedial help and easier transition for students.

Many individuals identified a subject area in which they had knowledge that was related to their own area. Very few identified courses outside their broad faculty area(s), though where they did it was generally associated with holding a position of responsibility. Most interesting was the source of curriculum knowledge for a 'broad' approach. Three respondents identified students as the primary source of information about curriculum outside their own areas. Many more cited colleagues as their primary source; the major issue with semantics detailed later in this paper suggests serious questions regarding the accuracy of information obtained from colleagues.

As a general trend, staff from the humanities subjects tended more often than those from Mathematics, Science

or practical subjects to identify collaborative projects as useful, and these teachers also rated the need to know the whole curriculum marginally more highly. This may reflect their practice or a more general epistemological trend—but full interpretation of this is beyond the scope of the present research.

Lack of time was consistently cited as a reason for *not* keeping up with changes or discovering connections and studying a whole school picture. Statements regarding numbers of meetings, fast changing technology and marking student work dominated in notes by respondents.

Second Questionnaire and Consequent Interviews

The second survey was designed to establish whether there was a correlation between positions of responsibility and interest in, or perceived knowledge of the whole curriculum.

One hundred surveys were distributed to staff with duties including pastoral care, curriculum planning, 'house' duties, administrative procedures, faculty leadership, professional development and counselling. Of these, fifty-seven were returned. It was noted that unlike the first set of survey responses, a great deal of detail had been voluntarily written by staff in addition to simply marking the scaled response for each question.

Staff were also invited to a voluntary interview and provided with means to identify themselves, separate from their survey sheets. Collated results indicated that indeed the group of staff with roles broader than their classroom or isolated administrative tasks were more interested in the broader school curriculum.

Respondents were asked to indicate how well they felt they knew the whole school curriculum and from whence they derived that knowledge. As was expected the majority of respondents indicated their long term interest in the 'big picture' though few felt that this had developed at the start of their teaching experiences. Indeed only three respondents felt this was completely true and of high importance.

Accumulated knowledge from outside the college was occasionally identified as important. However in all cases this was qualified by statements similar to the following from one respondent, "This gave me the impetus and the 'how to' for finding out the 'whole' picture quickly, and coming from a small school there was more opportunity to develop an interest in the area."

As in the initial survey, some people indicated their broader understanding was confined to a school level (eg. "Middle school" which at the study school is Years 9 and 10) or a Key Learning Area such as Science or Arts. There was no definable trend in responses to the question regarding whether the insight into other programs and the whole school curriculum had come as a natural result of their role in the school. For some this was of high importance, for others, not at all.

In all cases colleagues were cited as highly important sources of information, though in more than two thirds of the responses qualifying statements indicated that the interaction with colleagues was more through casual than formal meetings and discussions.

Software Implementation and Ongoing Results Analysis

The final section of this paper signals the ongoing issues being examined as part of the research and the current status of the online system.

Interviews with staff were conducted as various versions of the curriculum software were developed in response to feedback on the needs of the school system. The interview-development-interview was by necessity a cyclic process and proved most informative as issues were revealed by trialling of the software.

The variety of teacher responses to the Beta versions of the software was at once interesting and quite revealing. Little concern or surprise was expressed regarding the validity or otherwise of such a network/search system—rather concern was expressed over some of the semantics one might use to describe certain aspects of the curriculum. Words such as 'genre,' 'critical literacy,' and 'summative assessment' were queried and argued about, though apparently these were in common use in staff meetings. The only resolution to such 'differences' seemed to be direct questioning designed to find the most appropriate terminology and specific needs.

Interpretation and formatting differences among faculties and year levels apparently create many of the misunderstandings in planning and discussion experienced by leaders of the school and the classroom teachers. To try to alleviate this problem in the online Silversearch, a great deal of consultation took place to establish common terminology and specific needs.

The robust differences of opinion regarding definitions of terms entered on the database, whether stemming from faculty based history or personal preference, revealed a similar need for prompt consultation and negotiation between interested parties when the issue arose. In this context, discussions of the ongoing review and editing of the Silversearch database became one of central control 'permission and password'. Faculties and school levels varied dramatically in their willingness to allow editing rights for staff.

At the current time the Silversearch is fully implemented at the research school. The whole school curriculum has been uploaded, though it is limited to 'handbook detail' level with finer detail being added on a weekly basis to gradually include and encompass every aspect of the entire school curriculum. Teaching staff from all areas of the school are able to access and review the facility, as all have access via the school's intranet. Staff are regularly consulted and any suggestions for improvement of the system are considered and (to date) implemented.

Data collection for this study will conclude at the end of the present school year (2000), at which time many of these issues will be examined with reference to earlier results. It is likely that an ongoing, internal research

project will be undertaken by a team of staff at the school concerned.

Full implementation of the curriculum search system has been completed, and the examination of the data gathered is ongoing.

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