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The Effect on School Operations of the Use of School Management Software in Victoria

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Abstract. In this paper we will discuss the effects on schools in Victoria, Australia of use of the various school management systems provided by the Education Department, and the difference the use of this software has made to school operations. To better appreciate this, using a case study methodology, we will look at the use of these systems in a primary school in metropolitan Melbourne. The Victorian Education Department provides a raft of software for various administrative tasks in its schools and these are described in the paper. The goal of the paper, however, is to analyse the difference these management systems have made to the operation of the case study school and other schools in Victoria, compared with pre-computer manual systems.

Keywords: Educational management systems, schools, Victoria, applications

1 Introduction: Schools in Victoria

The Commonwealth of Australia is a federation of six states and two territories each having a considerable degree of independence. Constitutionally, school education is the responsibility of state governments [1, 2] and each state may approach school education in a rather different way. This paper will look explicitly at school education in the State of Victoria.

The Department of Education and Early Childhood Development (DEECD) is responsible for school education in Victoria. As this Department has had various names over the years, for the purpose of this paper when we refer to the 'Education Department' this should be taken to mean DEECD (or any other previous titles of this Department). The Victorian school education system comprises 2,236 schools: 1,529 government schools, 486 Catholic schools and 211 independent schools. This paper deals only with government schools. The 2,236 government schools have 554,683 students and 40,965 teaching staff [3]. Government schools in Victoria are, within a Government stipulated total budget, largely self-governing.

Every school needs to store large quantities of data relating to administrative matters concerning individual students and groups of students. These data are collected from many formal and informal sources including: student enrolments, early years' interviews, observational surveys, running records, other formal testing and

notes [4]. Over the last 25 years, many different computer systems have been used around the State for school management purposes, some of the school's own design or purchased directly by this school, others provided by the Education Department. It is only those currently provided by the Education Department that are discussed in this paper.

2 Research Case Study: Hurstbridge Primary School

Case study research is a commonly used qualitative approach in Information Systems (IS) [5, 6] and as IS research topics commonly involve the study of organisational systems, a case study approach is often quite appropriate. This case study involves the detailed examination of the use of school management software in a single primary school [7, 8, 9] and its main concern is with the detail and complexity of the case, which it treats as a bounded system. The purpose of this case study is not so much to describe the various educational management systems used in schools in Victoria, but to look at their use at Hurstbridge Primary School, in outer metropolitan Melbourne, and how it has changed the way that school operations are undertaken [10].

The case study research undertaken involved interviews with the principal, assistant principal, several teachers and the school office staff. It also involved examination of documents, reports and websites as well as detailed observation of relevant school operations.

Hurstbridge Primary School is situated in the semi-rural town of Hurstbridge, 32 kilometres north-east of Melbourne. The picturesque setting of the newly constructed school, completed in 2005, is set amongst the gum trees along the Diamond Creek and provides a magnificent environment for members of the school's community. The school comprises two main wings, a library and computer laboratory, art room, music room, instrumental music rooms, after-care room, hall, science and Italian room.

In 2014, the staffing profile consisted of a principal and assistant principal, three leading teachers, 16 classroom teachers and many specialist teachers.

The principal indicates that Hurstbridge Primary School is proud of its student learning outcomes that are above or at the Victorian State level according to the Victorian Essential Learning Standards and National Assessment Program – Literacy and Numeracy (NAPLAN) testing results (see section 3.5). The staff are highly focused and committed to raise this bar even further, providing excellent opportunities for their children.

The school have many different programmes to cater for children of all levels. The 'Eagles' programme provides students with enrichment and extension activities outside of things already done in the classroom. 'Eagles' operates each week and students from grades 2 to 6 (7 to 11 year olds) have an opportunity to be involved. Students are selected based on their lower than average academic results and groups change each term. 'Eagles' programs are currently offered in English, mathematics, music, computing, art and music. They also offer support programmes at each year level, a reading intervention programme in the junior school (6 to 9 years of age) and corrective reading in the upper school (9 to 11 years of age).

Students have the opportunity to attend a number of specialist classes each week, which are currently offered in music, physical education, art, library, computers and Italian.

The school leadership team runs the school operations, staffing, curriculum and budgeting. The leadership team consists of the principal, assistant principal and leading teachers. Victorian schools receive a budget to run their school each year. This budget is based on the number of enrolments in the school. From this budget the school has to pay staff, purchase resources, run curriculum programmes and pay the bills. The school leadership team needs to look at this budget and plan appropriately to ensure that they have sufficient funds to cover all the operations of the school, ensuring they do not run into a deficit.

3 School Management Software in Victoria

There are two categories of application software used in Victorian schools: curriculum applications and administrative applications. To keep these separate, schools have two entirely separated and unconnected networks:

- A Curriculum Network, accessible by teachers. This can be accessed throughout the school using either Ethernet or Wi-Fi connections.
- An Administration Network that is accessible only to school management and school administrative office staff, but not to teachers. The Administrative Network is accessible only via an Ethernet connection at specific locations.

3.1 CASES21

In the early 1980s a newly elected Victorian Government found that it was not possible to gather consistent financial data from all its government departments, as each had its own accounting system [11]. This meant that the government was unable to draw up a balance sheet for the State of Victoria as a whole, and as a consequence, it quickly decided to set up accounting standards that would be used by all government departments, and to institute a centralised accounting system [12]. In the case of the Education Department, with the aim of making schools more centrally accountable, this system *imposed* an unalterable chart of accounts, which for small primary schools was seen as unnecessarily complex. Birse [11] suggests that “*the system was definitely not set up to empower schools. It was fairly imposed, and from that point of view they got it wrong*”.

The result was CAAS [13] where the development philosophy placed emphasis on an integrated database management system: “*All school records should be part of an overall construct where a general information system comprising students, staff, assets, facilities and financial data is readily available to school-based personnel to assist in the administrative process*” [14]. CAAS was designed to be used with Microsoft (MS) Disk Operating Systems (MS-DOS) and a later version became known as CASES. Since that time CASES has been through several different versions

culminating in the Computerised Administrative System Environment in Schools (CASES21) which is now used in all government schools in the State.

CASES21⁶ provides support to government schools for administration, finance and central reporting (back to the Education Department). CASES21 runs on a MS Windows personal computer (PC) within the school and is claimed to have been designed to be easily modified to meet evolving school business needs. It currently has two main modules:

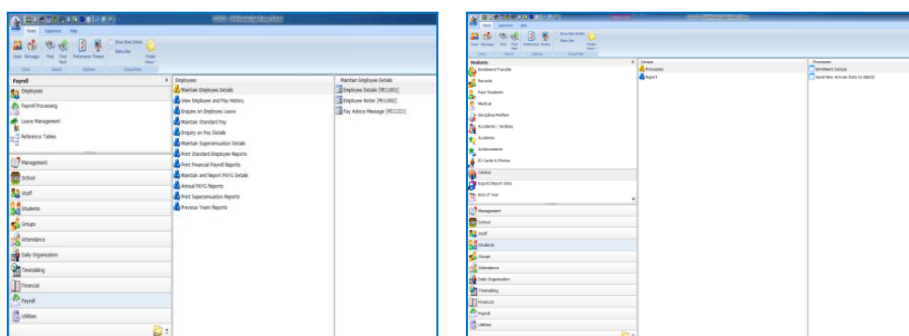


Fig. 1: CASES21

- **Administration Module:** Student and family records, photographs, enrolments and census; Student medical records, welfare, accidents and sick bay; Attendance; Student achievement, incidents, discipline and merit; Activities, excursions, home groups and houses; Staff records and photographs; Daily organisation and calendar; Timetabling; School details, management, council and parents' clubs.
- **Finance module:** Payroll, staff records and leave for school-level employees; Student, family and sundry debtors; Creditors; Asset register; Budgets; Reporting; End-of-year and end-of-financial year [15].

The use of CASES21 is mandatory for all government schools, and all school data are stored on site but automatically backed up online remotely by the Education Department. This means that the Education Department can create its own reports from any of the school's data and the school does not need to send it anything. Within the school, CASES21 is used by school management and office staff with no direct teacher access. CASES21 is linked to most other management systems within the school and to the Education Department.

3.2 School Maintenance System (SMS)

Audits of all (government) schools are carried out each financial year by the Education Department to determine the maintenance needs of each of their buildings. Based on priority considerations, it then determines works to be included in its maintenance programme and the prioritised data are loaded onto the School

⁶ CASES21 is a customised version of the Maze school software system, marketed commercially by CIVICA.

Maintenance System (SMS) in order to assist with its State-wide maintenance and infrastructure planning [16]. SMS is accessed online and linked to CASES21.

At the school level, SMS is used to assist with buildings and facilities, property management, repairs and urgent works. At Hurstbridge Primary it is used mainly by the assistant principal and the school office staff. As SMS works online the Education Department is always easily able to see the school's spending patterns and to check to see that the cost of all maintenance, repairs and urgent works is within the school's global budget. An important feature of SMS is for tracking urgent works, which is done automatically.

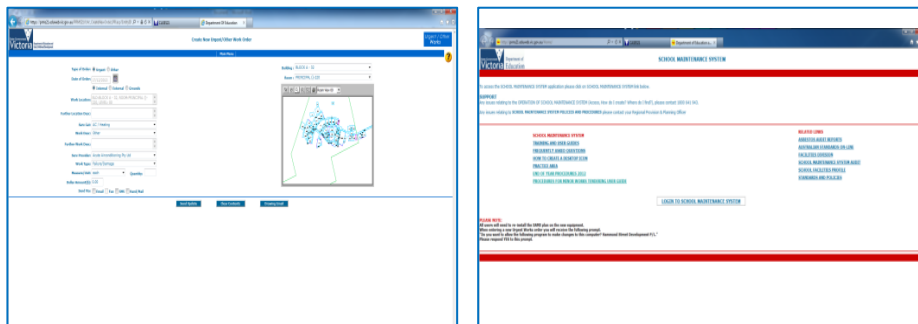


Fig. 2: School Maintenance System (<http://prms21.eduweb.vic.gov.au/home/>)

3.3 EduPay

While selection and appointment of teaching and administrative staff is done at a school level, the Education Department manages the payment of all salaries. The Department's human resources (HR) and payroll system – EduPay - is web-based and designed to enable viewing of up-to-date leave and salary information. It also allows school teaching and administrative staff to access their pay-slips, apply for leave and to view and update their contact and banking details [17]. It also is linked to CASES21.

Recruitment and position advertisements are done via the EduPay website. Schools list their new teaching jobs and openings over the weeks on the EduPay website and then this is transferred to the Education Department 'Recruitment on Line' website. This system provides the only way in which teachers can apply for new positions. The way that this is done is that the teacher writes a job application, taking care to take note of the selection criteria, and then upload this as a portable document format (PDF) onto the EduPay website. EduPay then automatically sends emails to prospective applicants to tell them whether they have been shortlisted, not shortlisted, or successful. If they are successful, then EduPay sends out their employment contract.



Fig. 3 EduPay (<http://www.edupay.vic.gov.au/hrweb/pages/resources/edupay.aspx>)

3.4 Program for Students with Disabilities (PSDMS)

PSDMS has been designed for use by schools to provide information about support processes associated with funding applications, eligibility evaluations and budget reporting for students with physical and intellectual disabilities. This program provides funds for teacher aids to assist these students, and not for facilities or equipment. PSDMS also is linked to CASES21.

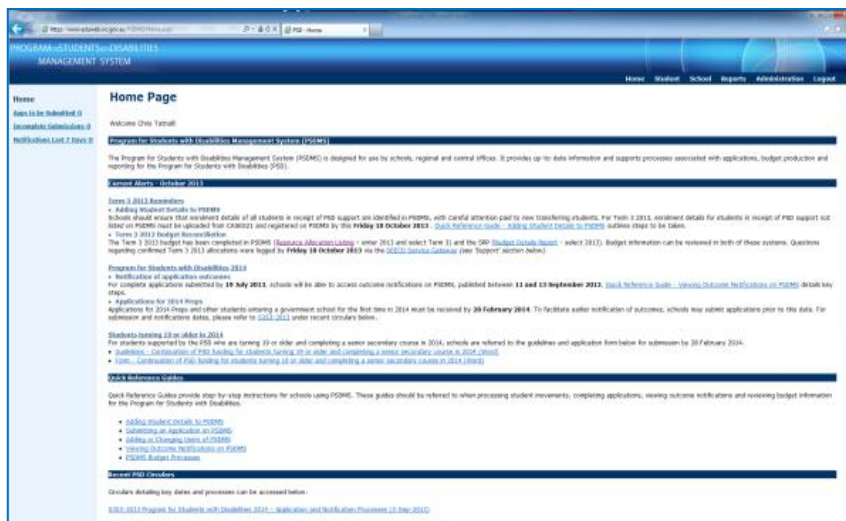


Fig. 4: Program for Students with Disabilities (<http://www.edupay.vic.gov.au/school/principals/finance/Pages/swdsystems.aspx>)

3.5 Student Performance Analyser (SPA)

Student Performance Analyser (SPA) is a web-based tool intended to assist schools to *analyse, display, store and communicate* student performance and assessment data. SPA has been designed to produce a number of ‘*sortable reports*’ to provide interpretation and monitoring of the progress of students, either individually, in groups, or by the whole school. It calculates the amount of ‘*value added learning*’ against the Australian Curriculum and shows where students are performing in relation to the curriculum. SPA stores student data continually, allowing creation of an on-going profile history of each student.

SPA is provided to its schools by the North-West Region (in which Hurstbridge Primary School is located) and not by the Education Department for all schools. Its use is completely voluntary and not in any way mandated by the Education Department. Within the school each teacher enters their own class results onto a spreadsheet (or something similar) and then later uploads them to SPA. Student details can be downloaded from CASES21 and all teachers have access to this system.

As well as internal school testing, results from the NAPLAN testing can also be entered into this system. NAPLAN is an annual assessment for all Australian students in Years 3, 5, 7 and 9 (i.e. at ages 8, 10, 12 and 14 years) and is intended primarily to test reading, writing, spelling and numeracy [18]. When all the NAPLAN results have been collated by ACARA (the National Curriculum Authority) they are sent to each school from where they can be uploaded into SPA. This enables results’ analysis and a comparison to be made between this school and other local schools, a given type of school, or all schools.

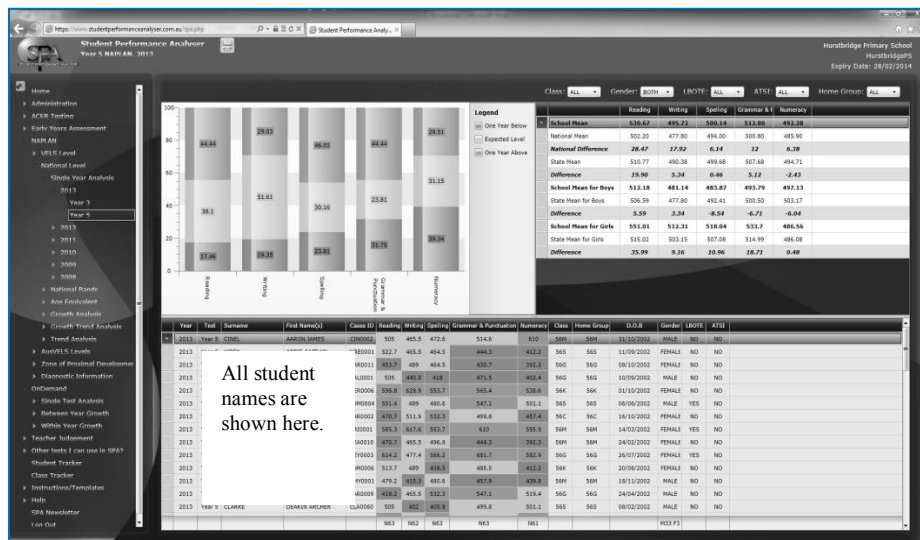


Fig. 5: Student Performance Analyser
(<https://www.studentperformanceanalyser.com.au/spa/>)

3.6 QuickVic

This system allows student reports to be created by teachers. It is essentially a MS Access database and is accessible for use by teachers, school management and office staff. In the first instance, student details are downloaded from CASES21, then each teacher enters reports for each student in their class. The system then allows reports for each student to be printed and sent to each parent. Data is school-based (local) and not online, but is uploaded to CASES21 twice each year.

3.7 Ultranet

The Ultranet was designed as a web-based system to support delivery of curriculum, online teaching and learning and sharing of knowledge across all Victorian government schools [19, 20]. It began its service to all Victorian government schools in September 2010. It had many of the features found in a business extranet in that it was closed to people outside the Victorian Government school community and required a username and password to gain access, but with over 500,000 users it was a good deal larger than most business extranets. The Ultranet's intended users were school teachers, as well as school students and their parents, all of whom would be issued with usernames and passwords.

The Ultranet was potentially an innovative technology that could have provided value to the Victorian education system, but for a variety of reasons [20] it was not successful and was discontinued at the end of 2013.

3.8 EduMail

This MS Exchange email system is based on MS Outlook. Each teacher has their own email address provided by the Education Department. Bulletins are sent weekly from the Education Department to the school management, which then uses the system to forward these to each individual teacher. The Education Department does not normally contact individual teachers directly via EduMail. School management has access to the management side of EduMail for their own school.

4 An Analysis of the Effects this Software has had on School Operations at Hurstbridge Primary

Computers were used in school management applications in some schools long before the Education Department released the forerunner of CASES21. Some schools, in which a particular teacher had an interest in computing, used teacher-designed BASIC programs on Apple computers for things like scheduling and recording information about school sports, word processing in the school office, for assistance with timetabling and for listings of students in each class. These were very much single school applications, but by the mid-1980s the Education Department began to show

an interest in using computers for administrative purposes. In a letter to the Director General from the State Computer Education Centre in May 1985, possible applications for the use of computers in school administration were listed as: word processing, student records, accounting, timetabling/scheduling (in post-primary schools mainly), inventory, ordering/budgeting and library [21]. A 1986 report by the newly-formed Schools Administrative Computing Unit (SACU) noted that a large number of schools used a variety of hardware and software in school administration and that: *“The general lack of uniformity in respect of systems, both software and hardware, prompted the development of the schools’ accounting system”*. It went on to say that: *“The proposed increase in responsibilities for school administrators will result in the need to provide management information to school councils and school communities to facilitate accordant analysis of school operations”* [22 :4].

There is no member of staff currently at Hurstbridge Primary who remembers how school administration was carried out in the 1980s, but it is unlikely that the school then made any use of computers for this purpose.

4.1 CASES21

Thus, before CASES, many schools made no use of computers for school administration and those that did make some use of computers did so in a fragmented un-coordinated way. For administrative details of schools’ financial and other data, the Education Department had to reply on typed (or sometimes handwritten) reports, make telephone calls and gain information from visits by school inspectors. CASES21 made a fundamental difference to this.

Apart from assisting schools with some administrative tasks, perhaps the biggest difference made by the introduction of CASES21 was the flow of information back to ‘Spring Street’ – the location of the Education Department. It is now very easy for someone in Spring Street to obtain details of the finances, enrolments, teachers, students and maintenance requests for any school in the State.

Financial matters are now handled by office staff in the school, but the Education Department has online access to all these data at any time. Use of CASES21 makes the task of handling finance, record keeping and enrolments by the school very much easier.

4.2 School Maintenance System (SMS)

Before introduction of this fairly new system, purchase orders to a contractor for any school maintenance tasks had to be handwritten at the school and then sent off to CASES21 for Education Department approval. Now, after the school has set up the system with contractor names and other details, when maintenance is needed, it sends an order to the contractor and also enters this directly into CASES21 where all the data is stored remotely. The school office staff then just pay the bills from CASES21, making it easy for the school to track spending.

This system is also used for routine inspections and occupational health and safety issues. Once set up, the system remembers dates for checking and ordering of these

inspections. Use of this system has made these school administrative tasks a good deal easier.

4.3 EduPay

For quite some time teachers have been paid by direct bank transfer rather than by cheque. Before the EduPay system, teachers were sent payslips each fortnight with information about their pay, leave etc. All this information is now provided online. Whether this is better is a matter of personal opinion: some teachers are happy with this, others would prefer a printed payslip rather than having to go online to check.

4.4 Programs for Students with Disabilities (PSDMS)

The school has found that the system's provision of information about support processes associated with funding applications, eligibility evaluations and budget reporting for students with physical and intellectual disabilities is a big improvement on doing this by hand.

4.5 Student Performance Analyser (SPA)

Prior to the introduction of this program, each teacher tended to keep their own student assessment data, in some cases in a spreadsheet and in other cases on paper. Now at Hurstbridge Primary, student details can first be downloaded from CASES21. Each teacher then enters their own class results onto a spreadsheet and then later uploads them to SPA. The system has made analysis simpler with its *sortable* reports that can interpret and monitor student progress. Comparisons can be made between individual students, classes, cohorts, boys/girls, or the whole school. (SPA provides information only for this school and no comparison can be made with other schools, and unlike most of the other systems, data is stored within the school and the Education Department does not have direct access to this.)

4.6 QuickVic

Before introduction of this system, some student reports were handwritten by teachers and others were typed, in some cases on a typewriter but more recently using MS Word. In those times, one paper copy of each student's report had to be sent to their parents and another kept in a file at the school. The school duplicate had to be created either by using carbon paper, sensitive paper, or by photocopying. Copying and filing the reports was thus a large administrative burden on the school.

Now, student details are first downloaded from CASES21. Each teacher then enters results and reports for each student in their class on their own (local) computer before uploading them to the school server, from where summary data is available to

school management. This system is not online but later the results, but not the reports, are uploaded to CASES21.

One criticism of computer-generated reports like this, sometimes heard from parents and teachers, is that these are nowhere near as personal as the old handwritten reports. This is a difference, but whether positive or negative is a matter of opinion.

4.7 Ultranet

Use of the Ultranet could potentially have made a significant difference to the way the school operated, but this is no longer the case as the Ultranet was discontinued at the end of 2013.

4.8 EduMail

Almost everyone, of course, now makes use of email, whether they use it for work or at home, and teachers are no different. The system provides each teacher with their own email address and in addition to these individual staff accounts, the school also has its own email account. While at one time in the past the Education Department used to communicate with schools and teachers via 'The Victorian Education Gazette' printed monthly, in more recent times a summary weekly bulletin was provided by fax. Now everything is sent to the school by email.

5 Conclusion

What difference to school management and to teachers have these new systems made at Hurstbridge Primary School? The answer is that they have made a great deal of difference. Very little administrative output is now handwritten, with some purchase orders being an exception. This has made a quite dramatic change in the way that the school office operates, and has changed the roles and tasks of office staff. The old cash books are gone and there is now no need for office staff to count or balance cash: office staff jobs are very different. Much more access to data is now available and reports can easily be generated for each subject budget (which was very difficult in the past) and for any other account. This provides more easily accessible information, to both teachers and school administrators. All accounts and bills are settled by electronic payment and parents pay any school fees via BPAY (an Australian electronic bill payment system). This makes quite a difference at the parent-school interface.

Office work is now easier and more interesting, but more computer knowledge than before is needed. Computerised school management systems have radically changed the way that the school handles its administrative matters, and this has considerably affected teachers, school administrators, office staff and parents.

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