In 1991 Kershaw and Weber portrayed the role of Computing Coordinators at Australian high schools as demanding a diversity of knowledge and skills in computer technology together with excellent management qualities. A census survey study based on Kershaw and Weber’s study was conducted with Western Australian government senior high school computing coordinators in 1996. This study found that most coordinators considered their roles too onerous with the majority not awarded time to specifically perform their coordinating duties. This study also determined that most coordinators were using a proportion of their teaching time and a considerable amount of their class preparation time, managing computers. Considering the possible impact this could have on student learning, it was not surprising that most coordinators felt that their coordinating role seriously impinged on their role as a teacher.

Introduction

The roles undertaken by Computing Coordinators have been rapidly expanding as Australian schools incorporate new technology and keep pace with related changes. In a limited survey performed by Hancock in 1985 (cited in Smith, 1987), it was found that of the Australian schools that had computers, they had an average of eight computers per school. By 1991, 16% of Australian high schools surveyed by Kershaw and Weber (1991) had in excess of 60 computers each. Without doubt, this number will have increased considerably since then. Despite early recommendations set down by the National Advisory Committee on Computers in Schools to “integrate computers in appropriate ways across the whole curriculum” (Anderson & Camiller, 1986, p. 122), it would appear that the development of students’ knowledge and skills in computer technology has remained almost exclusively the responsibility of Computing Departments. Consequently, providing for the care, maintenance, development of staff, budget preparation and a host of other associated tasks is left to the coordinators of these departments.

Studies performed by Kershaw and Weber (1991), Barbour (1986) and Bruder (1990) established that Computing Coordinators considered themselves placed under extreme pressure to ensure that they provide for the smooth running of computer technology within their schools, with no clear job specification in place. In addition to normal teaching duties, they consider it their responsibility, expected or self perceived, to maintain and evaluate hardware and software, assist colleagues and perform various other associated administrative duties (Kershaw & Weber, 1991). Kershaw and Weber found that coordinators felt obliged to stay abreast of new technology with regard to professional development and handle an ever-increasing workload as technology expanded within their schools.

In Western Australia, many Computing Coordinators also play the role of Head of Department (HOD) or Teacher in Charge (TIC) of a larger area of the curriculum. For example, the HOD of Technology and Enterprise is often in charge of Design and Technology, Home Economics, and Computing. Both HODs and TICs are required to take on a leadership role within a particular Faculty or Faculties, manage administrative and curriculum duties, provide for the needs of their team and generally perform all the necessary tasks to enable a department to run efficiently. A Computing Coordinator who has departmental responsibilities would be required to perform these duties in addition to their coordinating role.

Considering the impact implementing and caring for new and expanding computer technologies could have on teachers who cater for this equipment in schools, it would be expected that much research at the school, education system or government level would have been undertaken to determine how computing coordinators were coping.
However, to date, only two studies have been carried out in Australia that specifically relate to the roles, work conditions and perceptions of Computing Coordinators in Australian high schools. The first was a pilot study by Weber and Kershaw (1990), followed by their major study (Kershaw & Weber, 1991), a survey of Computing Coordinators to determine their role and work in Australian high schools.

With the endorsement of the Australian Council for Computers in Education, Kershaw and Weber (1991) conducted their survey research to determine the essential and desirable criteria for job selection as a Computing Coordinator in Australian government and non-government high schools. Kershaw and Weber's (1991) study used a random sample of 460 high schools, 20% of all Australian high schools. Of these, only schools with a person acting in the role of Computing Coordinator were asked to take part. Only 129 (28% of sample) completed questionnaires were submitted by Computing Coordinators. Therefore, it is possible that the reliability and generalisability of their results may be challenged as only Computing Coordinators who considered their roles too onerous or those schools that, in name only, had a person acting in the role of Computing Coordinator, may have replied.

Whilst a full job description for the position of a Computing Coordinator at Australian high schools was not given in Kershaw and Weber’s (1991) paper, they determined that “computing coordinators were expected to perform and carry out a multifarious array of tasks in addition to their teaching role”, and that a “range of administrative duties and managerial decision making responsibilities formed a major part of the coordinator’s role” (p. 106). They found that Computing Coordinators typically required a diversity of knowledge and skills in the broad spectrum of computer technology and a willingness to invest a considerable amount of their own personal time. These demands necessitated the ability to cope under pressure in the performance of the myriad of tasks necessary to enable the smooth running of the ever expanding implementation of computer technology within their schools. Now, over five years later, while the quantity of computer technology in Western Australian senior high schools is continuing to increase, it is unclear whether the position of Computing Coordinators has improved.

As part of EDWA’s Technology 2000 Strategic Plan (1996a), a job description form (EDWA, n.d.) was prepared outlining six duties required of successful applicants for the position of Learning/Information Technology Coordinator at a number of Western Australian schools. When compared with the duties performed by Computing Coordinators in Kershaw and Weber’s (1991) Australia wide study, apart from ‘assisting other staff’, the duties do not match those expected by EDWA (n.d.). These were, in order of priority, hardware maintenance, assisting other staff, software and hardware evaluation and negotiating with suppliers. The lesser duties carried out by coordinators in Kershaw and Weber’s (1991) study of providing computer training for school staff and parents, giving administrative support, managing finances, preparing budgets and undertaking curriculum development at the school and state level, did in fact match in part with EDWA’s list of duties.

As Kershaw and Weber (1991) succinctly put it, Computing Coordinators’ roles are determined by the demands that “stem from the needs of the various people groups and tasks related to the technological needs of the computing environment” (p. 101). These demands can, and do, occur at any time and Computing Coordinators feel obligated to respond, even with enthusiasm, “despite relentless long days and a general lack of support”, as 666 coordinators were reported to be doing in the American survey performed by Bruder (1990, p. 24).

There is an urgent need to address whether or not Computing Coordinators are given sufficient time and support to perform their coordinating duties without adversely affecting their other roles. This paper reports on a study designed to investigate these issues by addressing the question, do Computing Coordinators at Western Australian government senior high schools have adequate support to perform their duties?

The Study

All Computing Coordinators at government senior high schools in the state of Western Australia were asked to take part in a census survey with the aim of identifying their backgrounds, duties, the time afforded to perform these duties, the time considered necessary to perform the duties efficiently without impinging on their other roles, and to determine if there were other factors that affected their ability to carry out their duties. Coordinators from the 85 government senior high schools in the state of Western Australia, with the agreement of their respective Principals, were asked to take part in this survey.

The questionnaire was based on Kershaw and Weber’s (1991) Survey of Senior Computing Teachers (p. 109). Their five part questionnaire was revised to take into consideration the different sample groups and aims of the two studies. Eight questions were added to the revised questionnaire. In addition, coordinators were asked to make an extended response on the revised questionnaire. The purpose of the extended response was to give coordinators the opportunity to clarify their situation and to provide possible solutions to any problems they may have been experiencing. The revised questionnaire resulted in thirty questions in six sections: Background and Training, Professional Development, Teaching Time, Coordinator Duties, Coordinators’ Perceptions, and Coordinators’ Responses.

Due to the changes made to the original questionnaire developed by Kershaw and Weber (1991) a pilot study was conducted with six Computing Coordinators from non-government high schools. Main Results The discussion draws comparisons with Kershaw and Weber’s (1991) findings. It should be noted that the aim of their study was to build a “comprehensive picture of the computing coordinator in Australian secondary schools” (p. 102). This present study was designed to specifically address the role of the Computing Coordinator at Western Australian government senior high schools.
Qualifications and Expertise
A total of 50 Computing Coordinators chose to participate, 59% of the population. Of those who responded, 72% were male. Most (78%) coordinators had formal computing qualifications, the majority holding either a Graduate Diploma in Applied Science or a Bachelor of Education in Computing. The coordinators found to have formal computing qualifications were made up of 61% holding a major and 17% a minor teaching area. The coordinators without computing as their major teaching area had gained their major qualification in a wide range of curriculum areas. Six of the eleven without computing qualifications were enrolled in formal computer related studies, the majority in multimedia. In addition, all respondents had been using computers in excess of three years and almost 20% had been coordinators in excess of ten years with a mean of six years.

Kershaw and Weber (1991) found that only approximately 17% of coordinators had no formal qualifications in computing, and that a high number of coordinators held degrees in either mathematics or science. In both studies it appeared that all coordinators without computing qualifications considered their computing skills to be sufficient to perform their role effectively.

Teaching Time and Role
Coordinators involved in this study were found to teach an average of 19 hours per week with 88% teaching in excess of 16 hours per week in the area of computing. However, 80% of coordinators indicated that they spent a proportion of their teaching time managing computers. For these coordinators, four hours per week was the average number of actual classroom teaching hours they used to manage computers, 37.5% used five or more hours, 15% used eight or more hours and one coordinator spent fifteen hours per week teaching time managing computers (more information in Figure 1).

Directly linked to teaching time is the number of hours allocated to teachers for duties other than teaching (DOTT). Computing Coordinators indicated that they were allocated an average of five hours per week for DOTT, which is normal DOTT for a full-time secondary teacher. An average of three hours per week of coordinators’ DOTT was spent managing computer systems, with 58% using three or more hours and 17% using all of their DOTT.

As would be expected, the main role of a Computing Coordinator was found to be teaching. Figure 2 compares the teaching load of coordinators in this current study with those from Kershaw and Weber’s (1991) study. There were considerable differences between the time spent on teaching duties with only 10% of their respondents teaching in excess of 80% of a full teaching load, compared with 22% in this study who had relatively full teaching loads. A striking feature appeared to be that 65% of coordinators in this study taught between 61-80% of a full teaching load (c.f. their result was approximately 17%). With the rapidly increasing quantity of computer technology in secondary schools, it is of concern that the vast majority of coordinators were found to have no time allowance for these duties.

Coordination of Computing Duties
Coordinators had a range of duties as shown in Table 1 which summarises what they ranked as the five most time consuming tasks. The questionnaire listed the first eleven tasks and allowed respondents to add others. Of the first eleven items listed, 90% of coordinators who responded performed all the tasks using varying degrees of time.
There were five duties which Computing Coordinators ranked to be the most time consuming in the performance of their coordination of computing role (Table 1): maintaining software (92%); hardware maintenance (83%); installing software (60%); assisting other staff (58%); and departmental duties (42%).

Software maintenance

Software maintenance was the most time consuming duty reported by coordinators but oddly, it was not mentioned in Kershaw and Weber’s (1991) investigation. Software installation was also not mentioned in their study, yet it was the third most time consuming duty in this study. Perhaps these anomalies were due to increased software availability and the larger number of computer systems found to be in the schools involved in this study.

Maintaining software was ranked by 92% as one of their top five most time consuming tasks as opposed to software installation which was ranked in the top five by 60% of respondents (see Table 1). Software maintenance refers to tasks such as the restoration of corrupt software, virus scanning and removal, recovery of lost files and the setting up of drivers for new peripherals devices. It was likely that some of the time coordinators spent on software maintenance was related to the low level of networking evident and the range of operating systems used in many schools. Only 16% of schools had all of their computer systems networked. A further 20% of the schools surveyed had stand-alone systems and the remaining 64% had a mixture of networked and stand-alone systems. Software maintenance is considerably reduced with networked systems. Further, 58% of coordinators indicated that they worked with three or more operating systems. The more operating system environments that coordinators work in, the greater their knowledge and skills base needs to be to handle the idiosyncrasies of individual systems software.

Due to the ever-changing nature of software, it is understandable that software maintenance absorbed so much time. Before maintenance is undertaken the study of manuals, on-line help, etc., may be required to determine how to complete the task. Having completed similar tasks in the past does not ensure that the same procedure can be used again to achieve the same end. Although software has become more user friendly and many commands are transferable from one piece of software to another, the host of problems that can, and do occur, obviously take up much of a Computing Coordinator’s time. There is also the possibility that coordinators lacked the skills necessary to efficiently complete what may have appeared to be simple software maintenance tasks but often involve very complicated software configurations.

A further possible cause of the high ranking of software maintenance was given by many coordinators in their open ended responses. It was their opinion that system faults were often caused by having unskilled teaching staff inadvertently allowing students to sabotage the system with viruses or blatant vandalism. It is likely that these problems will become more prevalent as cross-curricula initiatives are furthered and non-computing trained teachers gradually become more confident in using computer technology in the curriculum.

Hardware maintenance

Hardware maintenance was ranked as the upper-most duty performed by coordinators in Kershaw and Weber’s (1991) Australian study and fourth in Bruder’s (1990) American study. This was found to be the second most time consuming task performed by coordinators in the present study. The time consuming nature of hardware maintenance is hardly surprising according to Cobum, Kelman, Roberts, Snyder, Watt and Weiner (1985), who consider that computing equipment is “not built for constant use by hundreds of different people with varied understanding of how they work” (p. 244). Consequently, at the school level, malfunctioning equipment is often a daily occurrence. All of the coordinators involved in this study considered that a percentage of the computer hardware in their schools was outdated in relation to continual malfunctioning. Whilst further study would be necessary to verify the age of computer equipment in Australian high schools, from personal experience at six government senior high schools in Western Australia during the nineties, a good proportion of computer equipment was found to be from that era.

### Table 1

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Ranked responses</th>
<th>% ranking in top five</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maintain Software</strong></td>
<td>16 15 4 3 6</td>
<td>92</td>
</tr>
<tr>
<td><strong>Hardware Maintenance</strong></td>
<td>14 14 5 5 2</td>
<td>83</td>
</tr>
<tr>
<td><strong>Install Software</strong></td>
<td>3 3 10 8 5</td>
<td>60</td>
</tr>
<tr>
<td><strong>Assist other Staff</strong></td>
<td>4 7 8 5 4</td>
<td>58</td>
</tr>
<tr>
<td><strong>Department Duties</strong></td>
<td>8 3 2 4 3</td>
<td>42</td>
</tr>
<tr>
<td><strong>Assist Administration</strong></td>
<td>1 1 2 5 6</td>
<td>31</td>
</tr>
<tr>
<td><strong>Inservice Staff</strong></td>
<td>0 2 6 2 5</td>
<td>31</td>
</tr>
<tr>
<td><strong>Negotiate with Suppliers</strong></td>
<td>0 1 4 6 2</td>
<td>27</td>
</tr>
<tr>
<td><strong>Evaluate Software</strong></td>
<td>1 0 4 4 3</td>
<td>25</td>
</tr>
<tr>
<td><strong>Reports/Budgets</strong></td>
<td>0 1 1 4 5</td>
<td>23</td>
</tr>
<tr>
<td><strong>Evaluate Hardware</strong></td>
<td>0 1 1 0 4</td>
<td>13</td>
</tr>
</tbody>
</table>

NOTE: 1 ranked most time consuming
From this present study the average number of computers per school was 72. As most computing laboratories would be expected to house 30 or less computers, it would seem reasonable to surmise that for most of the schools in this study, their computers would be placed in three or more locations. Both the number and location of computing equipment would have an influence on the time consuming nature of hardware maintenance.

At the time of this study, computer hardware maintenance assistance was available to schools through contractors to the Education Department (Business Maintenance Association (BMA)). The equipment was either repaired by contractors on site or removed, repaired and returned at a later date. Both options required checking out the hardware problem, writing a report and job order, making a telephone call to arrange repairs, waiting for the action, discussing the problem with the contractor and finally reporting on the action taken. Based on the time consuming nature of these activities and the fact that computing equipment would be out of action for some time when following these procedures, it was not surprising that 80% of coordinators perceived that getting computer equipment repaired was extremely difficult. It would seem likely that rather than put up with the increased paper work, the delays and subsequent loss of student learning time, where possible coordinators attended to the repairs themselves. It was found that 90% of coordinators were performing the technical maintenance of computer equipment, due in part to the fact that 84% of the schools studied did not have access to a computer technician or assistant.

**Other Duties**

Other areas that took up much of a coordinator’s time were the installation of software (60%) and assisting other staff (58%). According to coordinators, their assistance was required as staff members lacked skills in computing technologies due to insufficient training and ongoing professional development. This will be discussed further when considering the support afforded coordinators in the performance of their role.

Departmental duties were the fifth most time consuming duty performed by coordinators. Unlike the other duties performed by coordinators (see Table 1), the responsibility of a department is a ‘role’ rather than a specific ‘duty’ with its own set of tasks. For example, budgeting for a department would be quite separate from budgeting for computer technology which was ranked as the tenth most time consuming duty performed by coordinators. Further consideration of coordinators’ departmental responsibilities will be dealt with when discussing the issue of support.

**Extent of responsibilities and time**

Sixty-four percent of coordinators were awarded time to perform their duties with an overall average of four hours per week. The remainder received no time. Coordinators estimated that an average of eight hours per week would be needed to efficiently perform their coordinating duties, although 34% indicated that in excess of ten hours per week would be required.

Thirty-six (72%) of the coordinators were found to have the added responsibility of departmental duties. Of coordinators with departmental duties, thirteen (36%) had no time allocated to perform their departmental or computer coordinating duties, the remaining 23 (64%) were allocated an average of 4 hours per week. Those coordinators with departmental and the coordination of computing duties who had no time allocation for the performance of these duties, taught an average of 20 hours per week. Of the fourteen without departmental responsibilities, nine were allocated between one and five hours to perform their computer coordination duties, with an average of three and a half hours, the remaining five received none. The larger proportion (58%) of coordinators who had departmental responsibilities liaised with three or more staff in this capacity.

About half (46%) of coordinators received payment for their duties and were evenly distributed between those with departmental duties and those without.

Coordinators in schools that had a large number of computers tended to be given some time to attend to their coordinating tasks. On average, five hours per week was allocated to the 20% of coordinators who were responsible for greater than 100 computers. An increase to an average of six hours, was awarded to the 10% of coordinators who had departmental duties in addition to a minimum of 100 computers to care for. Both groups estimated that they required an average of ten hours per week to perform their computer coordination roles, as clearly the time given was inadequate. Kershaw and Weber (1991) indicated that there was a need to determine whether the roles performed by coordinators were "perceived demands" or the result of "changing expectations of the school employing authority as its technological equipment grows and curriculums are influenced" (p. 106). Based on the findings of this study, it would seem clear that coordinators were continuing to perform an increasing number of duties as a reaction to a need that was not being met by other means.

**Level of Support**

Coordinators reported that minimal support was afforded them in the performance of their coordinating duties. Very few schools had access to a computer technician. A computer technician would be expected to perform many of the tasks currently performed by coordinators.

**Technical Support**

Coordinators were responsible for an average of 72 computers, ranging from a minimum of 20 to a maximum of 170, with 20% having in excess of 100 computers to maintain. Clearly, coordinators had a large amount of hardware to maintain with little support with 84% of them not having access to a computer technician or assistant. Of the remaining 16% (8 schools), 50% had access on call. 38% for one day per week and the remaining 13% for two days per week. However, 58% of the schools surveyed were leasing at least some computer equipment, with a further 32% considering this option. Of the four (50%) schools that had access to a computer technician on call, three were found to be leasing computer hardware.
Professional Development Support

Only 6% of coordinators indicated that the level of school professional development support in computing was adequate, with none finding it more than adequate. Almost one third (30%) considered that no support was available in any form (e.g. time off or payment of course fees) for professional development in computing, a further 64% felt the level of professional development support was inadequate or barely adequate. The majority spent less than 20 hours per year on professional development in computing. It was also disconcerting to find that 94% of coordinators found professional development support in computing inadequate. It would appear that little has changed since Kershaw and Weber’s (1991) study where only 7% of schools from the government schooling system considered the level of professional development support to be adequate.

Possibly due to the lack of support in the form of time and funds for professional development, only 16% of coordinators were involved in curriculum development or syllabus committees compared with the 80% recorded in Kershaw and Weber’s (1991) study. Also, very few of the coordinators in this study were members of recognised technology groups or associations, such as the Educational Computing Association of Western Australian (ECAWA). These committees and groups take on the form of professional development in that coordinators can gain considerable knowledge and skills in computing by their attendance. Due to the rapid evolution of computer technology, professional development requires much more than formal training or professional networks. Various incidental and planned learning experiences, such as contact with fellow colleagues, reading of current texts and journals and self training of software, are necessary to keep skills up to date. Whilst coordinators spent an average of seven hours per week of their own time on this form of informal training, a degree of support from the schooling system should have been afforded them to carry out this training. Three quarters of the coordinators received no support for their coordinating tasks in the form of time and, in addition, half of all coordinators did not receive a financial incentive for either their departmental or coordination of computing role.

“... an average of eight hours per week would be needed to efficiently perform their coordinating duties, although 34% indicated that in excess of ten hours per week would be required.”

Coordinators’ Perceptions about their Role

Coordinators were asked to respond to a series of statements about their perceived role. The study was not able to establish the precise number of hours coordinators spent performing their coordinating duties. However, it was determined that many coordinators were utilising a proportion of their teaching and teaching preparation time and, of course, any time that was specifically awarded to them to carry out their coordinating roles. Other time, for example before or after school, may or may not have been used but this information was not collected. Well over 70% of coordinators disagreed with the statement that they were given ample time to perform their coordination of computing duties or, in fact, all of their roles. Further, 62% agreed that a school’s expectations of coordinators was unrealistic.

Only 16% of the respondents in this study considered that school principals understood the duties required of coordinators and yet 40% agreed that they had a high profile at their school. This high profile may be a by-product of their willingness to take on more than is actually required of them in their coordinating roles, as 78% of coordinators perceived they were doing.

Coordinators were almost unanimous in their agreement that they enjoyed using computers. Perhaps that is why they continue to perform all the duties necessary for the smooth running of technology in their schools. Almost three quarters of the coordinators in this study felt that there were more rewarding job opportunities in computing outside of schools, and 44% had recently considered applying for them. It was the perception of most coordinators that they were hard-pressed to meet the demands of their coordinating role. In their endeavour to perform the host of coordinating tasks expected of them, both teaching time and DOTT were being consumed. As Callen (1991) wrote in reflection of schools failing to keep pace with technology in industry and teachers subsequent disillusionment with their current situations, “Schools seem lost in an authoritarian and conservative world and bright teachers seem eager to leave the system and join a more diverse one” (p. 26).

Although the majority of coordinators in this study indicated they enjoyed using computers they did appear to have a negative perception of their roles as coordinators of technology in schools. Their negative perceptions were particularly clarified in their open responses where many coordinators referred to their lack of time, funds, professional development, support and assistance and the continual increase in pressures they found themselves confronting. However, many coordinators, after providing their open response, seemed compelled to add a note that either referred to their love of
teaching or using computers. Perhaps this accounts for their dedication and continued acceptance of their positions.

**Coordinators’ Open Responses**

Coordinators were requested to write a brief statement to discuss any major problems they were experiencing in their current roles and offer some solutions to these problems. Ten coordinators provided extended responses, in place of the brief statement requested. By far the major issue referred to by twenty-three coordinators was that relating to time, especially from coordinators with departmental roles, the responsibility of over 100 workstations and collaboration with many staff members. The main difficulty that coordinators referred to was trying to balance their teaching obligations with that of their coordinating role. Another major issue expressed by coordinators and closely connected to time allocations was the expectations placed on them by their peers. Eleven (22%) coordinators specifically mentioned the pressures associated with being required to assist staff with a range of daily computer related problems. Many felt that they were at the beck and call of all school staff, often in excess of 80, who assumed that coordinators should assist them with any information technology queries. Further, a number of coordinators considered that they were under pressure to troubleshoot these problems and fix them immediately, regardless of whether they were teaching, on teaching preparation time or at lunch.

Another concern mentioned by eight coordinators was the number of computer system failures believed to be caused by untrained staff. They felt that unskilled staff utilising computer technology often led to incorrect use of equipment and student tampering, resulting in computer downtime. These coordinators referred to their frustration with staff who had little or no computing skills, did nothing to rectify this situation and continually called on them for assistance. As computers are slowly integrated into many curriculum areas, it is imperative that teachers involved gain basic computing skills.

The following quotes selected from coordinators’ responses provide a broad picture of their feelings:

> Wasting half my teaching time (I have a full teaching load) on solving technical problems is a joke. 
> To be honest, I have had it completely - I am only appreciated for my technical ability - and only monkey work for peanuts!

**Recommendations and Conclusions**

The results of this research indicate the need for clearly defined expectations of the roles placed on Computing Coordinators, together with a provision for necessary support. There must also be some recognition that time requirements for coordinators to perform their roles vary depending on the extent of their duties, and should be calculated accordingly. This study found that coordinators used considerable teaching time and DOT as managing computers. Whilst a further study would be needed to determine what affect Computing Coordinators using their teaching time and DOT would have on student learning, the seriousness of this scenario is more than evidenced by the 88% of coordinators who considered that their coordination role was detrimental to their role as a teacher.

A recent editorial in *PC User*, an Australian computer magazine, referred to a “significant mindshift at government level” over the past year “about the need to equip our schools for the coming information revolution, let alone the new millennium” (Dancer, 1996, p. 48). Currently, millions of dollars are being ploughed into technology initiatives within Australian schools (Bogle, 1997) which provides the technology but very little has changed over a decade with regard to providing for its integration and care. Bogle refers to critics who feel that “Too much emphasis is placed on hardware ... and not enough on people - the teaching and technology support staff need to make it work”. If Computing Coordinators are to take a leading role in the planning phase of technology integration, as this study appears to demonstrate they already are, some of the current burdens that are placed on them need to be removed. To ‘make it work’, plans need to be put in

- **Solution 4** - Acquisition of a part or full-time technician as necessary
- **Solution 5** - Adequate professional development for all staff members

**Conclusions**

The role of the computing coordinator is an important one, as they are responsible for ensuring that technology is integrated into the curriculum and that it works. This study found that coordinators were often under pressure to fix technical problems, and that they were often called upon to assist staff with a range of computer related problems. Coordinators also reported that they were often under pressure to troubleshoot these problems and fix them immediately, regardless of whether they were teaching, on teaching preparation time or at lunch.

In conclusion, this study has highlighted the need for clearly defined expectations of the roles placed on Computing Coordinators, together with a provision for necessary support. There must also be some recognition that time requirements for coordinators to perform their roles vary depending on the extent of their duties, and should be calculated accordingly. This study found that coordinators used considerable teaching time and DOT as managing computers. Whilst a further study would be needed to determine what affect Computing Coordinators using their teaching time and DOT would have on student learning, the seriousness of this scenario is more than evidenced by the 88% of coordinators who considered that their coordination role was detrimental to their role as a teacher.
place for the ongoing care of technology equipment in schools. Further, if technology integration within our schools is to be taken seriously, adequate training and professional development of all staff is necessary.

This study found that a major disadvantage for the majority of coordinators is their lack of access to a computer technician. Urgent action must be taken to provide all schools with adequate access to qualified computer technicians to alleviate some of the pressures currently placed on coordinators in their coordination of computing role. The initiative by EDWA to provide technical support for computer technology, commencing 1998 and finally in all schools by the year 2001, may reduce some of the tasks performed by coordinators (1996a). However, EDWA will need to ensure that their initiatives provide adequate assistance for the specific needs of individual schools and that this support in capable of handling the broad and complex tasks, if they hope to alleviate some of the pressures currently placed on coordinators.

A further area for consideration would be to determine the specific role and status of a Computing Coordinator. This study displayed evidence that the role depended on the demands of individual schools. There appeared to be no equity of time consideration even among those coordinators who were found to have departmental duties. This study has provided a clear indication of the roles performed by coordinators so that staffing at the school level can determine realistic time allocations for coordinators to perform their duties. The results could also assist in the determination of the duties and essential and desirable criteria for job selection as a coordinator. Considering the array of tasks performed by coordinators and their obvious time consuming nature, it would seem clear that the duties of coordinators should be separated from those involving departmental duties and each position recognised in its own right in relating to status, time and rewards.

This study found that minimal support in the form of time, funds, professional development and assistance was afforded to coordinators in the performance of their coordination of computing duties. As much of this support is decided at the school level, the Principal would need to be aware of the duties required of a coordinator. It was the perception of 80% of the coordinators in this study that Principals did not understand the role of a coordinator of computing. All staff need sufficient professional development to keep their skills current. The present situation requires that individual's bear much of the responsibility and cost of their own training. All too often, technology training has been left up to individuals “who are prepared to spend their own time learning programs and figuring out ways to integrate them into their teaching” (Bogle, 1997). Provision for professional development in computer technologies for all staff should be a priority.

Kershaw and Weber's (1991) study highlighted the lack of support afforded Computing Coordinators at Australian high schools. This study has shown that the pressures placed on coordinators at Western Australian government senior high schools have grown rather than diminished. Clarke wrote in reference to a coordinator's role, "At no time in the past decade has there ever been any recognition of this role or the time that it demands, yet in that time the number of computers to be administered has increased ..." (1994, p. 270). The employing bodies need to consider that Computing Coordinators are teachers in the first instance and that their coordinating role is a separate part-time extension of this. None of the duties required of them as coordinators should affect their teaching time and other commitments. This can only be achieved if adequate time and assistance is awarded to coordinators, based on the specific requirements of individual schools. For example, required support is influenced by the number, type, location, set-up and condition of equipment, school staffing numbers and school priorities as they relate to how technology is to be utilised within the school. If these measures are not taken as a matter of urgency, it is the finding of this study that the pressures currently felt by coordinators will escalate as technology expands within Australian schools.

**REFERENCES**


Education Department of Western Australia. (1996a). Technology 2000 Strategic Plan. Western Australia: EDWA.

Education Department of Western Australia. (1996b). Technology 2000 Schools Project: Internet in the curriculum. Western Australia: EDWA.

