

# Parents' and Students' Satisfaction with the Use of Information Technology in Government Schools in Queensland, Australia

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## Abstract

This paper describes some information technology aspects of a school opinion survey carried out over 1,200 government schools in Queensland, Australia. The focus here is on determining the levels of satisfaction of parents and students with the ways in which Queensland government schools organise and use information technology for learning and teaching. A sample of parents was obtained across all grades in each school, except for small schools ( $n < 30$ ) where all parents were surveyed. Students were sampled only from Years 7 (primary), 9 and 11 (secondary) at each school site where these years were present. For small schools, all students were surveyed in the grade involved. A total of some 36 000 parents and 40 ,000 students responded to the survey across the state.

While the overall satisfaction levels across all items in the survey were high, with some 81% of all parents and 75% of all students reporting that they were satisfied or very satisfied that "this is a good school," technology items were among those for which both parents and students expressed least satisfaction. Comparison of the technology items, two for parents and three for students, revealed some marked variations across different types of schools with students generally exhibiting lower levels of satisfaction on the technology items than their parents. This may in part relate to their more intimate knowledge of the school environment than their parents. Clients of schools of distance education displayed marked differences from those of other school types. This may relate to the greater need for computers to act in this environment as surrogate teachers, or to be used as communication devices. Smaller schools, including special schools, exhibited comparatively higher levels of satisfaction. This may relate on one hand to a greater level of access possible in these environments, or to the individual access needed for particular purposes in the case of special schools. Analysis of responses to technology items by gender revealed that female parents and students reported higher satisfaction on the technology items overall, suggesting that fears of gender inequality regarding access to and use of technology may be disappearing.

## Introduction

While surveys on student satisfaction in higher education institutions are commonly reported in the literature, recent reports of surveys relating to parent satisfaction with schools (Erickson 1996, Tuck 1995, Lowe 1996) and student satisfaction with schools (Pandiani, James and Banks 1998, Baker 1998, Furst and Criste 1997) are not

as common. This may well be because outcomes of research projects of this type are not always reported beyond the educational system involved.

This paper outlines some outcomes of a school opinion survey carried out over 1,200 government schools in Queensland, Australia. While the School Opinion Survey investigated a range of services provided by the state education authority, the focus in this paper is on aspects that relate to information technology, and to the levels of satisfaction of parents and students with the ways in which Queensland government schools are organising and using information technology for learning and teaching.

The survey was carried out by means of author-designed parent and student survey forms that were developed in consultation with a state response group and target group consultants. The framework used to guide survey form construction was Moos's scheme for classifying human environments (Moos 1979). The survey items were cross-referenced with the goals of the state education authority that related to:

- quality curriculum;
- effective teaching, improved learning outcomes
- confidence in public education
- technology for learning, and
- learning environment.

This paper addresses aspects related to parent and student satisfaction with the technology for learning goal, that the state education authority has as one of its key corporate goals.

## Methodology

Forms were trialed before use in the main survey. Reduction of the trial item sets of 35 items to the final sets of 20 items used was informed by a combination of: the use of an 'importance' response column (not included in the final survey form) to glean information from the respondents as to which trial items they deemed to be important; the use of a 'don't know' response column in order to determine the level of understanding of the respondents to the trial items; Rasch analysis of the trial item parent and student responses that highlighted items exhibiting a good fit to the Rasch model; and feedback from state response group meetings.

For students, the three items from the final set of 20 items used relating to the technology goal included:

How satisfied/happy are you ....  
 with the way you use computers for learning at school;  
 with the opportunities you have to use computers for learning at school; and  
 with the computer skills you have learnt at school.

For parents, the two items from the final set of 20 items used relating to the technology goal included:

How satisfied/happy are you ....  
 with the way your child uses computers at this school; and  
 with the access your child has to computers at school.

A sample of parents was obtained across all grades in each school except for small schools ( $n < 30$ ) where all parents were surveyed. Students were sampled only from Years 7 (primary), 9 and 11 (secondary) at each school site where these years were present. For small schools, all students were surveyed in the grade involved. A total of some 36,000 parents and 40,000 students responded to the survey across the state which corresponded to response rates of approximately 70 and 90 percent respectively.

State wide and individual school analyses were carried out by the authors using Rasch analysis (Adams and Khoo 1993, Adams, Wu and Wilson 1997) in order to obtain person satisfaction estimates and item difficulty estimates for state wide and school samples. Rasch analysis is a technique that has been adopted in international educational measurement studies such as the Third International Mathematics and Science Study (TIMSS) and the Program for International Assessment (PISA). It was used by the authors as the most

appropriate technique for use in the development, validation and analysis of school satisfaction data as:

- it identified the extent to which items measured a single underlying satisfaction construct;
- it provided measures reported in logit units that are sample and item independent;
- it modelled error estimates that were sensitive to varying sample size; and
- it yielded fit statistics which monitored adherence to the model and assisted in interpreting the meaningfulness of findings.

Further analyses were performed for identified target groups, geographically based districts, school type and size, as well as for other variables of interest. In the following sections, results of analyses providing estimates of client satisfaction that related the information technology items are outlined.

### Results

A general indication of how parents and students responded to information technology items in the survey is provided in Figures 1 and 2 where the item estimates of difficulty of endorsing each item in the survey for various school types are compared with that for all parents and all students in the survey. The higher up the vertical axis the data point for each item lies, the more satisfied was the group with the aspect of schooling that the item represented. The logit scale applies to both the person satisfaction and to the endorsability of each survey item. As the logit scale is an interval scale, the unit of measurement applies anywhere along the scale. This makes it useful in making comparisons between and within Figures 1 and 2.

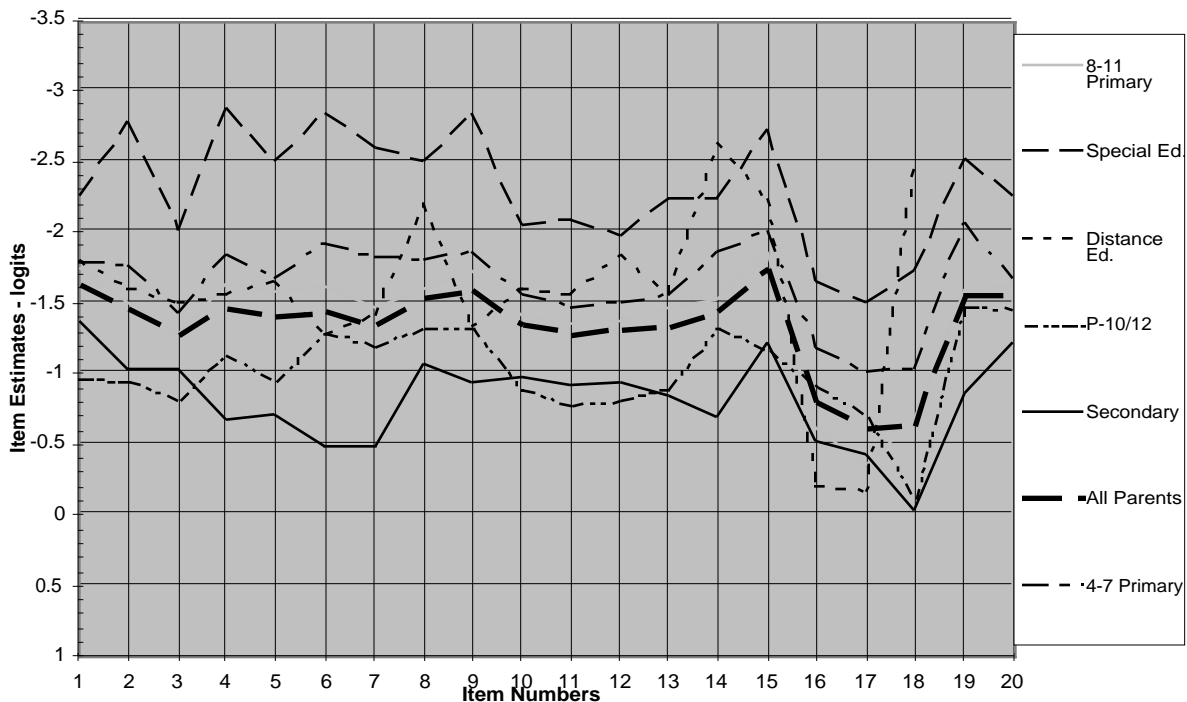
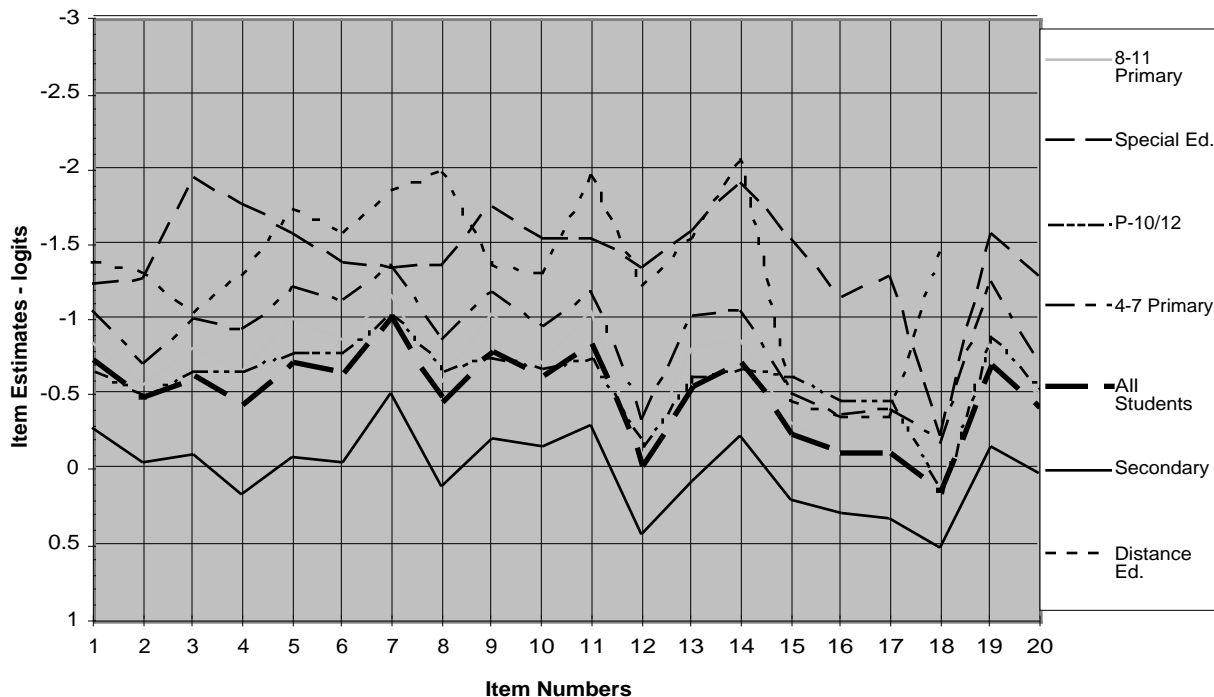


Figure 1: Parent Benchmark Estimates



**Figure 2: Student Benchmark Estimates**

It can be seen that different types of schools exhibited similar patterns of responses across all items. While the satisfaction levels across all items in the survey were high, with some 81% of all parents and 75% of all students reporting that they were satisfied or very satisfied that “this is a good school,” technology items (items 16 and 17 for parents, and items 15–17 for students) are among those for which parents and students exhibited the least satisfaction. Nevertheless technology items were positioned on average by parents at the item category level of ‘satisfied.’ Also, students generally exhibited less satisfaction than parents across all items, and specifically exhibited less satisfaction for technology items. In spite of this, these items for students were still positioned on average at the item category level of ‘neutral (50/50).’ Only item 18 (behaviour) for parents and students, and item 12 (the way people care about what you think) for students, rated lower in satisfaction than the technology items for some school types.

In looking at the satisfaction estimates for the technology items themselves, a similar trend can be discerned across school types with reducing satisfaction for students from item 15 (the way computers are used) to item 16 (opportunities to use computers) to item 17 (computer skills learnt). A similar reduction in satisfaction is also exhibited for parents when moving from item 16 (use of computers) to item 17 (access to computers).

Marked differences in the satisfaction estimates for the technology items for different school types can be seen from Figures 1 and 2 when compared to the satisfaction estimates for all students and all parents (thick dashed line) in the samples. Parents of distance education students are the least satisfied of all parents. Parents of

special education students were most satisfied in relation to the technology items, and were the most satisfied group overall.

Parents of secondary school students and parents of large primary schools (8–11 Primary) joined with distance education parents in displaying lower satisfaction estimates than the average estimates for all parents. Parents of schools containing both primary and secondary components (P–10/12 schools) and parents of small primary (4–7 Primary) schools joined with parents of special schools in displaying higher satisfaction estimates than those for all parents.

Students attending secondary schools share with their parents the lowest satisfaction estimates with technology items, and were the least satisfied overall. Students of special schools share with their parents the most satisfaction in relation to the technology items. Students of large primary schools (8–11 Primary) demonstrated the same level of satisfaction with technology items as that for all students. Students of distance education, students of small primary schools (4–7 Primary) and students of mixed primary/secondary (P–10/12) schools joined with special education students in exhibiting higher levels of satisfaction than those for all students.

Analyses were also performed to investigate the interaction of gender with items for parents and students. Tables 1 and 2 indicate the person satisfaction estimates for male and female parents and students (as distinct from the item difficulty estimates plotted in Figures 1 and 2). The tables indicate that both female parents and students generally had higher levels of satisfaction across all items than for male parents and students.

Group	Estimate	Error	N
Female Parents	+0.156	0.002	27 828
Male Parents	-0.156	0.004	6 992

**Table 1: Satisfaction Levels for Parents According to Gender.** (The average estimate for all parents was set at 0.00 logits.)

Group	Estimate	Error	N
Female Students	+0.101	0.001	20 086
Male Students	-0.101	0.001	19 653

**Table 2: Satisfaction Levels for Students According to Gender** (The average estimate for all students was set at 0.00 logits.)

For parents, males demonstrated greater satisfaction on technology items even though female parents showed greater satisfaction across all items; whereas for students, females exhibited greater satisfaction in both cases.

## Discussion

The general finding across school types that the level of satisfaction measured for technology items was at a par with items exhibiting the least satisfaction suggests that both parents and students have a view that the use of technology and the development of computer skills have a level of importance unrecognised at the time of the survey. This was at a time when major new initiatives to enhance the information and communications technology resources in schools were commencing. The fact that students were found to be less satisfied with technology items may relate to their being better able to compare the level of access to computers at school to that at home. With over 50% of Australian households having computers, students are more likely to have better availability at home, and may be frustrated by insufficient access at school.

In terms of comparisons of satisfaction estimates of parents and students across school types, it is interesting to note that while the satisfaction estimates of students across items is generally lower than that for parents, and in particular, for technology items, Figures 1 and 2 suggest that the relative difference in satisfaction of parents for technology items compared to other items is larger than that for students. This suggests that parents place a greater importance on the provision of technology in schools when compared to other aspects of schooling. Parents of distance education students appear to appreciate the need for provision of technology more than is the case for other parents. It appears for this group that the computer may be viewed as representing the 'more capable other,' or as an essential communications device.

Lack of parent satisfaction with the technology items also appears to be associated with school size. Larger schools tend to have more difficulty in providing students with the same level of access. Other possible causes of concern may be that parents of secondary school students expect that their children need preparation for the workplace where computing skills are viewed as an essential requirement. The high level of satisfaction of parents of special education students compared to parents of other school types may relate to the way in which computers can be used to cater for individual differences in this type of school. The one-to-one interaction with computers in these smaller schools may also be a factor.

While the relative difference in satisfaction for students in technology items compared with other items is not as marked (Figure 2) as that for parents, this is not the case for distance education students where the relative difference in satisfaction is quite marked (but not as great as that for their parents). Distance education students obviously feel the need for greater technological assistance in their particular learning environment where no face-to-face teaching is available. Secondary education students on the other hand show little variation in satisfaction levels for technology items compared to other items suggesting that their needs may be being met by their participation in subjects where adequate provision is being made and/or provision is being made in their homes.

Results for gender differences in satisfaction are interesting in that the literature often bemoans the inequity in opportunity for females to gain access to computers at school and in the home. The fact that female students appear to exhibit greater satisfaction than their male counterparts with respect to technology provision and use in schools, as evidenced in this survey, may relate to their greater acceptance of computers as tools. Boys have been noted to have a greater tendency to view computers, at least in part, as toys—a view not held by most teachers. The greater satisfaction levels of male parents in relation to technology items, compared to their female counterparts, may stem from their perception of the importance of the computer in the world of work.

## Conclusion

This paper has reported results of satisfaction levels pertaining to technology items of a satisfaction survey designed to measure the extent to which the goals of the state education department were being achieved by its clients, namely the parents and students using government schools in Queensland, Australia. The analysis has revealed that the levels of satisfaction with the technology goal were low compared to other goals, but still at the item category levels of 'satisfied' and 'neutral' respectively.

Comparison of satisfaction levels of the technology items across schools of different types revealed some interesting differences, with students generally exhibiting lower levels of satisfaction on the technology items than their parents. This may in part relate to their more intimate knowledge of the school environment than their

parents who may have relied to a greater extent on their perceptions.

Clients of schools of distance education displayed marked differences from those for other school types. This may relate to the greater importance on the need for technology to act as a surrogate teacher, or to be used as a communication device in this environment. Smaller schools, including special schools, exhibited higher levels of satisfaction. This may be due on one hand to the greater level of access possible in these environments, or to the individual access needed for particular purposes in special schools.

Since the execution of this survey and the analysis of the results, many millions of dollars have been spent in enhancing computer and communications facilities in government schools in the state, including the provision of Internet access to all 1,300 schools spread over a vast area. It will be of interest to monitor the satisfaction levels of parents and students over time.

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