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Lay people's views of the school food supply

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Acknowledgements

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Abstract

Purpose – This article aims to examine lay-persons' views of school food services in Victoria, Australia.

Design/methodology/approach – A cross-sectional postal questionnaire survey of a random sample of electors on the Electoral Roll in Victoria, Australia. Out of 1,000 potential respondents, 377 completed the questionnaire. Main outcome measures included responses to closed questions about foods supplied to children at school using five-point scales. Data analyses included frequency and cross-tabulation analyses, and multivariate analyses of principal component scores by demographic and personal values variables.

Findings – Many respondents were critical of children's school food services but they were generally supportive of food and health education, whilst holding ambivalent attitudes towards snacks and marketing practices.

Research limitations/implications – This was a cross-sectional survey with a relatively low response rate.

Practical implications – Understanding of laypersons' views of children's food services is likely to facilitate nutrition communication and promotion of healthy children's foods.

Originality/value – Lay views of children's food provision have rarely been reported, despite their importance for the support of public nutrition policies. The study identifies likely antecedents of lay people's views.

Keyword(s):

Public opinion; Schools; Food service; Australia.

The public's views of schoolchildren's eating

Most children spend many of their waking hours at school. During this time they need to eat and drink. Recently, the quality of foods supplied to schoolchildren has come under scrutiny in some countries, for example several commentators have criticised the intense marketing of high energy products to children (Stanton, 1998; Story and French, 2004; Nestle, 2002; EU, 2005; House of Commons Select Committee, 2004). In several jurisdictions the sales of energy dense (“junk”) products at school has been banned (NSW Health, 2004; National School Board of America, 2002). In the UK the Parent's Jury has opposed the sale of "unhealthy" foods and drinks to school children (www.parentsjury.org). Much of this renewal of interest stems from alarm generated by recent studies of the prevalence and environmental causes of childhood obesity (Bell and Swinburn, 2004; Egger and Swinburn, 1997; James et al., 2004). Several recent studies have shown that school food services often do not conform to national dietary guidelines (Nestle, 2002; Cleland et al., 2005; Maddock et al., 2005).
In Australia, schools are regulated by State governments which until recently have followed laissez-faire schemes as regards the provision of foods and beverages at school. Such regimes have relied on parental volunteers to prepare and distribute foods in schools and allowed the marketing of energy-rich foods and beverages, via vending machines, sales of high-energy snack and drinks and “fund raising” drives (Maddock et al., 2005; Cleland et al., 2005).

Despite their importance as voters, citizens and as caregivers, very few studies have examined the ways in which adults (parents and non-parents) view the feeding of children at school, which may include a range of marketing practices. In a previous study, lay people were shown to hold sophisticated views of the causes and prevention of childhood obesity, which were quite distinct from those expressed in the broad public health literature (Hardus et al., 2003). Therefore, it was decided to build on this earlier work to examine adults’ views of the current state of school food services as well as their likely antecedents.

**Likely predictors of lay-persons’ beliefs about children’s eating**

Previous studies have shown that demographic characteristics such as sex, parenthood, education background, and age are often associated with the views people hold about food and health issues and the ways they use health information (Benjamin-Garner et al., 2002; Crotty et al., 1992; Wardle et al., 2004; Bus and Worsley, 2003; Wham and Worsley, 2003). Parental status was expected to be an important associate since the experience of caring for young children appears to make adults more aware of children’s health (Worsley, 1990). Similarly, it was hypothesised that women would be relatively more interested in school food issues than men in line with previous findings which suggest that women in general are more interested in children’s health than men (Wardle et al., 2004; Fagerli and Wandel, 1999; Milligan et al., 1998).

Educational background has been associated generally with investment in the future and control over life outcomes. Ippolito (2002), for example, has shown that tertiary educated people tend to have stronger future orientation and interest in controlling outcomes in their lives than non-tertiary educated people and Rogers (1995) and others have shown that higher education is associated with earlier uptake of social innovations. Food consumption is strongly associated with educational background; tertiary educated individuals tending to consume "healthier" foods than non-tertiary educated people (Wardle et al., 2004; Johansson et al., 1999; Hupkens et al., 2000; Turrell et al., 2002; Worsley et al., 2003). Therefore, it was expected that tertiary educated adults would be more concerned about possible deficiencies in the school food supply than non-tertiary educated adults. It was also hypothesised that older adults would hold “stricter” opinions about children’s foods since older Australians were reared in times in which “whole foods” and “proper eating” prevailed (Wahlqvist and Truswell, 1986).

Two additional sets of phenomena which are likely to be associated with people's opinions about food are “trust and confidence in the food system” and their personal values. During the past two decades many studies have shown that confidence in food-related authorities is related to concerns about food safety (Wandel, 1994; Frewer, 2000), and other health issues (Worsley and Scott, 2000). Generally, the less confidence consumers have in governments and other food authorities, the more concerned they are about foods and food services. Therefore, it was hypothesised that adults who expressed greater confidence in the various authorities which control school food (such as state and federal governments and teachers) would be less concerned about the current state of school food services.

Personal values are the guiding principles in people’s lives (Schwartz, 1992), which enable individuals to evaluate propositions and to form attitudes to objects and courses of action (Feather, 1982). Several studies have shown that values are associated with a number of food preferences such as vegetarianism (Sims, 1978; Worsley and Skrzypiec, 1998), preferences for particular foods such as yoghurt (Lowe and Worsley, 2003), organic foods (Grunert and Juhl, 1995) and meat (Allen et al., 2000), food lifestyles (Grunert et al., 1997), trust in nutrition information (Worsley and Lea, 2003), and decision-making about food.
It was hypothesised that people who hold strong harmony-equity values (values which emphasise the importance of community harmony) or traditional values (respecting authority, conformity and the “old” ways) may be more likely to be more critical of current school food services, since they are an important, traditional community resource.

Methodology

Survey participants

A postal survey was administered to a random sample of 1,000 adults selected from the Electoral Roll in Victoria, Australia during June to September 2003. Electoral enrolment is compulsory for all adults over 18 years-of-age.

Survey administration

A preliminary letter was sent to each member of the sample followed a week later by a copy of the questionnaire and a covering letter. A reminder/thanks postcard was sent two weeks later, followed by a replacement questionnaire to non respondents two weeks after that (Dillman, 2000). A final reminder letter was sent two weeks after the mailing of the replacement questionnaire. No financial incentives were promised to potential respondents. Ethics permission for the conduct of the study was granted by the Deakin University Human Ethics Committee.

Questionnaire

The survey instrument was divided into six sections. Those which are relevant to this paper included: 23 statements about the state of children's food in schools with which respondents could indicate their agreement or disagreement via five-point scales (strongly disagree, disagree, neutral, agree, strongly agree); six statements assessing respondents' confidence in the authorities responsible for school (responses ranging from 0, no confidence to 4, great confidence); 22 personal values statements selected from the Schwartz personal value inventory (used in our previous studies: Schwartz, 1992; Feather et al., 1998; Worsley and Lea, 2003), and a series of demographic questions including details of sex, parent status, age and educational background. Details of the items are given in Tables I, II and III. Laypersons' views of children's food policy options are reported elsewhere (Worsley, 2006).

Data analyses

The demographic variables were coded as follows: sex 1=female, 2=male, parent status (1=parent, 0=not a parent), age was converted into three age groups (1=under 35 “Young”, 2=36 to 48 years “Middle aged”, 3=over 48 years “Old”); and, educational background (1=tertiary educated with at least a bachelor's degree, 0=not tertiary educated).

A principal components analysis (with varimax rotation) was conducted on the respondents' original five-point scale responses to the school food items in order to group the items according to their perceived similarity (Table I). Cronbach's alpha was calculated for each of the component scores and for the personal values subscales.

The participants' responses on the state of children's food items were recoded into three-point scales (Strongly Disagree and Disagree=1, called Disagree, Neutral=2, and Agree and Strongly Agree=3=AGREE). Separate cross tabulation analyses utilizing chi square tests were then conducted by sex, parent status, education background and age group (Table II).

Three personal values scores were calculated by summing those items which belonged to corresponding personal values segments in Schwartz' personal values circumplex (Schwartz, 1992; Worsley et al., 1996), as follows:
Equity harmony (Cronbach’s alpha=0.74). Equality (equal opportunity for all); Inner harmony (peace with myself); Unity with nature (fitting into nature); A world of beauty (beauty of nature and the arts); Protecting the environment (preserving nature).

Hedonism-stimulation (Cronbach's alpha=0.61). Pleasure (gratification of desires); An exciting life (stimulating experiences); A varied life (filled with challenge, novelty and change); Daring (seeking adventure, risk); Enjoying life (enjoying food, sex, leisure, etc.).

Tradition security (Cronbach’s alpha=0.61). Social order (stability of society); National security (protection of my nation from enemies); Self-discipline (self-restraint); Family security (safety for loved ones); Authority (the right to lead or command); Honouring of parents and elders (showing respect; Obedient (dutiful, meeting obligations); Devout (holding to religious faith and belief).

These scores were converted into tertiles and cross tabulation analyses conducted on the respondents' ratings of the state of children's food items (Table II). The six confidence items formed a highly reliable homogeneous scale (Cronbach's alpha=0.81). Therefore, the ratings were summed to yield a "confidence in authorities" score. This was then divided into tertiles (Low, Medium and High confidence) and cross tabulation analyses performed on the sets of opinion variables (Table II).

Finally, two-way ANOVA (e.g. Sex by age group; Sex by education group, Sex by parent, Sex by value and Confidence tertiles) were conducted on the component scores.

SPSS version 11.5 was used for all the statistical analyses (SPSS, Inc., 2001).

Results

Demographic characteristics

Overall 377 people returned completed questionnaires. After allowance was made for 179 potential respondents who refused to take part in the survey because they did not have young children, and 20 confirmed non-deliveries, the response rate was 57.6 percent. Almost two-thirds (62 percent) of the respondents were women, 70 percent were parents, and 41 percent were tertiary educated compared to 22 percent the general population of 25-64 year olds in Victoria (ABS, 2004). The mean age of the respondents was 43.47 years (std dev 15.46 years). Over two-thirds (67.6 percent) were married/cohabiting; 26 percent had gross household incomes of less than $30,000 pa, 19 percent between $30,000 and $50,000 pa, 31 percent between $50 001 and $80,000 pa and 25 percent earned more than 80,000 pa.

Perceptions of the state of children's school food

A summary of the respondents' views is provided in Table I, ordered according to the results of the principal components analysis. Statistically significant comparisons between the demographic groups, and the equity harmony, traditional values and confidence tertiles are shown in Table II. The respondents' reported agreement with the confidence in the food authorities items are shown in Table III.

The principal components analysis revealed several themes in the responses of the participants, which accounted for 55 percent of the variance in the ratings data (Table I). The components were given provisional names according to the items, which loaded on them. They included: Snacks and marketing; Children's food is unsatisfactory; Lack of time (of parents and teachers to help in school); The importance of health education; Support for nutrition education and home economics, and, Cost and guilt (in feeding of children).
Inspection of the total percentages suggests that this sample was quite critical of the present school food services but was supportive of food and health education whilst holding ambivalent attitudes towards snacks and marketing (Table I).

**Snacks and marketing.** Over half the respondents agreed that snacks in moderation are not harmful to children and supported sponsorship of sporting activities by food companies and chocolate fundraising. However, vending machines, junk foods, Cola drinks, chocolate fundraisers and the marketing activities of snack food companies were viewed as acceptable by only a minority (Table I).

Younger respondents tended to support snacks and marketing at school compared to the older age groups (means: 18-35 yrs=0.255, 36-48 yrs=−0.128, >48 yrs=−0.346, F=5.745; df 2,146; p<0.004), for example, more young respondents felt that soft drink vending machines are acceptable in school. Tertiary educated respondents had higher scores on this factor than non-tertiary educated respondents (means: tertiary=0.382, non-tertiary=0.030; F=4.106; df 1, 234; p< 0.044). Similarly, non-parents were more in favour of snacks and marketing than parents (means: parents=−0.067, non parents=0.479; F=9.907, df 1, 234; p< 0.002). Respondents with low equity-harmony values favoured snacks and marketing more than those with stronger equity-harmony values (means: Low=−0.331, F=2.978, df 2, 146; p<0.054). Finally, respondents who had high confidence in the food authorities were more in favour of snacks and marketing than those with lesser confidence (means: Low=−0.496, Mid=−0.008, High=0.358; F=4.306; df 2, 146, p < 0.015).

**Children’s food is unsatisfactory.** Overall, over two-thirds of the respondents either thought children’s snack foods were nutritionally poor or that canteen food contains too much fat or sugar. There was only one statistically significant difference between the education groups – fewer of the tertiary educated agreed that most canteen food contains too much fat or sugar (Table II). People with high equity harmony values agreed there isn’t enough education about healthy eating (Table II).

**Lack of time.** There was widespread support for the view that parents are too busy to involve themselves in the provision of food at school, and about one-third of respondents felt teachers were too busy to worry about children’s nutrition. More of the older respondents thought that teachers are too busy to worry about children’s nutrition (Table II). Respondents who had either low or high confidence in the food authorities scored higher on this factor than those who only had moderate confidence (means: Low=0.116, Mid=−0.017, High=0.113; F=4.249, df 2, 146; p< 0.016).

**The importance of health education.** Almost all the respondents disagreed with the view that adolescents do not need health education or that children do not need to learn how to cook, and almost two thirds disagreed that education has little influence on children’s eating habits. That is, the respondents were in favour of health education. However, the tertiary educated were less convinced of the influence of education over eating habits (Table II) but women valued health education more than men (means: women=−0.067, men=0.319, F=5.988; df 1, 234; p<0.015; note: this factor score is an inverse index of the importance of health education).

**Support for nutrition education and home economics.** Almost four out of five respondents disagreed with the view that there is too much emphasis on nutrition at primary school. Fewer young respondents indicated that that there was too much emphasis on nutrition at primary school (Table II).

**Cost and guilt.** Almost half the respondents agreed that most parents feel guilty about their children’s lunches. However, more parents than non-parents disagreed that parents felt guilty about their children’s lunches (Table II). More of the lowest income group and the 18 to 35 age group found the cost of food exorbitant, as did respondents with low equity harmony values (Table II).
Trust/confidence in the authorities. Inspection of the total percentage agreement with each confidence item (Table III) suggests that over half of the sample did not trust the various authorities with the exception of the local primary school (51 percent agreement). Although a substantial minority were confident that teachers are well educated about food and nutrition, around a quarter had little confidence that this was the case and the remainder were unsure. Less than half the respondents believed that the current nutrition curriculum adequately meets children's needs (Table III).

On each of the confidence items more of the tertiary educated group expressed trust in the various authorities than did the non-tertiary educated group, although only one of these comparisons was statistically significant (Table II). Analysis of the total confidence scores, confirmed that the tertiary educated expressed greater overall trust than the non-tertiary educated respondents (means: non-tertiary=16.47, tertiary=18.34; \( F = 7.325; \) df 1, 296; \( p < 0.007 \)).

People with the highest confidence in the authorities were less critical of the fat and sugar content of school food, fewer agreed that most snack foods are nutritionally poor, and more disagreed that the cost of school food is exorbitant, that there isn't enough education about healthy eating or that parents feel guilty about their children's lunches (Table II). That is, they tended to be more satisfied with the status quo.

Discussion

The findings show that this sample of Australian adults was quite critical of the current food supply in schools. Substantial proportions were against the status quo, supported health, nutrition and home economics education but had fairly ambivalent attitudes towards the activities of food marketers in schools, with many supporting the sponsorship of school sports teams and chocolate fundraisers but opposing vending product sales. Such citizen views have not been reported previously. They suggest that opportunities for policy and practice innovations may exist. The respondents' views of the acceptability of potential policy changes are reported elsewhere (Worsley, 2006).

The respondents' perceptions were not unanimous on any of the issues raised, though there was almost complete agreement with the need for skills based health education. Opinions varied about each of the themes revealed by the principal components analysis (see Table I: total percentage agreement and disagreement columns). The ambivalence of the respondents towards snacks and marketing at school illustrate the division of opinion about school food provision and suggest that in Australia, at least, policy initiatives which deal with these issues are likely to be controversial. The antecedents of these opinions are likely to reside among diverging views of the dependence of children and the appropriateness of private industry interventions in the education sector. Further investigation is required.

As hypothesised, women and parents were more supportive of healthy eating and against marketing (than non-parents and men), poorer people were more concerned about the cost of school food, younger people (18-35 years) appeared to be more tolerant of marketing than older people, and people scoring higher on equity harmony tended to oppose snacks and marketing in schools more than others (Table II). Generally, however, respondents' income, sex, parent status and personal values had relatively little to do with the ways they viewed the school food and nutrition services.

The relationships between educational background and opinions about snacks and marketing and the value of health education ran counter to the study hypotheses. Instead of the tertiary educated favouring these activities more than non-tertiary educated people, the reverse was the case. Tertiary educated respondents were more in favour of snacks and marketing at school, trusted the food authorities more, and doubted the utility of nutrition education in influencing life-long habits. On the face of it, this suggests that the tertiary educated were less critical of the status quo in schools and more anti-intellectual than non-tertiary educated respondents. This runs counter to the published literature on the positive associations of
education with health knowledge and health habits (as noted in the Introduction). Similar findings were recently observed in a study of consumers' views of the Australian government supplement regulation agency (the Therapeutic Goods Administration); tertiary graduated placed less trust in the agency than less educated respondents (Blasche et al., 2006). In that paper we suggested that the critical opinions of non-university educated people may be related to their greater powerlessness and anomie (Marmot and Wilkinson, 1999; Srole, 1991). This finding requires further confirmation and examination.

Confidence in the food authorities was significantly related to nine of the opinion items. Those with low levels of confidence were more critical of school food and nutrition services and snacks and marketing than those with greater levels of confidence. The point here is that many respondents did not trust the authorities and they were highly critical of the status quo in schools (even though most of the respondents were strongly supportive of school staff education activities). This may be because they feel powerless to influence the general or particular processes that influence school food services. The challenge for government and school authorities is to find ways to gain the confidence of these people.

The study has several limitations. For example the response rate was moderately low though similar to other recent surveys conducted in Victoria (Cleland et al., 2005). Many potential respondents contacted us to say that they either did not have children or that they had been parents so long ago that they felt they could not usefully contribute to the study. This was despite written assurance that the opinions of every adult in the sample would be valuable. In future research in this area, it may be advisable to limit the age range of the sample to those under 50 or 60 years to restrict the sample to those adults who perceive the topic to be of high relevance to them. Finally, the indices of personal values and confidence were minimal; in further research, more extensive indices might be included along with more detailed expositions of some of the themes explored in this study such as trust, alienation and anomie.

**Conclusions**

Substantial proportions of the sample were not satisfied with the current state of school food and nutrition education services.

Confidence in the food authorities, equity harmony values and sex, age and education variables were weakly associated with the respondents' opinions; though tertiary educated respondents were clearly more tolerant of the status quo in schools than less educated people. Policy responses from food authorities are indicated.
### Table I

Laypersons' views of the school food supply: results of principal components analysis and comparisons of item responses across education groups

<table>
<thead>
<tr>
<th>Item</th>
<th>Non-tertiary</th>
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<tbody>
<tr>
<td>Trust/confidence (0.81): The state education department provides healthy food at school</td>
<td>23 A</td>
<td>5 D</td>
<td>41 A</td>
<td>36 D</td>
<td>28 A</td>
<td>47 D</td>
<td>0.008</td>
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<tr>
<td>Your local primary school is providing healthy food</td>
<td>47 A</td>
<td>28 D</td>
<td>61 A</td>
<td>24 D</td>
<td>51 A</td>
<td>27 D</td>
<td>0.057</td>
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<tr>
<td>The federal government adequately regulates food companies' marketing to protect children's interests</td>
<td>15 A</td>
<td>69 D</td>
<td>23 A</td>
<td>59 D</td>
<td>17 A</td>
<td>66 D</td>
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<tr>
<td>The school nutrition curriculum adequately meets children's needs</td>
<td>45 A</td>
<td>28 D</td>
<td>50 A</td>
<td>27 D</td>
<td>46 A</td>
<td>28 D</td>
<td>ns</td>
</tr>
<tr>
<td>Children's television food advertising is properly regulated</td>
<td>15 A</td>
<td>66 D</td>
<td>24 A</td>
<td>53 D</td>
<td>17 A</td>
<td>62 D</td>
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**Notes:** Principal component loadings are shown as whole numbers; values of Cronbach's alpha are shown in parentheses after component name; $^a = 0.74$, $^b = 0.74$, $^c$ These items load to lesser extents on principal component 6

### Table II

Laypersons' views of the school food supply: results of principal components analysis and comparisons of item responses across education groups

<table>
<thead>
<tr>
<th>Item</th>
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**Table III** Percentage agreement and disagreement with the confidence in food authorities items compared between education groups
Table II Statistically significant demographic, values and confidence group differences in lay people’s perceptions of the school food supply

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**Further Reading**


**About the author**

Anthony Worsley is currently Professor of Public Health Nutrition and Head of the School of Exercise and Nutrition Sciences, Deakin University, Australia. He has wide experience in the evaluation of public health nutrition programs, and in the promotion and maintenance of behaviour change. His current research involves behavioural nutrition, food and nutrition policy research; health and nutrition promotion. He can be contacted at: tonyw@deakin.edu.au