2018 QUEENSLAND TUCKSHOP SURVEY

2018 Queensland Tuckshop Snapshot Survey

Delivered by Queensland Association of School Tuckshops

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Qast and Canteens
Queensland Association of School Tuckshops Inc

Queensland Government

Foreword

Schools are a valuable setting to encourage, support and promote healthy, life long eating behaviours. Improving the nutritional quality of foods offered at the tuckshop benefits both students' health and wellbeing and contributes funds back into schools. I now this from my work with QAST and personally as Catering Manager at Ipswich Girls Grammar School.

The 2018 Queensland Tuckshop Snapshot Survey highlights some of the successes and challenges faced by Queensland tuckshops. It also recognises areas in need of improvement and makes recommendations for positive changes in the future.

I would like to give gratitude to Queensland Health for their ongoing support and enthusiasm regarding the health and wellbeing of Queensland school students.

Lorie Robinson

President

Queensland Association of School Tuckshops

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Executive Summary

Background

Childhood obesity remains an issue in Queensland. Few children are also meeting the recommended intake of vegetables. The school tuckshop is an ideal setting to encourage and promote healthy eating amongst students. Previous surveys of Queensland tuckshops have been conducted in 1998 and 2008 to assess the barriers and enablers faced by tuckshop staff and management in providing food to students. Tuckshops are most commonly managed by a team of volunteer parents, with variable levels of experience in managing a food business of this kind.

The 1998 Queensland Tuckshop Survey found that tuckshops were largely profitable and the convenor role spanned beyond provision of food to the community, to also include people and money management responsibilities. The 2008 Tuckshop Survey established that tuckshop menus had become healthier than in previous years, tuckshops were better resourced with equipment and most tuckshops were again profitable. The improvement in menus was related to the introduction of the Smart Choices Healthy Food & Drink Supply Strategy (Smart Choices) in 2007 by the Department of Education. Almost all schools reported that Energy Dense, Nutrient Poor foods (RED items) had been eliminated from their tuckshop menus.

The Queensland Association of School Tuckshops was funded by the Queensland Department of Health to conduct a statewide survey of tuckshop convenors in 2018 to assess the ongoing improvements and challenges faced by Queensland tuckshops.

Methods

All Queensland schools (n= 1760) were assessed to determine if they were currently operating a tuckshop. This was verified either via current QAST membership, response to email to the school administration or manual verification by the project team (completed via website review or phone call to school administration).

All schools who were identified as operating a tuckshop in March 2018 were invited to participate in a Computer Assisted Telephone Interview (CATI), with the aim to survey 500 tuckshop convenors. This method was selected as an economical means with higher response rates than paper surveys.

An external research agency, Ipsos, conducted the 500 interviews over a three week period in June 2018.

All tuckshops were initially posted a research information pack. Schools who agreed to participate were requested to return a signed consent form alongside tuckshop financial data and a current tuckshop menu. Due to a low response rate to the posted research information pack, state school tuckshops were randomly contacted to participate, with consent provided verbally before survey commencement. Catholic and Independent school Principals were required to provide consent (written or verbal) to the project team, prior to the CATI team contacting the tuckshop convenor to complete the survey. This was due to requirements of each Catholic Diocese and the Independent Schools Association, and resulted in lower participation of these schools in the survey.

The project team completed 200 menu assessments and 51 financial analyses to provide additional information on a sub-sample of participating tuckshops. As only 43 menus were submitted for assessment by participants, the remaining 157 menus were sourced in a pseudorandom order from a list of CATI participants. These menus were assessed by the project team using an established protocol. There were also only 9 usable submissions of profit and loss information by participants, so an additional 42 profit and loss statements were sourced by QAST. This was a convenient sample of schools that had previously requested profit and loss statement analysis as part of their QAST membership.

School demographic and menu assessment data was provided to Ipsos and cross-matched to survey responses. All data was then de-identified by Ipsos before file transfer to QAST for analysis.

Key Findings

As of March 2018, there are 1458 Queensland schools with a tuckshop operating. The 500 schools participating in the tuckshop were representative of all tuckshops across Queensland, with similar quotas of primary, secondary and P-12 school participants. State schools were over-represented in the sample due to challenges in seeking Principal consent for Catholic and Independent schools.

The majority of surveyed tuckshops (60%) were open 5 days per week, with Friday being the most popular day of trading. Secondary schools were more likely to open on more days per week, likely due to higher enrolment numbers than primary schools.

Tuckshop menus have improved in nutritional quality since 2008. Pasta dishes, wraps and burgers were identified as the best selling items, with fresh fruit the most popular snack sold. The number of menus with greater than 50% GREEN when professionally assessed has increased significantly, from 13% in 2008 to 73% in 2018. Nutrition also remains the leading factor when designing a menu, according to 65% of participating convenors. Additionally, almost all convenors (98%) reported serving salad or cooked vegetables with main meals.

On average, participants reported that 65% of the food and drink on their tuckshop menu was GREEN within the Smart Choices strategy. However, when compared with professional menu assessments, convenors had usually overestimated the percentage GREEN. The main barrier identified to implementing healthy food and drinks was student preferences.

Smart Choices was reported to have been implemented in the tuckshop by 81% of participants, whilst 7% were not aware of Smart Choices. The majority of menu

assessments (90%) completed by the project team (n=200) also identified RED options available on the menu. Most commonly these referred to items that have recently been identified as RED options in an update to the Smart Choices strategy, announced in 2016. The continued presence of these RED items on menus is likely linked to the fact that there has been no mandatory timeline established for schools to implement these changes.
Access to the Smart Choices website or other links to the strategy documents, and QAST support were identified as facilitators for implementing Smart Choices.

Most participants (68%) identified that their tuckshop was “well” or “very well” resourced, with increased access to commercial grade equipment than in previous surveys. Those who identified areas for improvement highlighted that ovens, cold storage and general tuckshop renovations were required. A small number of schools (n=82) had accessed grants in the previous 3 years, most commonly via the Community Gambling Benefit Fund, which may have been used to improve facilities.

Inadequate staffing and volunteer support remains a significant challenge for Queensland tuckshops, with the average number of volunteers dropping by a third over the last 10 years. A broad ‘lack of support’ from the wider school community was also recognised as a leading challenge for tuckshop convenors. Most tuckshops have a Food Safety Supervisor available (70%). The average number of hours tuckshop convenors are paid each week has increased, to 28 hours per week. On average convenors are also contributing 7 additional hours every week in a volunteer capacity. A lack of orientation also remains a challenge, with 46% of convenors not receiving orientation when they started in their role.

The majority of tuckshops (70%) reported that they were making a profit. However most participants were not able to provide specific figures. Of those who were aware of net profit/loss, this ranged significantly from $86,000 profit to $31000 loss. Almost half of tuckshops reported that they were not using a standard mark up to price their menu.

Amongst the QAST financial analysis (n=51), schools with a higher percentage of GREEN on their menu were more likely to make a profit than those with lower percentage of GREEN. Schools with more GREEN on their menu also experienced a higher mark up on costs and greater value of sales, suggesting that students do consume healthier menu options.

Whilst QAST members value their membership, the cost of membership is the greatest barrier for why other tuckshops have not joined the association.

QAST's online recipe and menu tool, eMenu has grown in users since its launch in 2014. Most convenors find the online tool easy to use, with recipe ideas the most popular function.

Limitations

There were a higher percentage of state schools participating in the survey, so results are not reflective of practices in all Queensland tuckshops. The sample is also biased, including a larger proportion of QAST members (60%) compared with all Queensland tuckshops (40% QAST members).

It is also likely that social desirability bias was introduced in questions relating to quality of tuckshop menu, best selling items, importance of nutrition and financial status of the tuckshop.

The menu assessment protocol used to assess 200 menus was also prone to limitations, as assumptions were made about ingredients and products used. The financial data was also biased, as a convenient sample of only 51 schools who have previously sought financial advice from QAST.

Recommendations

Tuckshops are recommended to improve orientation of new convenors to ensure policies and procedures are followed and Smart Choices knowledge is maintained.

Financial management training is also required to ensure tuckshops are run as food businesses that can, as a minimum, cover costs and ideally contribute small profits towards school improvement projects. Student preferences are frequently reported as a barrier to introducing healthy options, yet tuckshops with healthy menus experienced higher sales than other tuckshops. Tuckshops are recommended to survey students to assess preferences prior to implementing menu changes. Closed questions with suggested options that align with Smart Choices are recommended.

Similarly, as the leading tuckshop support organisation, QAST is recommended to increase financial management, nutrition resources and orientation services to tuckshops. To increase reach of services, QAST should continue to utilise virtual methods and develop on-line training methods like webinars where possible.

Other stakeholders should offer support to tuckshops through communications and case studies of effective operations, which reflect the diversity of tuckshop operations in Queensland. Communications of Smart Choices should clarify the status of the 2016 strategy update and encourage schools to implement the strategy both within the tuckshop and the wider school environment.

Future surveys are recommended to monitor changes in the status of Queensland tuckshops, including barriers and facilitators to a healthy menu and viable operation. Future surveys would benefit from a greater lead-time to ensure research approvals and adequate participation from all school sectors, including Catholic and Independent schools. As submission of menu and financial data is poor, collaboration with online ordering providers in future would allow assessment of trends relating to finances and menu quality.

1.0 Introduction

Childhood obesity remains an issue in Queensland. Approximately 26% of Queensland children aged 5-17 years are reported to be overweight or obese (19% and 7% respectively) (1). Overweight and obesity can track strongly from early childhood through to middle childhood (2) and into adulthood (3-5), which may increase the risk of chronic metabolic diseases (3,6-9) and psychosocial problems (10). Alarmingly, only 3.7% of Queensland children aged 5-17 consume the recommended daily intake of vegetables, with 61% consuming discretionary foods on a daily basis (1). This higher intake of energy-dense, nutrient poor (EDNP) foods and beverages may be a driving force behind current obesity rates.

The school environment is an opportune setting for youth health promotion (11, 12). Students spend a large proportion of their time at school and this unique setting provides regular and dependable access to students (12). This environment also encompasses the people who may have some influence over them such as school staff, parents and peers (11). Therefore, it can be argued that school tuckshops provide an ideal setting for the provision of healthy food and drinks to students and also provide exposure to new foods they would not usually encounter.

In 2007, Queensland Health and the Department of Education (DoE) collaborated to produce *Smart Choices – Healthy Food and Drink Supply Strategy for Queensland Schools* (Smart Choices) to address rising childhood obesity rates. An evaluation was conducted in 2009 (13). Smart Choices provides guidelines for the provision of nutritious foods and drinks in schools and reflects the Australian Guide to Healthy Eating. School food policies have been shown to positively influence the provision of food and drinks to students (14), however implementation and monitoring of such strategies can vary and can impact on their effectiveness (15). The Smart Choices strategy is mandatory for all state schools in Queensland and is strongly encouraged for private and independent schools.

It is common in Queensland for a school's volunteer parent body to operate the tuckshop. Some tuckshops are run by the school administration or outsourced to a third party. When tuckshops are managed by volunteer parents, there is often frequent turnover of parents in these bodies and variable expertise or experience in managing a food business of this kind. This can create challenges in sustaining a healthy and profitable business. There may also be an incorrect perception that making healthy food is more time consuming and less profitable in these settings.

The Queensland Association of School Tuckshops (QAST) obtained funding from the Queensland Department of Health to conduct a detailed survey of Queensland School Tuckshops in 2018. Two similar surveys have previously been conducted in 1998 and 2008. The 1998 survey found that almost all schools had a tuckshop that serviced the school community; these tuckshops were largely profitable and profits made were contributed back into the school. The 1998 survey also revealed that the role of the convenor spanned across people management, money management and provision of food to the school community.

The second Queensland Tuckshop Survey, in 2008, established that since 1998 tuckshops had become healthier and better resourced with equipment. Findings also revealed that the implementation of Smart Choices (introduced since the prior survey) had nearly eliminated EDNP food and drinks (RED items) from tuckshop menus. However, the study also indicated that tuckshop convenors believed their menus to be healthier than when they were professionally assessed against Smart Choices. The majority of participating tuckshops also reported making a profit in 2007.

The findings of the 2018 Queensland Tuckshop Survey will be compared to that of previous surveys (where applicable) in order to track changes over time. The knowledge gained from this project will assist QAST, DoE and Queensland Health to better understand the needs of tuckshops to provide healthy options for students while remaining viable.

2.0 Methodology

2.1 Project advisory group

A project advisory group (PAG) was established to assist with project governance plus planning arrangements and processes to ensure the project deliverables and survey development met the needs of stakeholders. The QAST project team invited the below professionals to form the PAG;

- **Charlotte Morrison**
  Senior Public Health Nutritionist, Preventive Health Branch, Queensland Health

- **Barbara Radcliffe**
  Advanced Community Nutritionist, Equity and Access Team, Metro South Health, Queensland Health and QAST Executive Committee Member

- **Samantha Thorning**
  Acting Principal Policy Officer, Department of Education

- **Carolyn Keogh**
  Lecturer in Nutrition and Dietetics, Queensland University of Technology

The PAG met at three occasions throughout the project and provided expert input on areas such as;

- Definition of a tuckshop
- Sample selection
- Review and feedback on survey questions
- Guidance on survey information pack
- Guidance on ethics application
- Feedback on project plan
- Survey promotion and recruitment
- Data matching / trends

2.2 Definition of a tuckshop

For the purposes of this project a *Tuckshop* was defined as ‘a food service providing food for sale to students on more than one occasion per school term’.

2.3 Verification of schools with an operating tuckshop

The DoE database of Queensland schools was used to identify the total number of schools in Queensland. The DoE database recorded 1751 Queensland schools. QAST also included Distance Education & Training Centres in the sample, as a number of these are known to run tuckshops. This created a total sample of 1760 schools that required verification of an operating tuckshop.

An initial email was sent to 1102 schools asking ‘does your school have a tuckshop’. As QAST had 597 current members already operating tuckshops at the time, these were not included in the initial email. Sixty-one schools had unsubscribed from the QAST mailing list and were unable to be contacted in this manner, requiring manual verification. A second reminder email was sent 6 days later. In total, only 124 schools responded to this method of tuckshop verification, leaving 1039 schools needing confirmation of operating a tuckshop. QAST manually verified the remaining schools via phone or website confirmation. This process is illustrated in Figure 1.

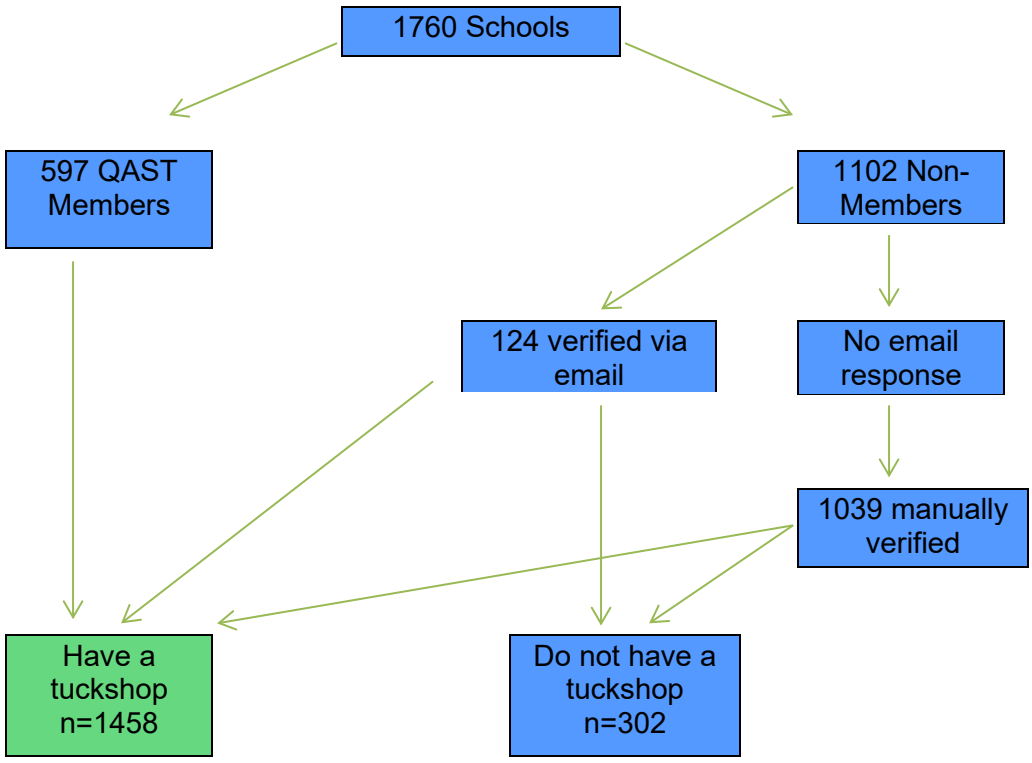

Figure 1: Method of verification of tuckshop status

2.4 Selection of survey method

The inaugural, 1998 Queensland tuckshop survey was posted to all primary and secondary schools in Queensland, with the Principal forwarding a paper based survey to their school's tuckshop convenor. The 2008 tuckshop survey utilised a computer assisted telephone survey (CATI) via an independent data collection agency. This method was selected due to its efficient nature, fast, economical and for the ability to have direct data entry into a database. For these reasons, the same method of data collection was selected for the 2018 Queensland Tuckshop Snapshot Survey.

2.5 Approval to approach schools

To conduct research in Queensland schools, the QAST project team completed research applications for DoE and the five Catholic Dioceses. Independent Schools Queensland indicated that no application was required to their association, the decision to participate in the research rested with each school's Principal.

2.6 Ethics application and approval

The QAST Senior Project Officer submitted a Low Risk Research ethics application to the Queensland University of Technology (QUT) University Human Research Ethics Committee (UHREC) with support from two members of the PAG (Barbara Radcliffe and Carolyn Keogh). The application was initially approved. However QAST later withdrew this application on advice from the QAST Executive Committee due to major changes in study methodology (see below). The timeline for ethics review processes to be completed on this revised methodology would have delayed the project significantly, beyond the due date for completion and budget.

2.7 Development of survey tool

The 2018 survey questions were developed by the QAST project team with input from the PAG. The 2008 survey questions (Appendix E) were used as a foundation for the 2018 survey tool. A number of questions remained unchanged for tracking purposes, with others revised and rewritten. Additional questions were generated by QAST or as requested by the funding body, to address any current issues pertaining to tuckshops. The final survey questions concerned tuckshop demographics, policies and procedures, food in the tuckshop, facilities, financial issues and pricing, staffing and feedback on QAST membership (Appendix A).

2.8 Recruitment phase

All schools identified as operating a tuckshop were posted a *survey information pack,* which included a study information sheet, consent form and marketing brochure (Appendix B). The survey information pack advised schools that QAST intended to survey Queensland tuckshop convenors using a CATI via a third party market research company, Ipsos. Schools were informed that participation was entirely voluntary and all answers provided would remain confidential.

Schools wishing to participate were requested to return a signed consent form along with any additional information such as tuckshop financial data (2017 profit and loss statements and/or weekly tally sheets) plus a current 2018 tuckshop menu. Survey promotions calling for schools to participate were advertised through various

community avenues and networks. These included the DoE Smart Schools Update, P&Cs Qld eNewsletter, QAST eNewsletter, NAQ Nutrition Food Smart Schools update, Independent Schools Queensland newsletter, the Queensland Nutrition Collaborative network, Preventive Health Branch Update, Dietitian Connection newsletter and QAST social media promotions.

Due to a very low response rate to the initial posting of survey information packs (n=43), a change in methodology was implemented. QAST partnered with Nisbets (a catering and equipment company) and gained four $100 Nisbets vouchers to use as prize incentives, to be drawn randomly at the end of the data collection period. Nisbets also offered all participating schools a 10% discount code to spend online. This incentive strategy was advertised through QAST social media avenues and eNewsletters.

In order to optimize the survey's response rate, a change in recruitment methodology was proposed whereby school tuckshop convenors were to be contacted directly and verbal consent to participate gained over the phone. The QAST Executive Committee approved the change, which was then communicated to the DoE Research Services team, the five Queensland Catholic Dioceses and Independent Schools Queensland. The DoE Research Services approved this new approach for all state schools. The existing methodology for Catholic and Independent schools, of gaining individual Principal consent, remained unchanged. However, a QAST Executive Management Committee member and member of the Catholic Education Committee consented to Catholic school convenors who were QAST members being contacted directly.

A total sample of schools to be contacted (1136 schools) was provided to Ipsos for commencement of the CATI and data collection.

2.9 Computer assisted telephone interview

To commence the 2018 data collection phase, Ipsos completed a pilot study to test the survey tool. This provided an opportunity to test survey functionality and responses, to determine if any questions required modification. Ipsos was provided with contact details for eight convenors willing to participate in the pilot study. The results of the

pilot study yielded that the survey was running over the intended 15 minutes, with the average time taken to complete a CATI at 27 minutes. Two script changes were implemented for questions relating to volunteer hours and tuckshop profit and loss for clarity, before rolling the survey out to the larger sample. Ipsos anticipated that the average survey time might reduce as interviewers became more familiar with the survey tool and questions. However, a reduction of only three minutes was observed, by the end of the CATI with the average CATI time as 24 minutes.

This impacted on the ability to complete a total of 500 interviews, and Ipsos advised that only 425 interviews could be conducted within the current budget. QAST sought additional funding from Queensland Health, but this was unsuccessful. The QAST Executive Committee approved an additional $5252.50 from QAST funds to complete the additional 75 interviews in order to meet the project goals.

Ipsos completed the data collection over a three week period from 6th – 25th June 2018. Completed CATI data (n=500) was de-identified prior to transfer to QAST for analysis.

The QAST project team analysed and interpreted the results using Frequencies for categorical variables and Descriptives for continuous variables.

2.10 Data comparison with prior surveys

Where possible or deemed appropriate, results from the 2018 data set were compared to the reported results from the 1998 and 2008 surveys. The 1998 and 2008 final hard copy reports were used for comparison, as digital data could not be located. Any significant or relevant trends over time are documented in this report.

2.11 Menu and financial analysis

QAST attempted to improve the number of menu and financial data submitted through multiple advertisements aimed at schools. These include, Term 2 and 3 eNewsletters, three Facebook posts and survey promotion on the QAST website. Participants were also reminded at the end of the CATI to submit this data for analysis.

At the completion of the CATI (June 30th), QAST had received only 43 tuckshop menu submissions for analysis. Since 200 menus were required, QAST sourced 157 additional tuckshop menus from participating school websites. The additional menus were sourced using a pseudorandom process whereby school websites were searched systematically using alphabetical order (starting at A) from a list of participating schools supplied by Ipsos. To maintain confidentiality, this list provided school names only and no information on survey responses. However, it was found that several schools did not display a current 2018 tuckshop menu on their website. Therefore, the final list of menus sourced for analysis emerged in a pseudorandom order.

Nutrition professionals within the QAST project team assessed all submitted and sourced menus (n=200). The Smart Choices Ready Reckoner criteria formed the foundation for these assessments. A protocol was developed to ensure consistency amongst the two menu assessors (Appendix C). This protocol was based on QAST experience in the tuckshop industry and knowledge of the Smart Choices strategy including regular menu assessments. The QAST project team performed inter-rater reliability tests, with 100% inter-rater reliability achieved. This ensured consistency across all menu assessments. The percentage of GREEN, AMBER or RED items on each menu was recorded, rounded to the nearest 5% and provided to Ipsos for data matching to CATI responses.

At the completion of the CATI, QAST had only received 15 financial submissions, 6 of these submissions were unable to be used for analysis. Reasons for this include (but not limited to) missing profit and loss statements, unidentified dates on documents, profit and loss reports not specific to the tuckshop and incorrect data files (not able to be viewed by QAST). Therefore, due to the very low response rate, the QAST project team utilized existing financial data (n=42) from 2017 internal records from all schools that had engaged in QAST financial services.

The key financial markers assessed for survey purposes were percentage mark up (increase on cost price to selling price) and percentage net profit as a percentage of sales turnover. Percentage of profit is used as fairer comparison across school sizes

and types rather than the dollar value.

As a convenient sample of financial data, this data was significantly biased. It includes mainly QAST members and as a very small sample should not be considered representative of different tuckshop types and sizes across Queensland.

A collated sample of 51 schools with paired menu and financial data was analysed to assess relationships between financial markers and menu quality. This is below the project target of 100 paired menus and financials. There was no capacity within the project team to source additional financial data in a suitable timeframe for the project, due to survey poor response rates. These included;

- Unbudgeted staff time spent on manual verification of tuckshop status in 1039 schools
- Unbudgeted staff time spent in survey promotions due to very low response rates
- Unbudgeted staff time spent in sourcing 157 menus manually due to very low response rates

All submitted and sourced menus and financial records were cross matched to survey responses by Ipsos and de-identified prior to file transfer to QAST, to maintain participant confidentiality.

2.12 eMenu analysis

eMenu is an online recipe tool that tuckshop convenors can utilise to find, store and share their recipes and menus. Convenors can also use the pricing calculator to estimate the cost of each recipe and include any markups desired. Users are also able to submit a recipe through eMenu for rating by a QAST staff member. eMenu also allows users to create their own menu using menu templates, browse sample menus and self assess their own menus. Convenors that are QAST members are also welcome to submit their tuckshop menu for a QAST Menu Health Check, which provides feedback on Smart Choices compliance.

The CATI included three questions pertaining to the use of, ease of use and the main functions of eMenu.

The QAST project team also performed an internal assessment of eMenu. A Strengths, Weaknesses, Opportunities and Threats analysis (SWOT) was the primary tool used.

Google analytics was also used to calculate the total traffic to the website, including the number of users and page views between July 2014 and July 2018. The eMenu internal website database provided the QAST project team with the number of registered users.

3.0 Results and Discussion

3.1 Survey response rate

The target of 500 completed CATI's was achieved from a total sample of 1136 schools.

Low menu and financial data submissions were seen, with 43 menus and 15 sets financial data submitted. Only 9 sets of financial data were appropriate for analysis. This is severely reduced from the 2008 survey where 223 schools submitted menus and 266 schools provided financial data.

The significant drop in data submission could be a result of tuckshops being aware that they are making a loss and/or not wanting their menu to be analysed if they are known to not comply with Smart Choices. QAST staff have observed an increase in convenor hours and hence increased wage costs, potentially contributing to financial strain.

3.2 Demographics of tuckshops in Queensland

3.2.1 Schools operating a tuckshop

As at March 2018, QAST found that 1458 schools were currently operating a tuckshop. Figure 2 shows the number of schools with a tuckshop in 1998, 2008 and 2018.

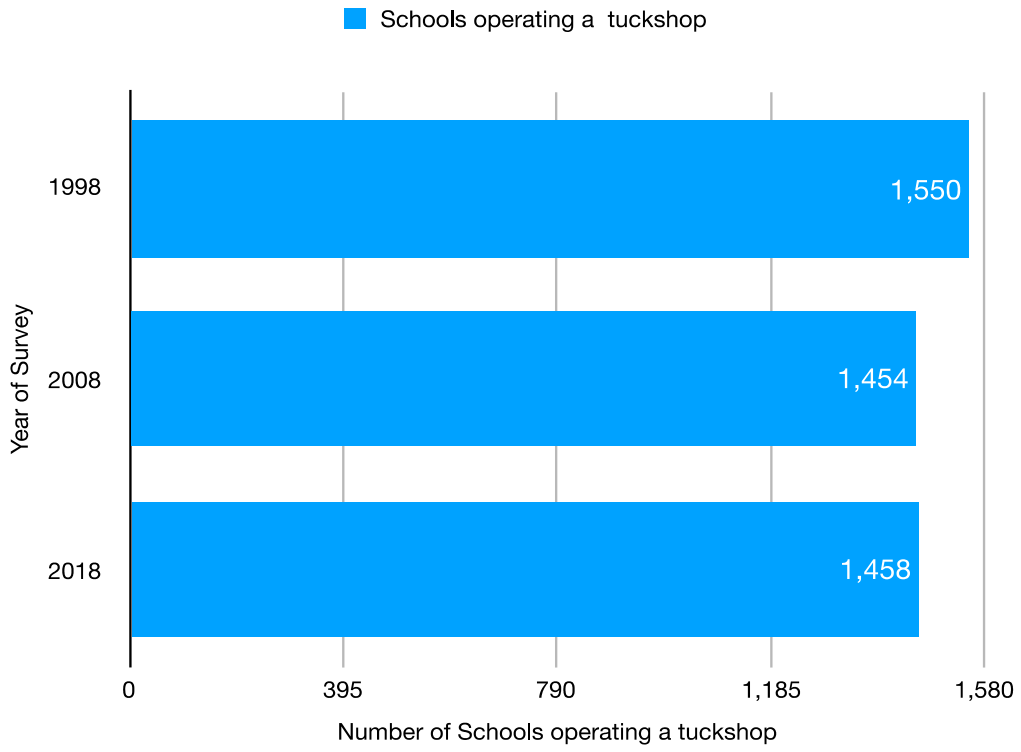

Figure 2. Schools operating a tuckshop in 1998, 2008 and 2018.

The number of operating tuckshops in 2018 is very similar to that found in 2008.

The 1998 survey estimated the total number of schools operating a tuckshop based on the percentage of schools that responded to the posted survey and reported running a tuckshop (94%). It is likely that the 1998 survey response rate was lower amongst schools without tuckshops, who may not have felt the need to respond to the survey. Therefore this figure is likely to be less accurate.

Alternatively, the introduction of Smart Choices in 2007and/or a gradual reduction in volunteer contributions may explain the reduction in operating tuckshops over the last 20 years.

3.2.2 Type of school

The different school classifications are displayed in Table 1. There is an over-representation of state schools participating in the survey, meaning that results reflect current practice, barriers and enablers in these schools rather than all Queensland school tuckshops. This is a reflection of challenges in the methodology with additional time taken for approval processes for each Catholic Diocese and the need for individual catholic school Principal consent.

Table 1: Classifications of participating schools

School Sector	Queensland Schools with Tuckshops (n=1458)		Participating Schools (n=500)	
State School	1035	71%	463	93%
Non-State School	423	29%	67	7%
Total	1458	100%	500	100%

Table 2 describes the breakdown of school types for participating schools. The survey can be considered to be representative of school types across the state, given the similar percentages. This means that primary schools (Prep - Year 6) make up the largest portion of the study sample at 67% (335 schools). Trends in the survey results that compare answers between school types will be less reliable for Secondary and P-12 schools due to the smaller number of participants.

Table 2: Participating schools by school type

School Type	Queensland Schools with Tuckshops (n=1458)		Participating schools (n=500)	
Primary	1027	70%	335	67%
Secondary	285	20%	126	25%
P-12	146	10%	39	8%
Total	1458	100%	500	100%

3.2.3 Schools by Department of Education region

Table 3 shows the breakdown of all participating schools by DoE Region. Metropolitan schools had the highest rate of participation at 23% (115 schools) followed by North Coast at 20% (100 schools) and South East Queensland with 18% (92 schools). This reflects the large number of schools in these regions. The region with the least participating schools was Far North Queensland at only 5% (26 schools)(Table 3).

Table 3: Participating schools by Department of Education region

Department of Education Region	Number of Participating Schools	%*
Metropolitan	115	23
North Coast	100	20
South East Queensland	92	18
Central Queensland	71	14
Darling Downs South West	51	10
North Queensland	45	9
Far North Queensland	26	5
Total	500	100

** All participating schools (n=500)*

3.2.4 Schools by Hospital and Health Service region

Table 4 shows participation by Hospital and Health Service (HHS) Regions. Metro South and Metro North had the two largest proportions of participating schools at 17.8% and 17.6% respectfully.

Table 4: Participating schools by Hospital and Health Service

Hospital and Health Service	Number of Participating Schools	%*
Metro South	89	17.8
Metro North	88	17.6
Gold Coast	41	8.2
Darling Downs	40	8.0
Central Queensland	39	7.8
Sunshine Coast	35	7.0
Townsville	35	7.0
Wide Bay	34	6.8
West Moreton	31	6.2
Mackay	29	5.8
Cairns and Hinterland	25	5.0
North West	7	1.4
South West	5	1.0
Central West	2	0.4

** All participating schools (n=500)*

3.2.5 QAST membership status

Table 5 presents QAST membership status of participating schools at the time of surveying. Sixty one percent (304 schools) were current members of QAST. This is higher than the percentage of QAST members amongst all tuckshops (approx. 40% of tuckshops chose to join QAST, which varies slightly each year).

As the majority of survey participants were current QAST members, the findings of this survey are skewed towards understanding the issues affecting QAST members. The 1998 and 2008 surveys did not report on QAST membership status of survey participants. Therefore, it's unclear if findings from previous surveys were also skewed.

Table 5: QAST member status for participating schools

Membership Status	Number of Participating Schools	%*
QAST Member	304	61
QAST Non-member	196	39
Total	500	100

** All participating schools (n=500)*

3.2.6 Total trading days

The number of days that participating tuckshops were open ranged from 0-5 days per week, with the majority of schools (60%) open five days per week (see Table 6). As the definition for a 'tuckshop' was a food service providing food and drinks for sale to students on more than one occasion per school term, this may explain why one school reported they were open 0 days per week.

The 1998 tuckshop survey did not report how many tuckshops were open every day. The 2008 tuckshop survey reported a similar finding to the 2018 survey with 58% of schools reporting they were open every school day (5 days).

Table 6: Operating days of participating schools

Days per week open	Number of Schools	%*
Per term	1	0
1	49	10
2	34	7
3	69	14
4	47	9
5	300	60
Total	500	100

** All participating schools (n=500)*

3.2.7 Days of the week that the tuckshop is open

Table 7 presents the days tuckshops are open. Friday was the most popular day with 92% of tuckshops open.

The percentage of tuckshops that are open on each individual day has increased from 2008 survey results, excluding Monday, which has reduced from 75% to 68%. This highlights that tuckshops are on average open more days per week than previously. Comparison to the 1998 survey is difficult as the question was worded differently, however Friday was reported as the busiest day of the week in 1998.

Table 7: Operating days of participating schools

Day of the Week	Number of Schools	%*
Monday	338	68%
Tuesday	354	71%
Wednesday	431	86%
Thursday	427	85%
Friday	462	92%

** All participating schools (n=500)*

Schools that are open 1 day per week were less likely to be QAST members. Only 37% of schools open one day per week (n=49) were QAST members, much lower than the overall percentage of QAST members participating in the survey (61%). Tuckshops that only operate on one day per week may perceive that they require less support and/or cannot afford the cost of QAST membership. It should be noted that QAST membership is significantly discounted for schools with under 100 students (to $30 per financial year), who are likely to only open on one day per week. Promotion of this discount to smaller schools may be mutually advantageous.

There were no non-state schools open less than 2 days per week that participated in the survey.

All participating state high schools were open a minimum of 3 days per week. This may reflect that high schools generally have much larger enrolment numbers, and therefore can sustain trading over more days per week than primary schools.

There were no other trends in days per week open related to QAST membership or between state and non-state schools.

It is recommended that this question is worded differently in future surveys, as the specific days that the tuckshop is open is less important and it takes some time to gather information on each day of the week in a time limited survey. In future it is recommended that convenors are asked how many days per week they are open only.

3.3 Provision of food before and after school

3.3.1 Breakfast service

Table 8 presents reported breakfast services. Only a small number of tuckshops offered a breakfast service (27%, n=134). This is similar to 2008 figures, when 30% of schools reported that the tuckshop operated a breakfast service.

Breakfast clubs were frequently provided by other services within the school, at 295 schools. Information on who provides this service was not captured in this survey, but these services are known to be run by school chaplains, student councils and local rotary/lions clubs.

Breakfast services from other providers were not captured in 2008.

It was noted that 71 schools reported both the tuckshop and other providers offering breakfast service. Most breakfast clubs from other providers include free breakfast for students, so these tuckshops are likely to experience decreased sales at breakfast service periods.

There was no breakfast service offered at 118 schools.

Table 8: Breakfast service in schools as reported by convenors

Breakfast Service	Tuckshop	Other provider
Yes	134	295
No	353	176
Don't know	13	29
Total	500	500

There were a total of 219 primary schools (66% of participating primary schools), 32 P-12 schools (82% of participating P-12 schools) and 107 secondary schools (85% of participating secondary schools) with a breakfast service from one or more providers.

A breakfast service provided by the tuckshop was more common amongst participating P-12 (n=15, 38%) and secondary schools (n=44, 35%) than primary schools (n=66 20%). This result may highlight that primary school students are more likely to have a family breakfast routine at home, whereas secondary students independently prepare breakfast at home or purchase on the way to or at school. However, questions pertaining to this are outside the scope of this survey, further investigation may be warranted.

This data was captured over two different questions, which made collation and analysis of data difficult, particularly if participants answered one question and not the other. It is recommended that future surveys ask about breakfast service in the tuckshop or other areas of the school within one question.

3.3.2 Vending machines

Five percent of schools (24 schools), reported having vending machines at their school. Of this, 88% were state schools (15 state primary schools and 6 state high schools) and 12% were non-state schools (3 schools).

Overall, the number of vending machines in schools has decreased, from 19% of schools in 1998 to only 5% in 2018. The 2008 survey did not gather data on vending machines in schools.

3.3.3 School gardens

More than half of schools (53%) were recorded as having a school garden.

It should be noted that the wording of this question did not include “kitchen/produce garden” and participants may have misinterpreted as a landscaped garden, so this data is unlikely to be accurate.

3.4 Food & drink in the tuckshop

3.4.1 Top factors when designing the menu

Participating convenors were asked to nominate the top 3 factors they consider when designing the tuckshop menu (see Table 9). Interviewers did not prompt participants. Nutrition / Healthy options was reported as having the most influence (65%), followed by affordability (58%) and what sells best/what the students like (54%).

In both 1998 and 2008, nutrition was the leading consideration for menu planning at 44% and 97% respectively. Consumer demand was the second most common consideration in both 1998 and 2008.

Table 9. Top factors influencing menu design as reported by convenors

Response	Number	%*
Nutrition / Healthy Options	327	65
Affordability	288	58
What sells best / what the students like	269	54
Smart Choices	141	28
Easy to prepare	114	23
Availability of produce	38	8

** All participating schools (n=500)*

3.4.2 Best selling items

To assess consumer demand, convenors were asked to identify their three best selling main meals, snacks and drinks. The best selling options were identified as;

- Main meals
    - Pasta dishes (34%)
    - Burgers (32%)
    - Wraps (26%)

- Snacks
    - Fresh fruit (35%)
    - Cakes/biscuits (33%)
    - Muffins (33%)
    - Popcorn (25%)
- Drinks
    - Flavoured milk (89%)
    - 100% Juice (59%)
    - Plain Water (48%)

In 2008, the best selling main meals were burgers, wraps and pies. Chips and potato gems were the top-selling snack followed by ice blocks and cakes/biscuits. The top selling drinks have remained constant with flavoured milk and 100% fruit juice as the best selling drinks.

The 2018 survey results highlight positive changes being made to tuckshop sales, with lower nutrition foods like pies, chips and potato gems no longer being identified as best selling menu items. It should be noted that a change to Smart Choices has been announced since the 2008 survey was completed, which has resulted in chips and potato gems both now being classified as RED items. These changes to Smart Choices were announced in 2016, but there has been no mandatory timeline for their implementation from the Department of Education.

This data may also be biased due to the larger percentage of QAST members participating in the survey.

3.4.3 Provision of salad or cooked vegetables on the menu

The vast majority (98%) of convenors indicated that salad or cooked vegetables were included in main meal choices. Convenors were also asked to identify any barriers in providing salad or cooked vegetables in the tuckshop. Interviewers were instructed not to prompt and leave the question open ended. The main perceived barrier to providing

salad or cooked vegetables is that ‘students don’t eat them’ (34%). This indicates that consumer demand for other foods potentially impacts on the provision of healthier options. It was positive to note a similar number of convenors also reported ‘no barriers’ (33%) in providing salad or cooked vegetables on the menu (See Figure 3).

Interestingly, when convenors were asked to rate how important healthy eating is, the majority (94%) rated healthy eating as ‘important’ or ‘very important’. Although it should be noted that this opinion-seeking question is subject to social desirability bias and may not be reflective of participants true opinion. Convenors may also have a wide variety of definitions of what is considered to be ‘healthy eating’ which may or may not align with Smart Choices. In addition, a conflict may exist between convenors beliefs regarding the importance of healthy eating and meeting consumer or tuckshop management demands to supply less healthy foods.

The inclusion of salad or cooked vegetables in main meals has been reported as a common practice in prior surveys. Almost all convenors (96%) in the 2008 survey reporting they intentionally included salad or cooked vegetables in main meal choices. The 1998 survey did not collect any data on inclusion of salad or cooked vegetables.

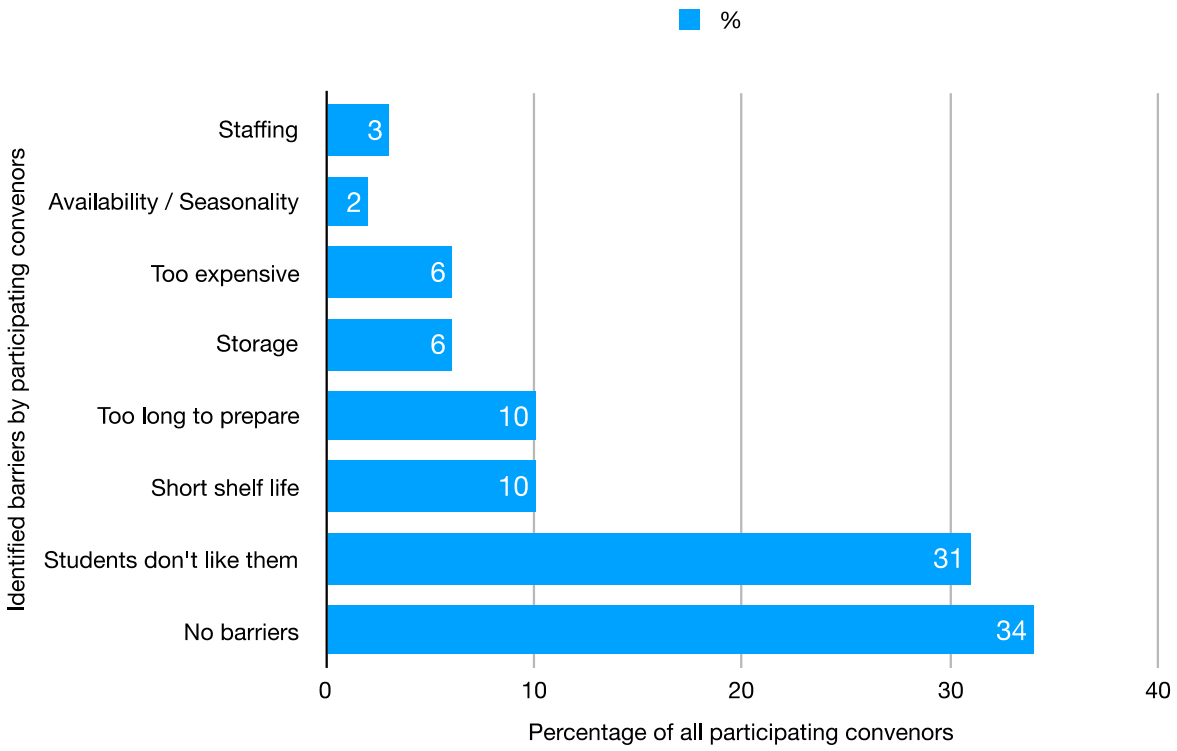

Figure 3. Factors effecting the provision of salad or cooked vegetable on the menu.

3.4.4 Barriers in implementing healthy food and drinks

The main barriers identified in implementing healthy food and drinks in tuckshops were identified as student preferences (39%) and parents (14%).

A large variety of other issues identified by small number of schools highlights that each school is unique and a tailored approach is often required to address issues. Such issues included;

- Number of staff or volunteers available (5%)
- Affordability (9%)
- Loss in profit (6%)
- Ease of preparation (8%)
- Availability from suppliers (5%)
- Tuckshop is a treat (3%)
- Support from school or parent body (7%)
- Knowledge/understanding of Smart Choices (5%)

Some of these responses indicate that there are misconceptions about whether healthy foods can maintain a profit and be prepared with limited staff and resources.

3.4.5 Promotion of food and drink items

Tuckshops advertising foods and drinks is encouraged to increase sales of selected item/s, like home made meals, healthier choices or tuckshop specials/event days. Table 10 lists the most common marketing methods. Other methods were advertising on the schools website, taste tests and via online ordering providers.

Table 10. Marketing strategies to promote food and drink items in the tuckshop

Marketing Strategy	Count	%*
Facebook page	232	46
eNewsletter	227	45
Menu	204	41
Blackboards	104	21
Posters	101	20

** All participating schools (n=500)*

3.5.6 Smart Choices Healthy Food & Drink Supply Strategy

Table 11 highlights the implementation of Smart Choices amongst participating schools, as reported by tuckshop convenors. Almost all convenors (93%) reported they are aware of the Smart Choices strategy. There were 35 state schools and 1 non-state school not aware of Smart Choices.

The majority of convenors reported that Smart Choices had been implemented in the tuckshop (81%). However 34% of convenors reported that Smart Choices had only been implemented in the tuckshop, and not in other areas of the school. This included both state and non-state schools. Non-state schools were less likely to have implemented Smart Choices in the tuckshop, with 64% of non-state schools reporting they had implemented Smart Choices in the tuckshop versus 82% of state schools.

Further information on what areas of the school had not implemented Smart Choices was beyond the scope of this survey. Further investigation of this as part of any Smart Choices evaluation may be beneficial.

Table 11: Smart Choices implementation in surveyed schools

Smart Choices Implementation	Total schools (%*)	State Schools
Implemented across the whole school with only two red occasions per term	234 (47%)	231
Implemented in the tuckshop but not elsewhere in the school	171 (34%)	151
Total implemented in the tuckshop	*405 (81%)*	*381*
Not implemented fully – RED foods are frequently available at school events and in the tuckshop	43 (9%)	33
We have not implemented Smart Choices at all	5 (1%)	4
Not aware of Smart Choices	37 (7%)	35
Don't know	10 (2%)	9
Total	500	463

*Represents the percentage amongst surveyed schools (n=500)

The number of schools who report that Smart Choices has been implemented is decreasing. In 2008, the Queensland Tuckshop survey found 93% of convenors reported Smart Choices had been implemented. Additionally, the 2009 evaluation of Smart Choices found that 97% of tuckshops reported Smart Choices had been implemented. This is similar to other recent research in Australia, where policy compliance has decreased in follow up evaluations, compared with initial evaluation (14).

Another factor affecting this reduction in implementation could be due to the impact of the 2016 changes to Smart Choices announced by the Department of Education. There has been no mandatory timeline for implementation of these changes, so some tuckshop convenors have expressed confusion about whether they are considered to have "implemented" Smart Choices if they have not made the changes announced in 2016. There is also some confusion as to whether the entire strategy remains mandatory. Eighteen schools made comments with regards to 'local discretion' in implementing 2016 changes to Smart Choices.

3.4.7 Menu self assessment

Almost 80% of convenors reported they felt 'confident' or 'very confident' in rating menu items as GREEN, AMBER or RED against Smart Choices.

Ninety one percent of participating convenors (453 convenors) were able to estimate the proportion of GREEN items on their tuckshop's menu, with only 2% (10 convenors) reporting they didn't know the percentage of GREEN items on their menu. Seven percent of values (37 values) were missing as convenors reported that they were not aware of Smart Choices.

On average, 65% of the food and drink on tuckshop menus was GREEN (range 15 – 100%), as reported by convenors that participated in this question (n= 453).

Figure 4 shows participant's self-assessment on the percentage of GREEN items on their menu. The majority of convenors (84%) reported their menu contained 50% or more GREEN menu items.

This self-assessment of GREEN on tuckshop menus will be compared with QAST menu assessments later in this report.

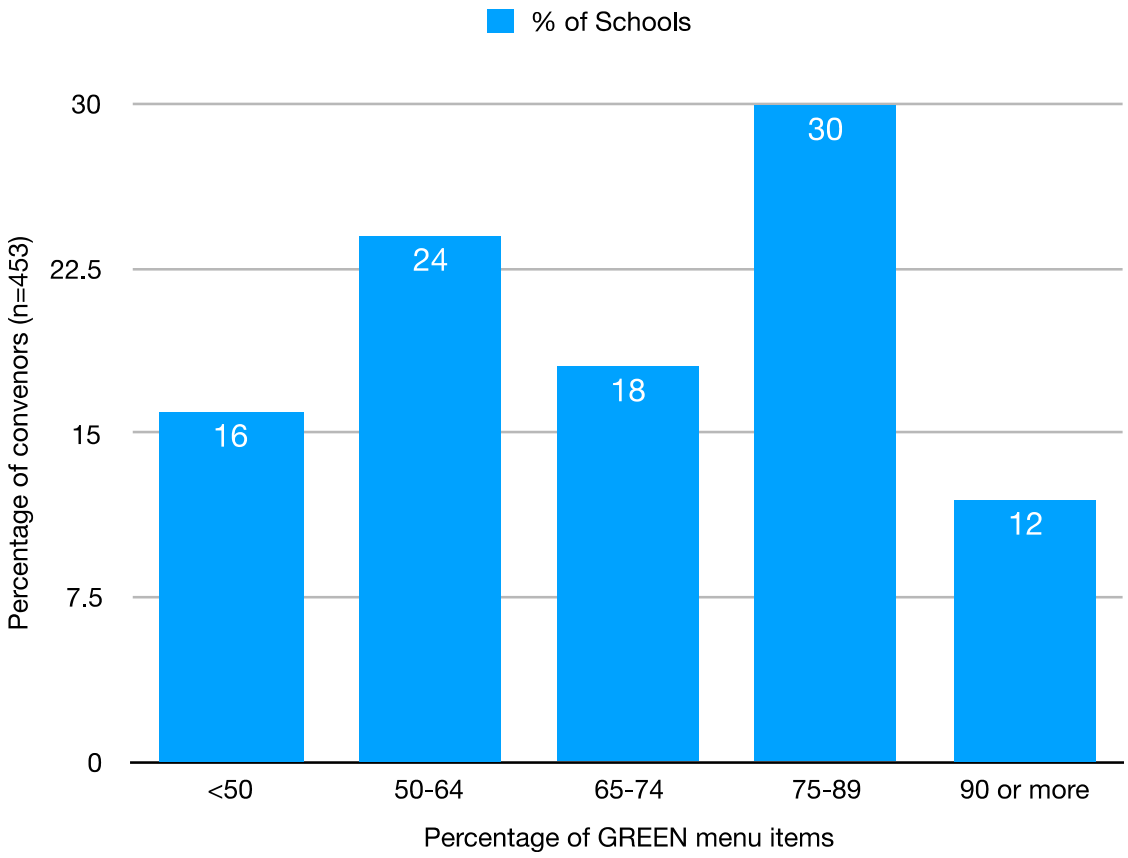

Figure 4. The percentage of GREEN items on the menu as assessed by convenors

These finding are similar to those of the 2008 Tuckshop Survey, where 83% of convenors reported their menu contained 50% or more GREEN menu items. However a variation is noted for those reporting 75-89% green with 30% for 2018 opposed to 2008 finding of 20% (See Figure 5). Fewer convenors in the 2018 survey reported their menu to contain 50-75% GREEN menu items than the 2008 survey, 42% vs 48% respectively (See Figure 5).

It is positive to see that the number of convenors rating their menus as higher than 75% green has increased since 2008.

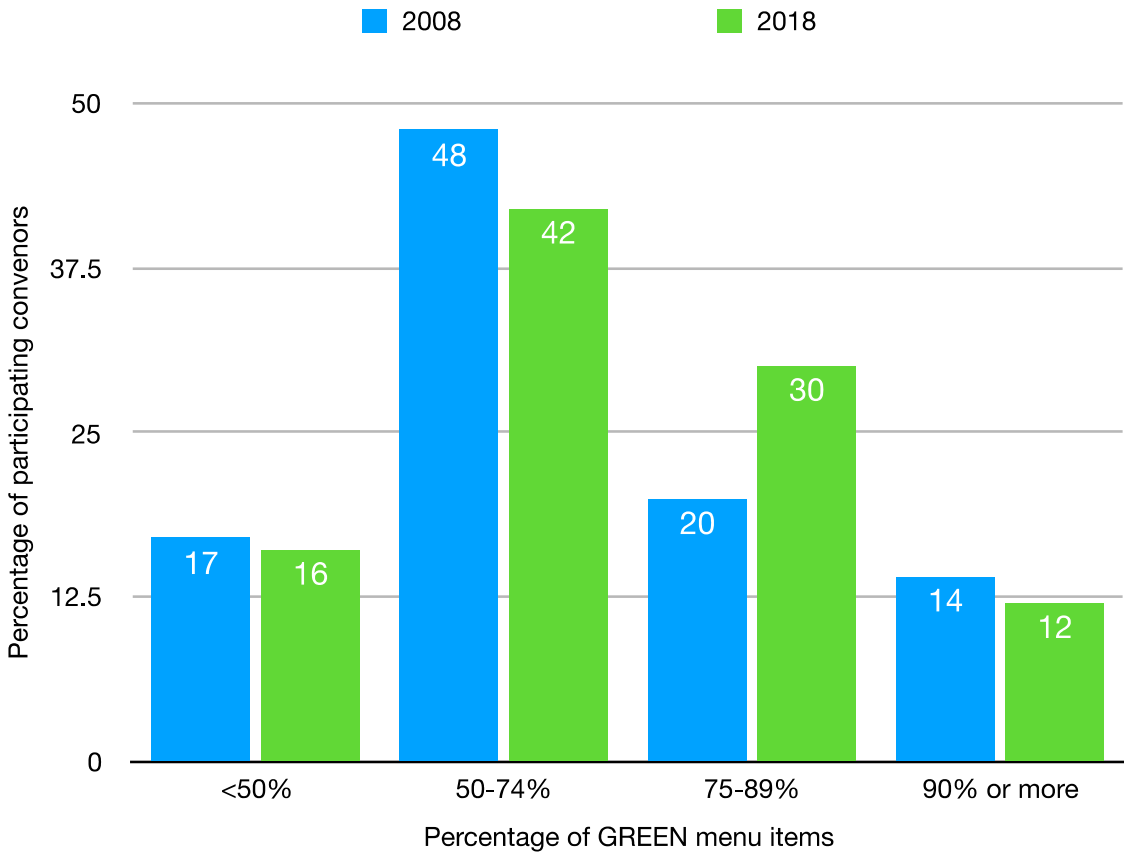

Figure 5. A comparison of percentage GREEN items on the menu as assessed by convenors in 2008 and 2018

3.4.8 Facilitators for implementing Smart Choices

Convenors were asked if there was anything that has made implementing Smart Choices easier. This question was left unprompted and answers categorized into key themes. Convenors were able to identify multiple answers. Interviewers recorded a very low number of responses to all categories. However, the leading facilitators were identified as the Smart Choices/Education Queensland website/guidelines (n=54), QAST (n=45) and P&C/parent support (n=19). The response was biased due to the sample including a high proportion of QAST members, with 82% of those who identified QAST as a facilitator being current QAST members.

3.4.9 Professional menu analysis

Amongst the 200 menus assessed by QAST, the average tuckshop menu included 56% GREEN items, 30% AMBER and 14% RED items. Seventy three percent of assessed menus contained more than 50% GREEN items on the menu. This is a vast improvement from the 2008 tuckshop survey, where only 13% of menus were assessed as having more than 50% of GREEN items.

A large portion of assessed menus (90%) contained RED menu item/s, leaving only 10% of menus compliant with Smart Choices. Most RED food items for sale were drinks and snacks with a smaller proportion coming from main meals. Common RED items can be seen below in Table 12. Many of these RED items are part of a recent update to Smart Choices, announced in 2016. There has been no mandatory timeline for the implementation of 2016 changes to Smart Choices, and these results highlight that many schools have chosen not to implement these changes.

This data is limited by the fact that many assumptions were made about tuckshop menus. Future projects with larger budgets would allow more thorough assessments of menus. A similar list of assumptions and protocol was used in 2008 survey.

Table 12. Most common RED food items found in assessed menus

Drinks	Snacks	Main Meals
Carbonated waters / juices	Cookies / Anzac Biscuits / Gingerbread	Crumbed / battered chicken products
Fruit drinks with less than 99% fruit juice	Chocolate muffins / cakes	Commercial potato wedges
Iced coffee with >375mLs	Chips / Pretzels and other extruded snacks	Hot Dogs / Cheerios
Formulated beverages	Jelly	Nachos / Corn Chips
Flavoured water	Ice creams with chocolate / confectionary	Crumbed Fish products
	Commercial garlic bread	Homemade Sausage Rolls (puff pastry is high in saturated fat & energy)

Of the 200 professionally assessed menus, 183 could be matched with a convenor menu self-assessment from the CATI (the remaining 17 convenors had responded that they could not estimate the percentage GREEN on their menu). Figure 6 presents the difference between the percentage GREEN for menu assessments by convenors versus the QAST project team. On average, convenors overestimated the percentage GREEN on their menu by 8%. However this varied widely, with a small number of convenors underestimating the GREEN on their menu (by up to 40%) and some overestimating GREEN (by up to 50%).

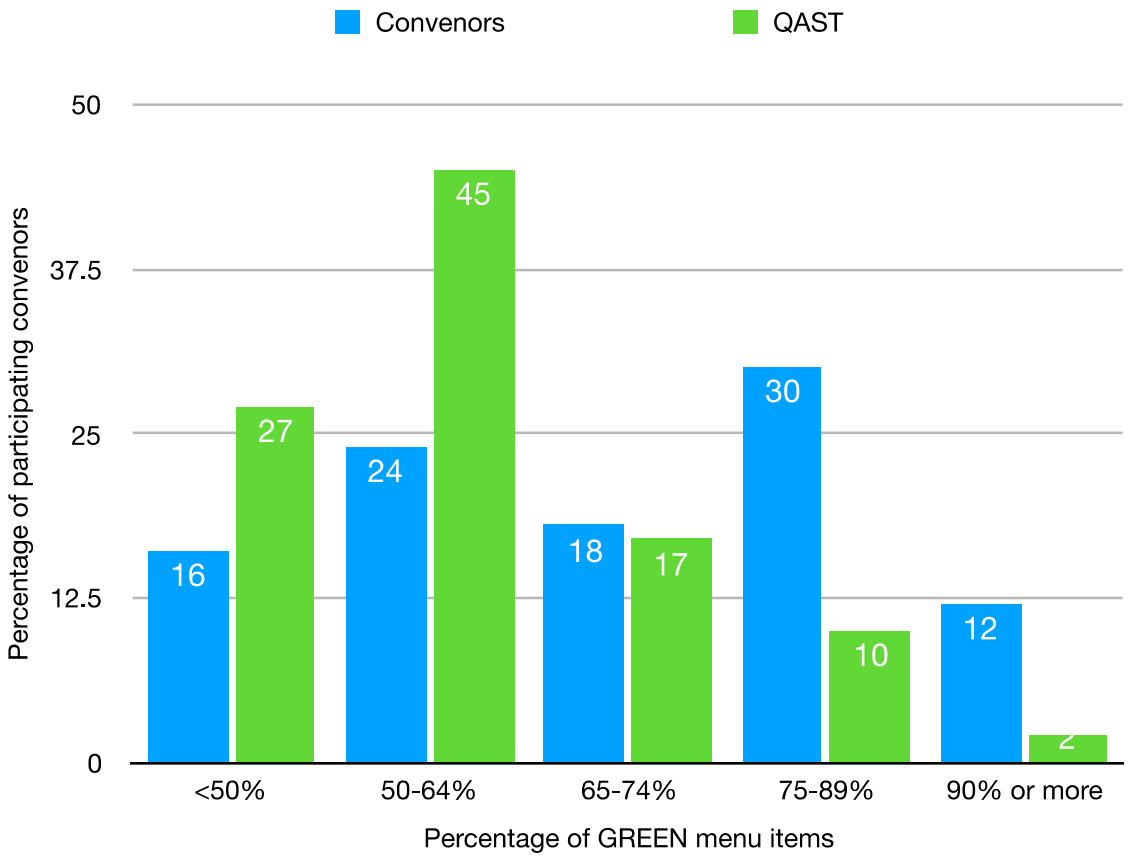

Figure 6. The percentage of GREEN menu items as estimated by convenors versus QAST assessment (n=183)

3.5 Support for the tuckshop

3.5.1 Sources of information and support

Tuckshop convenors were requested to advise what organisations or associations they rely on for information and support with running a tuckshop. Figure 7 highlights that QAST is the leading organization, identified by 69% of convenors. This is similar to the 2008 Tuckshop Survey where 67% of the participating convenors reported QAST as a source of information and support. A large proportion of participating schools (61%) in the 2018 Survey were current QAST members and this may have biased the results. QAST membership status was not captured in previous surveys.

In the 2008 Tuckshop Survey, sales representatives from food suppliers were reported as the leading source of support for convenors at 77%. Whilst this number has reduced in 2018 (to 63%), sales representatives remain a highly trusted source. This is a cause for concern as sales representatives are focused on increasing product sales for their company, creating a risk of providing misleading information to convenors.

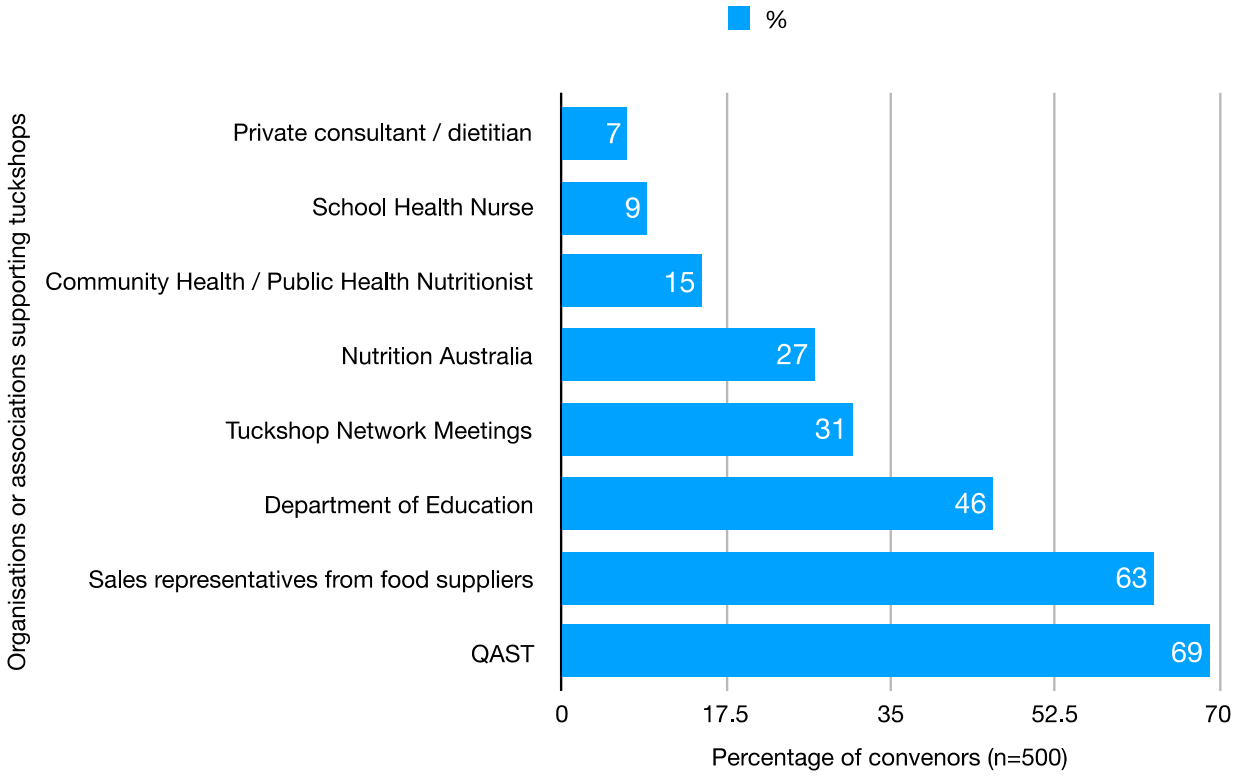

Figure 7. Organisations or associations convenors rely on for information and support.
** Figures do not equal 100%, multiple sources could be identified by each participant.*

3.6 Tuckshop Resources

3.6.1 Computer and Internet usage in tuckshops

With the rise of technology and in particular the internet, convenors were asked if these tools were available for use in their tuckshop. More than 60% of convenors reported they have a computer with internet access in the tuckshop. When prompted, participants identified Smart Choices and QAST as the most used websites (Table 13).

Table 13. Websites used by convenors for tuckshop purposes

Website	Number of convenors	%*
Smart Choices	340	68%
QAST	327	65%
P&Cs Qld	257	51%
Food and Drink Suppliers	216	43%
Facebook	203	40%
eMenu	184	37%
Happier Healthier / Queensland Health	67	13%
Nutrition Australia Queensland	57	11%

** All participating schools (n=500)*

3.6.2 Tuckshop equipment

Table 14 details the equipment available in tuckshops. Almost all tuckshops had microwaves and sandwich presses (99% each).

Table 14. Common equipment found in tuckshops

Equipment available	Number of Schools	%*
Microwave	493	99
Sandwich Press	493	99
Pie Warmer	483	97
Thermometer	454	91
Hot Plates	447	89
Electric Frypan	408	82
Toaster	351	70
Food Processor	343	67
Blender	338	67
Domestic Oven	312	62
Commercial Oven	284	57
Bain-marie	208	42
Slushie Machine	206	41

* All participating schools (n=500)

Sixty eight percent of participants reported their tuckshop was “well” or “very well” resourced. This is similar to 2008 results, where 71% of convenors reported their facilities as ‘good' or 'excellent’.

Table 15 highlights the equipment required in schools who reported their tuckshop is under resourced (159 schools)

Table 15. Equipment required in under resourced tuckshops

Equipment Required	Number of Schools	%*
Oven	53	33
Cold Storage	41	27
Bigger Tuckshop / General Renovation	37	23
Cooking appliances (grill, mixer, slow cooker etc)	34	21

* Under resourced tuckshops only (n=159)

3.6.3 Grants

A small proportion of tuckshops (n=82, 16%) were successful in receiving grant funding in the previous three years. These grants were awarded from;

- Community Gambling Benefit Fund – 22 schools (4%)
- Department of Education – 5 schools (1%)
- Local Council – 4 schools (1%)

A number of schools also identified support from specific local businesses.

Many tuckshop convenors were unsure where these grants had been sourced, or were unaware if grant applications had been submitted and/or successful. A small number of schools referred to grants from QAST or Smart Choices. These are likely to refer to a 2016/2017 project where QAST completed menu assessments and site visits for 30 schools through funding from the Department of Education, or travel grants that have been provided to Tuckshop of the Year award winners in previous years to support awards night attendance (provided through sponsorship from Queensland Health).

3.7 Tuckshop Staff

3.7.1 Number of staff and hours worked

Queensland tuckshops have an average of 1.2 convenors per tuckshop. Seventy six percent have one convenor, with 17% reported having two convenors. The average number of paid convenor hours per week was 28, with an additional seven hours of unpaid (volunteer) hours per week. Typically, tuckshops also have an additional staff member working 15 paid hours and 1.5 unpaid hours each week.

Figure 8 shows how the number of paid convenor hours has steadily increased over the past 20 years, while unpaid hours have remained the same. The increase in paid hours is likely to reflect reduced volunteer support and that most tuckshops are open more days per week than previous years. This may place financial strain on tuckshops, if there is not enough revenue to cover these additional wages.

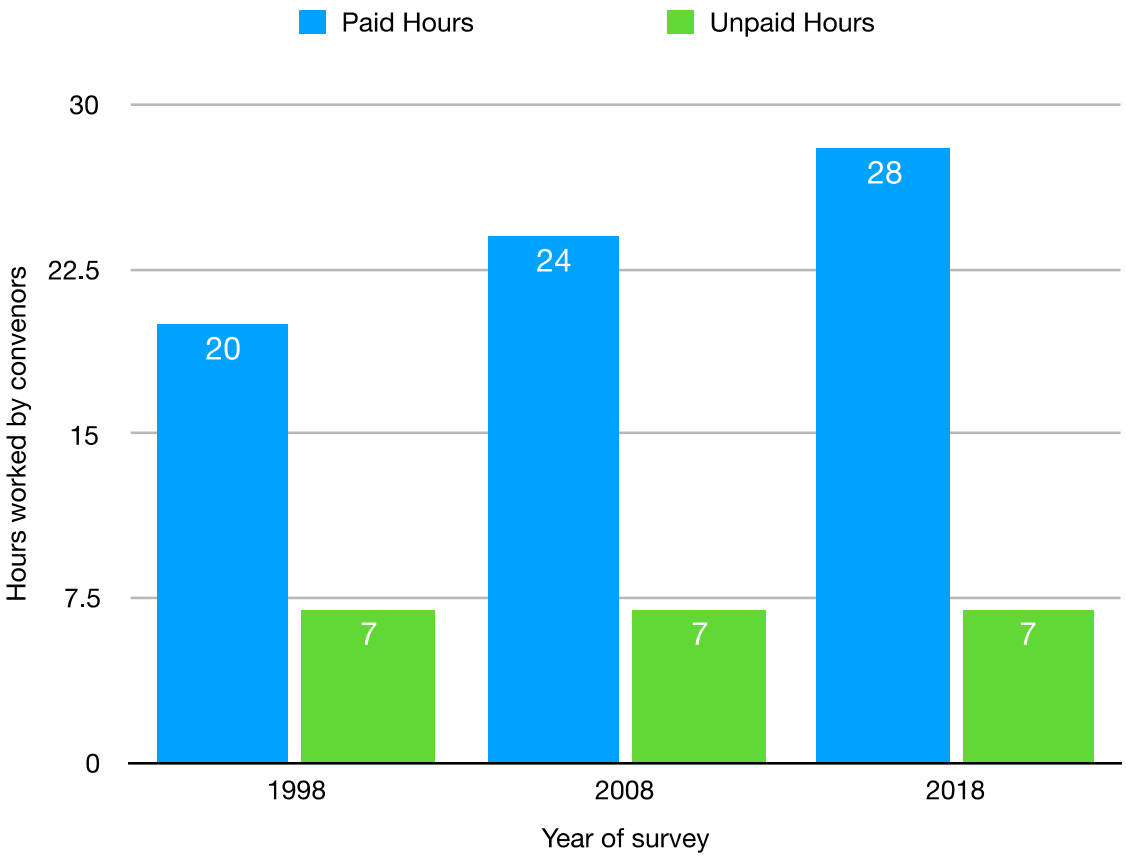

Figure 8. A comparison of paid and unpaid convenor hours in 1998, 2008 and 2018

3.7.2 Employment conditions

A large proportion (85%) of participating convenors described their employment conditions as ‘good’ or ‘very good’. Only 3% rate their employment conditions as ‘poor’ or ‘very poor’. Convenors who rated their employment conditions as ‘very poor’, ‘poor’ or ‘neutral’ (76 convenors) were asked to identify the main issues affecting their employment conditions. Figure 9 shows the employment issues as reported by convenors

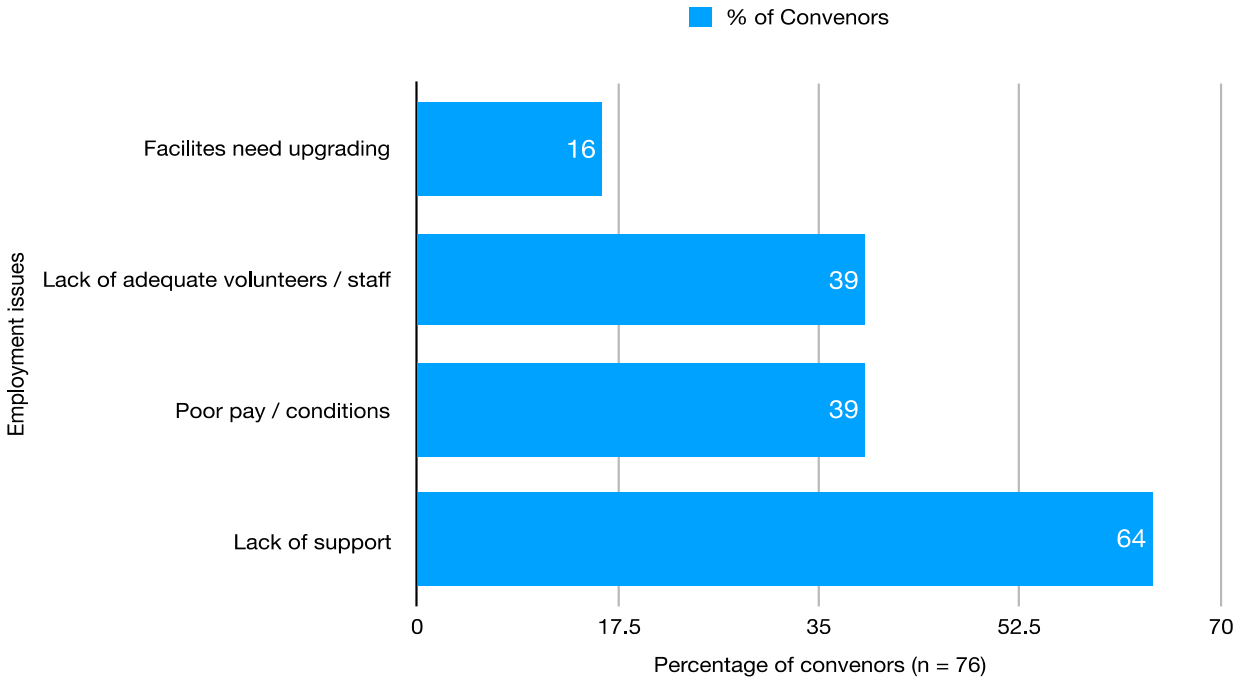

Figure 9. Prevalence of employment issues as reported by convenors (n = 76)

Table 16 illustrates the main findings of this question and compares this to the 2008 results. It should be noted however, that the 2008 survey asked all participating convenors whereas the 2018 survey only asked those rating their conditions as poor or average (a sample of 76 convenors).

Table 16. Comparison of issues effecting employment conditions in 2008 and 2018

Employment issue	2008	2018
Lack of support	6%	64%
Facilities need upgrading	8%	16%
Poor pay / conditions	15%	39%
Lack of adequate volunteers / staff	20%	39%

3.7.3 Convenor experience

The average number of years convenors had remained in their current position was six years, with 30% working in their position two years and under, 50% in their position for 3-9 years and 20% in their position for 10 years or more. The 2008 tuckshop survey revealed that 42% of convenors have been employed for two years or under, much higher than the 2018 survey findings. This suggests that staff turnover may have reduced over the past 10 years. The findings may also highlight bias in participation, with less experienced convenors feeling less qualified to participate in the survey.

3.7.4 Food safety supervisors

The primary role of a Food Safety Supervisor is to ensure the provision of safe food from a business and/or work place. In particular, this involves understanding how foods are contaminated, identifying and controlling hazards and implementing safe processes for other staff and volunteers to follow. Seventy nice percent of the participating tuckshops (n=396) confirmed the qualification of a Food Safety Supervisor in their tuckshop. Eighty one percent also reported the use of a thermometer to test prepared food.

3.7.5 Volunteer support

The average number of volunteers reported by participating tuckshops was five, contributing an average of 15 hours of unpaid work each week. This has reduced significantly from the 2008 survey, where the average number of volunteers was 15, providing 25 hours of unpaid work each week. The 1998 survey findings reveal that tuckshops averaged 10 volunteers working an average of 15 hours each week.

It should be noted that the wording of this question may have been misinterpreted. It would appear that some schools reported hours contributed per volunteer whilst others reported total hours contributed by all volunteers. Further clarification around this question is recommended for future surveys.

3.7.6 Training

Effective staff orientation lays down the foundation for employment and helps to improve workplace relations and productivity. However, only 54% of participating convenors reported they received orientation or training when they first started as a convenor. Convenors were also asked if they need training and support in providing healthy food and drink choices in the tuckshop, 22% (111 convenors) reported they did. Of this sample, 51% indicated they need training on menu planning, followed by 29% who reported they needed training on Smart Choices.
The preferred delivery of training was face-to-face and online with 68% and 59% respectfully.

Over the past 10 years it seems little improvement has been made in relation to staff orientation rates. Only a 6% increase in orientation rates was seen from 2008 to 2018. However, convenors participating in the 1998 survey reported an even lower orientation rate of 11%.

3.7.7 Polices and procedures

Policies and procedures can assist new and existing staff and volunteers to understand what is expected in the work place. Eighty five percent (424 schools) of participating convenors reported their tuckshop has written policies or procedures. Table 17 displays the top policies and procedures reported, and the associated percentage against all participating schools for separate policies.

Table 17. Types of policies and procedures in tuckshops as reported by convenors

Policy	Count	%*
Food Safety	407	81
Workplace Health & Safety	390	78
Volunteering	353	71
Providing Healthy Food	323	65
Money Handling and Banking	324	65
Nuts / Allergies	290	58
Staff Training	269	54
Grievance or Complaints	249	50
Pricing	236	47

** All participating schools (n=500)*

Schools with a healthy eating policy (n=323) had a higher average percentage GREEN (self-rated at 67%) compared to schools with no healthy eating policy (self rated at 62%). Similarly schools with a healthy eating policy had a higher average percentage green when assessed by QAST (57% GREEN) than schools without a healthy eating policy (53% GREEN). The existence of a healthy eating policy made no difference to the presence of RED items on the menu, as assessed by QAST. This is likely due to the high frequency of RED items on all menus.

3.7.8 Communication

The preferred method of contact for the majority of tuckshop convenors was email (65%), followed by phone (29%). A very small number of tuckshops nominated regular mail (5%).

3.8 Tuckshop Finances

A small number of tuckshop convenors (23%) were aware of the overall sales volume of their tuckshop. Amongst these tuckshops, the average turnover was $145,000. There was a large range amongst the data, from $900 to $1m per year. This is reflective of the different sizes of tuckshops servicing Queensland schools. This data is likely to be biased, with convenors in larger tuckshops more likely to be aware of the financial situation of their tuckshop, and thus able to share information.
However if the average turnover figure is extrapolated to all tuckshops operating in Queensland, this represents total sales of $211m per year.

Fifty eight percent of tuckshops reported that it was 'important' or 'very important' for the tuckshop to make a profit. When asked about the financial status of the tuckshop, the majority of respondents reported making a profit (70%). Ten percent of schools reported that they break even, 13% made a loss and 5% did not know.

When asked to provide further information on approximate amounts of profit or loss in 2017, the majority of participants did not know (59%). Twenty six percent reported a specific amount of profit, which averaged $15782. However there was a large variation in the data, ranging from $100 to $86000.
Six percent of tuckshops reported making a loss, ranging from $362 to $31000.

Fifty three percent of tuckshop convenors reported that there is a standard mark up that is applied to the cost of goods. Of the schools who use a standard mark up (n=266), the average reported was 61% (range 9% to 250%)

This data highlights a number of concerning points – that almost half of tuckshops are not using a standard method of costing out their menu and applying a mark up, and even amongst those who are, they are not using an appropriate mark up figure. (From QAST experience, a 100% mark up is required in most tuckshop business models to cover food, packaging, wages and other costs). It is clear that some tuckshop

convenors did not understand the term mark up, as they reported very small percentages of 10%, which are not realistic.

There were no trends in self reported profit or loss related to self-reported % GREEN on the menu. When % GREEN was rated by QAST, there was a small but not statistically significant increase in those reporting a profit with over 65% GREEN, compared with those that had less than 65% GREEN. The benchmark of 65% GREEN was selected based on recent research from other areas of Australia, where it has been noted that 65% GREEN on a tuckshop menu corresponds to 65% GREEN in sales. The established benchmark for 4 star menus from QAST has also been 65% GREEN for many years.

The majority of convenors (79%) also felt it was possible to make a profit from healthy food.

3.9 QAST Membership

As QAST is a membership organisation, a quality improvement question was included to highlight what current members (n=304) value from their membership and the reasons behind why non-members (n=196) have not joined QAST. Table 18 shows the top three reasons why convenors reported they value their membership. Likewise, Table 19 illustrates the top 3 reasons non-members have not joined QAST.

Interestingly, 9% (n=27) of current members voiced that access to information (not an existing category) was also valuable. In terms of non-members opinions, the cost of membership was the leading reason why these schools have not become members of QAST.

Table 18. Enablers to QAST membership as identified by current members (n=304)

	Count	%*
General Support	162	53
Recipes	39	13
Menu Planning	39	13

**Participants with current QAST membership (n=304)*

Table 19. Barriers to QAST membership as identified by non-member participants (n=196)

	Count	%*
Cost of membership	53	27
Don't need the services	43	22
Value for money	34	17

** Participants without QAST membership (n=196)*

3.10 QAST Financial Analysis

A total of 51 schools were included in the QAST financial analysis (43 state schools and three non-state schools). There were two P-12 schools (4%), 38 (75%) primary schools and 11 (22%) secondary schools included in the financial assessment. By sector, state schools were over-represented, at 94% of the sample (48 schools), leaving only 6% (three) non-state schools. Schools ranged from 1 to 5 days per week open, and from 250 to 2500 students.

Schools who had a large percentage of GREEN on their menu (>65%) were compared against those with a lower percentage GREEN on the menu (<65%) to determine any links with profitability and other financial markers.

As shown in Figure 9, schools with a higher percentage of GREEN on the menu were more likely to make a profit. This result is similar to research from Western Australia, where tuckshop profitability was not adversely impacted by healthy eating policies (14).

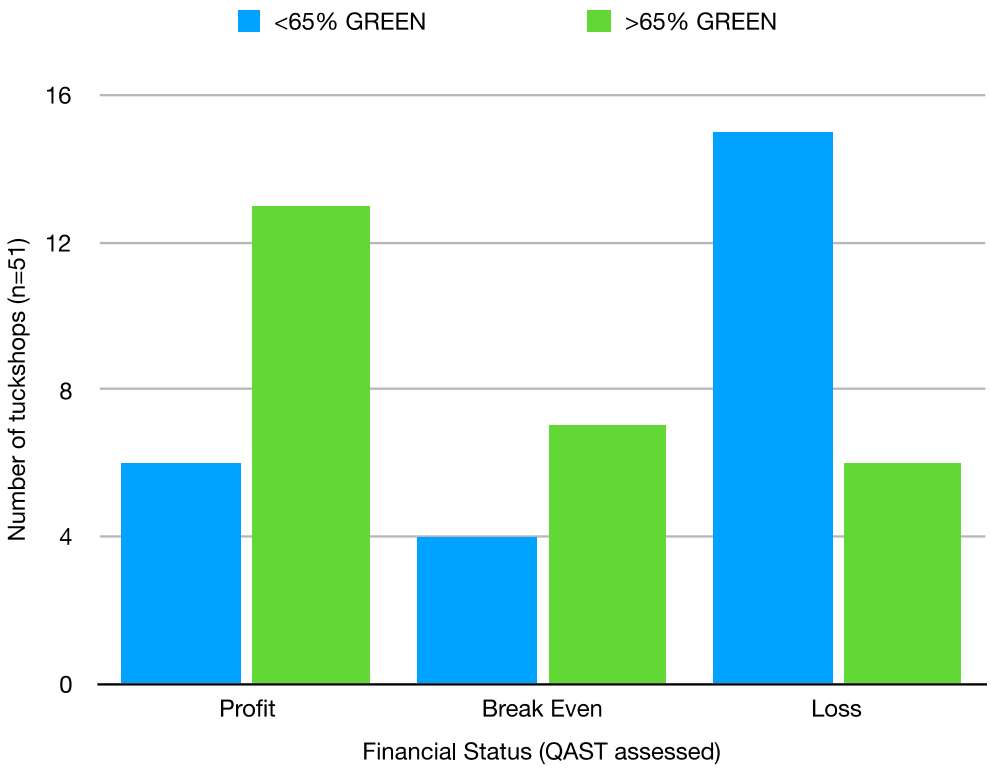

Figure 9. A comparison of financial status of tuckshops with high and low %GREEN

As shown in Table 20, schools with a higher percentage of GREEN on the menu had a higher average mark up, at 103%, versus 84% for schools with a lower percentage GREEN. This reinforces that items freshly made in the tuckshop, which are GREEN, attract a higher mark up for the tuckshop than commercially produced items.

Sales were also higher in tuckshops with a higher percentage GREEN, at $1.06 per student per day open compared with $0.94 per student per day open in tuckshops with lower percentage GREEN. Whilst this is only a $0.12 difference, this could contribute a significant amount of income across a year of trading. This highlights that healthier options are popular amongst students and can result in increased sales and profit. However, this is in contrast to other survey results, where convenors suggest student preferences are a barrier to healthy options on the menu.

Table 20: Mark-up and sales per student amongst tuckshops with high and low percentage GREEN on menus

	>65% green		<65% green	
	Average	Range	Average	Range
Mark up (%)	103	42-193	84	-34 – 127
Sales per student per day open ($)	1.06	0.44 – 3.64	0.94	0.37 – 2.12

Care should be taken in generalising these results to all Queensland tuckshops, as this data is from a very small sample of 51 schools and may not be representative of all Queensland school tuckshops.

3.11 eMenu

3.11.1 Growth of eMenu users

eMenu was first launched in July 2014. The number of users who have registered an eMenu account has grown significantly from 74 in 2014 to 631 in 2018 (Figure 10).

The activity of users cannot currently be assessed by internal website reports.

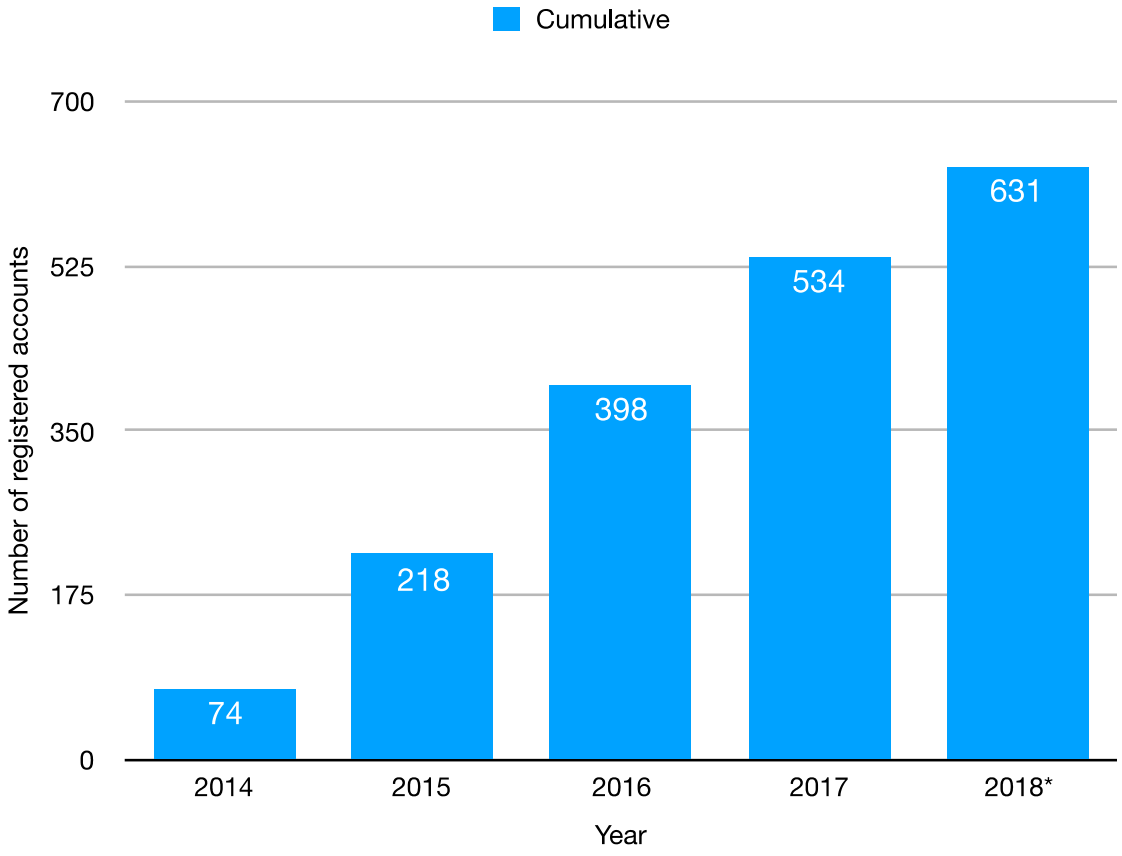

Figure 10. Growth of eMenu registered accounts from 2014-2018
** Data only available up until June, 2018*

Website traffic data highlights that the total number of eMenu users since launch is 36265. There have also been over 500000 unique page reviews. The 10 most views recipes and menus can be seen in Table 21 and Table 22 respectively.

Table 21. Top 10 most viewed recipes and menus as per Google analytics

Page	Views
Yoghurt Berry Crunch	3773
Oven Fried Rice	3308
Cheese and crackers	2199
Ham & Cheese Toastie	1781
Lucky Dip Home Bake	1328

Table 22. Top 10 most viewed menus as per Google analytics

Page	Views
Sample 2 Day Primary	3500
Sample 3 Day Primary	2684
Sample 5 Day Primary	1557
Sample 5 Day Secondary	1355
Sample 1.5 Day Primary	1226

3.11.2 Usefulness of eMenu and eMenu functions

Thirty seven percent of surveyed tuckshops (n=184), reported using eMenu. Most of those using eMenu were QAST members (78%). Of those tuckshop convenors using eMenu, 7% expressed that eMenu was the most helpful website (when compared with all other websites). Seventy six percent (n=140) of convenors rated eMenu as ‘easy’ or ‘very easy’ to use.

In terms of eMenu functions, 94% (n=173) of users stated recipe ideas was the principle function followed by the Smart Choices calculator (57%) and the recipe costing function (54%) (see Figure 11).

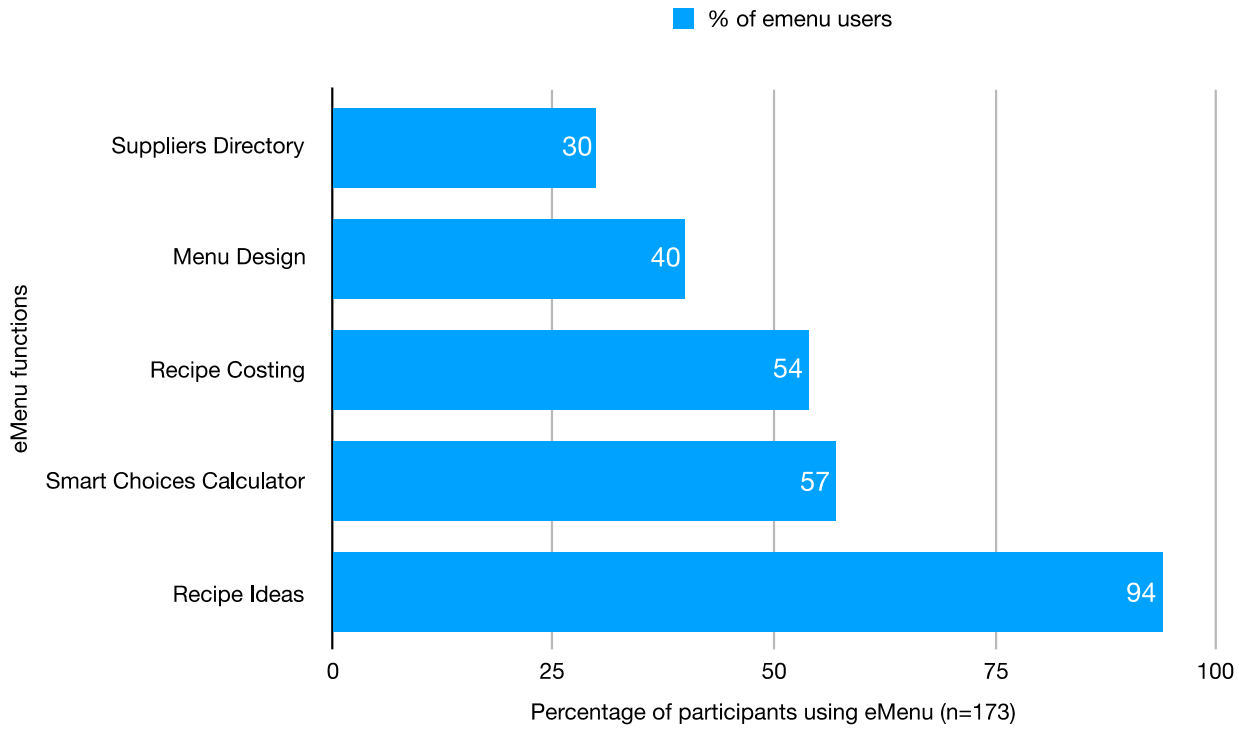

Figure 11. Most useful eMenu functions as reported by convenors

3.11.3 Strengths, Weaknesses, Opportunities, Threats analysis

The QAST project team conducted a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis as a strategic planning exercise. This method allows for identification of significant internal factors (Strengths and Weaknesses) plus external factors (Opportunities and Threats).

Strengths	***Weaknesses***
• Easy to use • Easy to search for recipes • Filing cabinet of recipes • Online, readily accessible • Easy to submit a recipe or menu for rating • Generates reports that are easy to interpret • Costing of recipes • Large amount of website traffic • QAST analysis shows that with %GREEN increases, fruit & vegetable content of menu also increases, so a valid tool	• Barrier for engagement if Smart Choices compliance is not a key motivator for tuckshops • Duplicate recipes • More time needed for adequate auditing and management of the site (Check recipe ratings, complete recipe costing, ensure quality of recipe photos and highlight recipes requiring a photo) • Costing of recipes (difficult for some to use accurately) • Drag and drop option not as user friendly • Low conversion of website traffic into registered users (2%) • Incorrect self-assessments completed by users (users are able to self-rate menu but may select 'submit to QAST' for verification) • Limited QAST budget to trial submitted recipes
Opportunities	***Threats***
• General promotion to public • More sample menu templates • Ideas from convenors for menu templates • Promotion to school management as more schools are managing the tuckshop • Addition of dietary requirements in search functions	• One of many online recipe websites, small fish in a big pond • Misuse of site (uploaded recipes that are non compliant with Smart Choices either accidental or deliberate) • Changes to Smart Choices ratings criteria, leading to incorrect classification of menu items • Recipe books and websites from suppliers (e.g. ASCA)

4.0 Limitations

This study was subject to a number of limitations; these are discussed in detail below.

4.1 Changes to study methodology

The project experienced several delays due to challenges in acquiring permission to conduct research in Queensland Catholic schools. The resultant decision requiring Principal consent to participate in the survey for all Catholic school's impacted on QAST's ability to formulate a final sample of schools to be contacted. QAST attempted to contact the Principal of all Queensland Catholic schools, but this process was labour intensive and time consuming. As this process was already impacting CATI commencement, it was deemed not feasible. Consequently, the number of convenors interviewed from catholic schools was restricted.

Additionally, the 'opt in' response rate to posted study invitations was extremely low. This resulted in further project time delays and subsequent changes in study methodology. Despite every effort from the QAST project team to ensure all schools had an equal chance to participate in the study, it is likely that the above limitations introduced sampling bias, reflected by the imbalance of state and non-state schools included in the final sample.

4.2 Skewed data

A major limitation of the data is the demographics of schools participating in the survey are not reflective of those across the state. A higher number of state schools participated in the survey than non-state schools. The reduced participation of non-state schools means any comparisons made between state and non-state schools are less reliable.

Another significant limitation is that the survey data is skewed towards QAST members, with a larger proportion of participants (61%) identified as current QAST members than in the total Queensland tuckshop population (41%).

4.3 Inherent biases

Due to the self-reported nature of all surveys, caution is warranted when interpreting results for some survey questions that are prone to social desirability bias. This type of bias is where participants provide answers deemed socially acceptable over their true response. Examples include questions pertaining to the importance of nutrition, adoption of / compliance with Smart Choices, tuckshop staffing, working conditions and finances. Moreover, some participant's responses may be subject to acquiescence bias as in general, people are more likely to be agreeable and less likely to disagree with certain questions.

4.4 Menu assessment protocol

The menu analysis process may also be subject to limitations. Due to the abovementioned time delays, QAST nutrition professionals were unable to contact each school's convenor individually to discuss their menu. This limited information on how some food was prepared and the types of ingredients used in recipes. A protocol was created with a list of assumptions to aid the analysis process (Appendix C). However these assumptions may restrict the possibility of alternative results and consequently impact overall analysis. However it should be noted that this may also have the reverse effect. Assumptions such as the use of low fat dairy and wholemeal flour in recipes may not be true for all tuckshop menus and consequent ratings.

4.5 Reduced data submissions

Furthermore, only 43 menus, 14 sets of financial data and no usable tally sheets were submitted for analysis. In order to meet the desired number required for the study, the QAST project team self sourced the additional profit and loss and menu data. An additional 157 menus were gathered using a pseudorandom process from information publically available on school websites. Similarly, supplementary financial data was derived from a small set of internal QAST data. As the number of schools was below the required amount, a random selection for financial data could not be drawn. This should be noted as a weakness in the data and subsequent findings.

5.0 Conclusion

School tuckshops play an important role in the provision of healthy food and drink options to students. A positive finding from this survey was that tuckshop menus have improved over the past ten years. This was observed in the difference of best selling menu items between 2008 and 2018. Additionally, the vast majority of convenors also reported they serve salad or cooked vegetables with main dishes. A marked enabler to offering healthier food and drinks to students was the presence of a healthy eating policy which was associated with a higher percentage of GREEN items on the menu.

Convenor perceptions that healthy foods and drink are not popular with students remain consistent since 2008. This is despite the fact that tuckshops with healthier menus experience higher sales volume and profitability than tuckshops with less healthy menus.

The significant challenges found to be affecting Queensland tuckshops include; the need for more paid convenors, a reduction in volunteer contributions, and lack of support from the wider school community plus a shortfall of financial literacy amongst tuckshop convenors.

Smart Choices was reported by almost all convenors as being implemented in some way. A conflict remains however between convenors perception of compliance with Smart choices compared with nutrition professionals analysis. Generally, convenors report a higher percentage GREEN items on menus than that assessed by QAST. The number of menus with more than 50% GREEN has vastly improved since 2008. However, a large proportion of assessed menus also contained RED items. Furthermore, third of convenors recognise that Smart Choices is not implemented throughout the whole school.

A larger proportion of participating convenors held QAST membership at the time of surveying. It was apparent that QAST members value their membership, with general tuckshop support the most helpful aspect. The cost of QAST membership was the greatest influence on why non-members have not joined the association.

QAST's eMenu website has grown significantly since the launch in 2014. Convenors find it easy to use, with recipe ideas the most popular function. Future communications should focus on users creating a registered account to save favourite recipes, devise recipe costing's and design menus, rather than simply view recipe ideas.

Overall, the participating Queensland tuckshops are operating well within the resources available. Most convenors indicate that healthy food is important, but the support to provide it is sometimes inadequate. Tuckshops are not only significant businesses contributing profits to schools, but also act as an important health promotion setting for daily food provision and establishing healthy eating habits amongst students. Therefore ongoing support is required to ensure healthy and sustainable tuckshops can continue to exist.

6.0 Recommendations

6.1 For tuckshops

- *Conduct Student Surveys.* Student preferences are frequently reported as a barrier to introducing healthier menu options. This appears to be an incorrect perception, as it contradicts the finding that tuckshops with healthier menus experience a higher sales volume and profitability than tuckshops with less healthy menus. It is recommended that tuckshops complete more student surveys around food preferences. A student survey template is available on the QAST website.

- *Improve Convenor Orientation Rates.* A large proportion of tuckshop convenors are not receiving any workplace orientation. QAST has recently developed a Convenor Course, ideally placed to deliver general tuckshop orientation to new staff. QAST will perform ongoing evaluation of this course. This will provide valuable information on the impact the course has made on convenor and tuckshop practices plus improve courses for future participants. The impact of this course could also be evaluated in future surveys.

- *Financial Training for Tuckshop Management.* The number of tuckshop convenors and management who were unable to provide profit and loss information, or who were aware of basic financial terms, like mark up, is a concern. These are fundamental financial considerations that need to be addressed if tuckshops are to run as food businesses that cover costs or have a small profit to invest into tuckshop or wider school improvements. The number of tuckshops running at a loss is also unsettling. Tuckshop convenors and management would benefit from basic financial training demonstrating how to access and interpret financial information and ensuring appropriate financial goals are developed and met. Working with stakeholders such as P&Cs Qld is recommended.

6.2 For QAST

- *Increase Financial Support to Tuckshops.* Regardless of the limitations surrounding the financial analysis, it was clear that only a small number of convenors were aware of the overall sales volume for their tuckshop. Additionally, less than half of participating convenors reported their tuckshop had a policy on pricing. Educating and supporting convenors on business and finance matters is highly recommended. QAST currently have a financial service and Tuckshop Tuneup service that assist convenors and tuckshop management with financial issues. These services are currently working at capacity. It is suggested that QAST seek additional funding to grow these services in order to meet the needs of Queensland tuckshops, and collaborate with organisations such as P&Cs Qld to encourage communication and reporting of tuckshop finances amongst the tuckshop management and staff.

- *Review Pricing for QAST Membership.* The most identifiable barrier to QAST membership was the cost of membership. Reviewing membership costs for current and future members is recommended. Alternatively subsidised memberships could provide viable membership choices for tuckshops in various financial positions, while providing stability and reoccurring revenue for QAST.

- *Promotion of Phone Consultations.* General support was by far the biggest enabler for QAST membership. Therefore, the promotion of QAST's existing phone consultation service is highly recommended. This is an existing service where tuckshop staff can book in an appointment online and receive support and coaching over the phone. Due to the vast geographical areas serviced by QAST, it is not possible to have face-to-face support for all members. Therefore promoting and optimising phone consultations could prove mutually beneficial.

- *Nutrition Resource Development.* Nutrition was the top factor reported by convenors when designing the tuckshop menu. However, the average percentage GREEN of menu items as assessed by QAST nutrition

professionals was only 56%. Additionally, a large proportion (90%) of menus contained RED items. Therefore consideration of targeted nutrition articles / blogs targeting tuckshop staff can be an effective way of sharing valuable nutrition information whilst promoting QAST's services.

- *Webinar Development.* Face-to-face and online training was identified as the preferred methods for receiving training. As QAST is unable provide face-to-face training for all members due to the need for long journeys, travel time and costs, online training webinars are recommended. This method of communication and training could answer the needs of convenors by providing face-to-face training online.

- *Expansion and Promotion of eMenu.* A number of convenors reported eMenu as an effective tool for researching recipe ideas. Promotion of eMenu by QAST and other stakeholders is highly recommended. Recipe sharing in conjunction with other agencies producing healthy recipes (including due acknowledgements) is also encouraged. This would ensure convenors are able to rely on eMenu for healthy, tuckshop friendly recipes that are compliant with any associated strategies pertaining to tuckshops and not solely rely on QAST to develop all recipes and appealing images.

- *Marketing of All eMenu Functions.* The recipe costing and menu planning functions are currently underutilised. It is recommended a future focus should be on the promotion of these functions. Communications should also focus on converting recipe viewers into registered users, who can then use a variety of eMenu functions.

6.3 For stakeholders

- *Educating Suppliers.* Convenors have consistently reported suppliers as a trusted support for tuckshops. Training suppliers who regularly communicate with schools is highly recommended. This will ensure any communication regarding healthy food and drink strategies pertaining to schools is consistent.

- *Supporting Tuckshops through Communications and Case Studies.* Stakeholders with available insights on the relationship between perceived student preferences and profitability of tuckshops are encouraged to share these communications with QAST or tuckshops directly. This could be achieved through school case studies. Future projects could also investigate this relationship further.

- *Clarify status of Smart Choices in communications.* The number of schools who report that they have implemented Smart Choices has reduced from previous surveys. There was also a large discrepancy between reported and assessed compliance with Smart Choices on tuckshop menus. This may be due to the lack of timeframe for implementation of changes to the Smart Choices strategy announced in 2016. Communications should reinforce that the overall Smart Choices is mandatory, even if revisions are to be implemented when schools are able. Reinforcement that Smart Choices applies to other areas of the school is also required, as a large number of schools were only implementing Smart Choices in the tuckshop.

- *Investment and Support for Existing Policies.* To continue to improve the healthiness of food services in Queensland schools, a greater investment in Smart Choices resources and infrastructure is recommended. This may aid implementation and remove any uncertainties regarding the policy. Establishing a monitoring and support system is also recommended.

6.4 Future surveys

- *Survey Repetition*. In order to accurately measure changes over time, survey repetition at regular intervals is highly recommended. The Queensland Tuckshop Survey has been performed every 10 years since 1998. This same interval is recommended for future surveys to maintain consistency. Information collected from existing and future surveys is useful for planning and evaluating programs and may assist to inform policy.

- *Increased Survey Planning Phase.* The process to obtain approval to conduct research from DoE and in each of the five Catholic Diocese of Queensland was a lengthy and more complicated process than anticipated. These lengthy approval processes placed pressure on timeframes for CATI commencement, subsequent data analysis and report writing. Future projects should have a three month lead-time to ensure all appropriate approvals are obtained prior to research commencement. This would ensure a good representation of state and non-state schools and project completion on time and budget.

- *Review of Survey Design and Consent Process.* Future projects should consider best methodologies to maximise convenor participation. A learning from this survey is that a verbal consent process, online survey consent form or an 'opt out' method is preferred. This would improve the burden of written consent and improve overall response rates. Determining a clear method for the consent process will also assist in maintaining ethics approval with Human Research Ethics Committees.

- *Collaboration with Online Ordering Suppliers.* Future projects that aim to assess the correlation between menu items and sales data would benefit from co-operation with an online ordering supplier, who can provide sales data on behalf of schools (with their consent), rather than relying on schools to collate and submit this information.

- *Extensive Testing of Survey Question Wording.* Despite piloting the survey prior to commencement, it appears several questions may have been misinterpreted, as highlighted throughout this report. Clarification on wording and associated meaning/s is highly recommended. This will ensure the data gathered is highly relevant and reduce any wording bias.

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