

Qualitative investigation of barriers and facilitators to adoption of the Crunch&Sip[®] program in Western Australian Primary Schools

for the

Cancer Council Western Australia

by

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CBRCC REPORT 120404

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1 Introduction

Currently, a third of Western Australian children (33%) consume less than their minimum recommended daily intake of fruit and more than half (57%) less than their minimum daily recommendation for vegetables, indicating a clear need for strategies to increase the average child's daily consumption.¹ There is robust evidence to suggest that school-based nutrition programs can have a positive effect on children's fruit and vegetable consumption, with three recent systematic reviews suggesting that such programs can increase children's consumption by 0.3–1.0 serves per day.²⁻⁴

Crunch&Sip[®] is one such school-based nutrition program. It involves primary schools scheduling a break in class at the same time everyday for children to eat fruit and vegetables and drink water in the classroom. The program originated in Western Australia (WA) but has also been adopted in South Australia and New South Wales (NSW). In WA the program is funded by the Department of Health in WA and administered by the Cancer Council WA (CCWA).

1.1 Crunch&Sip[®] certification requirements

The requirements for Crunch&Sip[®] certification are for a school to have implemented the following:

- Formation of a Crunch&Sip[®] committee
- Endorsement of a Crunch&Sip[®] school policy
- Teacher involvement in the initial planning process for implementation
- Regular parent communication regarding the Crunch&Sip[®] program
- 80%+ of classes implementing scheduled daily fruit and vegetable breaks.

The Crunch&Sip[®] website currently lists 312 certified WA primary schools,⁵ representing 38% of the primary schools within the state.⁶ It is important to note that once a school is certified, there are no checks in place to ensure the school continues to meet its certification requirements. As such, it is conceivable that some of the 312 certified schools no longer practice daily fruit and vegetable breaks. However, an audit conducted by the CCWA suggests that far more school participate in some form of organised fruit and vegetable break than are currently certified. This is consistent with NSW data that suggest 44% of schools in that state met the criteria for Crunch&Sip[®] certification but 62% implement some form of fruit and vegetable breaks in class time.⁷

1.2 Pilbara Research

In 2009 telephone interviews were conducted with school principals at seven Crunch&Sip® registered primary schools within the Pilbara region. A teacher from each school was invited to be involved in a telephone interview including both qualitative and quantitative techniques. Each interview took 5–15 minutes. It was concluded that participation in fruit and vegetable breaks in class time was affected by the absence of contiguous program coordinators, due to the transient nature of teaching staff within the region. Difficulties accessing fresh fruit and vegetables in rural and remote settings was also a noted barrier.⁸

1.3 NSW Research

A larger telephone survey was conducted in NSW over the summer of 2008/09 with a random sample of school principals from 384 primary schools from both metropolitan and regional areas of that state. The survey consisted largely of closed-ended questions asking participants to respond along four-point, Likert-type scales to a series of statements regarding school practices in regards to fruit and vegetable consumption. The researchers concluded that small schools, those in rural settings, and those in lower socio-economic strata (SES) were approximately twice as likely to implement the Crunch&Sip® program compared to their larger, metropolitan and higher socio-economic strata (SES) counterparts.⁷ Similarly, schools that had trained their teaching staff to implement Crunch&Sip® and those that maintained regular communication about the program with parents were also around twice as likely to have successfully implemented the program. The survey also included an opportunity for respondents to nominate in an open-ended fashion what they perceived to be barriers to implementing Crunch&Sip® within their schools. These are presented in a tally in Table 1 below.

Table 1: Perceived barriers to Crunch&Sip® implementation suggested by NSW principals (n=384)
(source: Nathan *et al.* 2011)

Perceived Barriers	N	%
Overcrowded curriculum	158	41
Parental indifference	136	35
Fruit & vegetable cost/availability	107	28
Teacher indifference	70	18
Teacher capacity	52	13
Classroom mess	28	7
Class disruption	23	6
TOTAL*	574	148

* N.B. total exceeds 100% due to multiple responses

Many of the barriers identified in Table 1 are already addressed in the ‘common questions’ section of the Crunch&Sip® website, with a number of practical recommendations provided on how to deal with such barriers.⁵ These include:

- enlisting the support of key people within the school and utilising a small number of enthusiastic teachers ‘to take the lead’
- regularly sending communications home to parents reminding them to supply their children with a daily fruit or vegetable snack
- reminding children to bring snacks to school by creating weekly or monthly participation charts
- supplying free or heavily discounted fruit and vegetables to financially disadvantaged children through the fundraising efforts of P&C committees, donations from local growers and retailers, and school gardens growing fruit and vegetables.

1.4 Gaps in the Research

There have been many lessons learnt in the decade since Crunch&Sip® was first implemented in WA. The most apparent is that schools be allowed sufficient flexibility to adapt the program to local circumstances. However, gaps in our knowledge remain about how to further increase school participation and retention. Although the NSW data is derived from an impressive sample size, a limitation of the data presented in Table 1 is that it fails to differentiate between real barriers experienced by schools attempting to implement the program from those barriers simply *perceived* by principals who have never actually attempted any form of implementation. It would be highly useful to see how these differ in order to isolate and dispel myths existent in hesitant schools.

There are also interesting inconsistencies between the Pilbara and NSW research. The Pilbara data suggest remoteness impacts negatively on participation in Crunch&Sip® yet the NSW data suggests rural schools are twice as likely to participate in the program as their metropolitan counterparts. One might explain this inconsistency as a function of relative remoteness: schools in the Pilbara region are physically more distant from major population centres than rural schools in NSW. However, this remains conjecture without supporting data.

The suggestion that NSW schools in lower SES are twice as likely to participate in Crunch&Sip® is also surprising, given that ‘cost’ was the third most commonly cited barrier in that study. The price of fruit and vegetables is likely to be more of a barrier to families with lower incomes, and one could reasonably expect parents with lower levels of education to be less aware of the importance of fruit

and vegetable consumption for their children. Unfortunately, the NSW data lacked sufficient detail to clarify this counterintuitive result.

Another finding from the NSW data—that teacher training and parental communication are important predictors for program success—confirms the wisdom of these factors being prerequisites for Crunch&Sip® certification. However, the fact that both *are* prerequisites for certification makes it difficult to gauge the extent to which they contribute towards successful program implementation. It remains possible that these strategies make little independent contribution towards a school’s successful program implementation. However, it is perhaps telling that other prerequisites for certification, particularly the necessity for an endorsed Crunch&Sip® school policy, failed to be a significant predictor of success in NSW schools, suggesting some recommended processes may be more important than others.

1.5 Research Aims

A considerable number of WA primary schools are already Crunch&Sip® certified and their persistence with the program suggests they have enjoyed benefits from doing so. Two main benefits have previously been identified: reinforcing the health curriculum message of consuming fruit, vegetables and water; and improving students’ concentration and learning outcomes via the opportunity to ‘refuel’ in class.⁵ The first research aim of the present study was to:

Research Goal 1

Describe additional factors, if any, which have motivated schools to adopt or reinforce their commitment to Crunch&Sip®.

Given that a number of strategies to facilitate Crunch&Sip® adoption and maintenance have also been identified (see page 3 above). The second research aim was to:

Research Goal 2

Describe previously unidentified strategies, if any, that schools have employed to overcome Crunch&Sip® implementation barriers.

The Pilbara research describes some primary schools implementing Crunch&Sip® sufficiently well to become certified but then subsequently being unable to sustain their commitment to the program. The Pilbara research suggests this may be due to high staff turnover, with motivated Crunch&Sip®

coordinators moving on to new employment and not being replaced with new coordinators. As such, the third research goal is to:

Research Goal 3

Describe the extent to which staff turnover impedes Crunch&Sip® continuation and what additional factors might also be involved.

The NSW data suggest many WA schools may have implemented some form of fruit and vegetable break within class time but never become Crunch&Sip® certified. This may be due to schools perceiving the criteria for certification to be too inflexible, too onerous, or simply unnecessary. The fourth research aim of the present study was to:

Research Goal 4

Determine the reasons why schools already practicing fruit and vegetables breaks in class might choose not to become certified.

Finally, some schools practice no form of fruit and vegetable breaks with their students at all. Given that the NSW data suggest SES and regional location appear to foster, rather than discourage Crunch&Sip® adoption, it remains difficult to predict without further data which schools would choose to implement the program and which would not. The fifth and final research goal was therefore to:

Research Goal 5

Identify barriers to Crunch&Sip® implementation amongst schools that have never attempted to do so.

2 Methodology

2.1 Participating Schools

In accordance with the research goals of the present study, CCWA supplied a list of Western Australian schools fitting into one of four categories:

1. Crunch&Sip® certified schools currently implementing fruit and vegetable breaks in class
2. Non Crunch&Sip® certified schools currently implementing fruit and vegetable breaks in class
3. Crunch&Sip® certified schools currently not implementing fruit and vegetable breaks in class
4. Schools never Crunch&Sip® certified and not implementing fruit and vegetable breaks in class.

From this list, schools were contacted and invited to participate in the research. Principals were the first point of contact at each school. They were told the research was being conducted by Curtin University investigators collecting data on ‘how health is incorporated into school curriculums’—rather than Crunch&Sip® specifically—in order to minimise the bias of the final sample and the likelihood of giving socially desirable responses from participants. A sampling quota was devised to recruit equal numbers of schools from:

1. upper versus lower SES
2. regional versus metropolitan areas
3. Crunch&Sip® certified versus not certified
4. currently implementing fruit and vegetables breaks in class versus not doing so.

One school was sought from each of the resultant sixteen categories of schools created by the sampling quota. Of 23 schools contacted, 16 agreed to be involved, representing a consent rate of 70%. The quotas were filled for all categories except three regional schools before the list of schools supplied by CCWA was exhausted. In each of these cases a school from a nearby sub-category was substituted. The final breakdown of schools was eight Crunch&Sip® certified schools and eight non-certified, eight schools currently implementing fruit and vegetable breaks within class time and eight not, eight from the upper half of SES and eight from the lower half, but ten Perth metropolitan schools and only six regional schools (see Table 2 overleaf).

Table 2: Participating schools by Crunch&Sip® certification, regularly scheduled fruit and vegetable breaks, region, and socio-economic status

		Certified Crunch&Sip® Schools		Non-certified Schools		N
		Metropolitan	Regional	Metropolitan	Regional	
F&V breaks	High SES	Nedlands Primary School	North Kalgoorlie Primary School	Goollelal Primary School Maylands Peninsula Primary School	-	4
	Low SES	Thornlie Primary School	Picton Primary School	Westfield Park Primary School	Augusta Primary School	4
no F&V breaks	High SES	Heathridge Primary School	Parklands Primary School South Newman Primary School	Mount Hawthorn Primary School	-	4
	Low SES	Balga Primary School	-	Coolbellup Community School Mooditij Noongar Community College	Sacred Heart School	4
	N	4	4	6	2	16

From these schools, 21 telephone interviews were conducted with staff. Ten interviews were conducted with school principals and eleven with other teachers, including four who held the 'health' portfolios at their schools.

2.2 Procedure

Each interview took between 15 to 45 minutes and was completely unstructured. Attempts were made to conceal specific interest in the Crunch&Sip® program for as long as possible so as to minimise socially desirable responses. Participants were first asked to broadly describe how health was being incorporated into the school's curriculum. Interviewers steered questioning towards nutrition, and the Crunch&Sip® program specifically, if this was mentioned spontaneously by participants. For participants who failed to mention Crunch&Sip® spontaneously, interviewers kept asking for further examples of nutrition initiatives employed by the school, and failing that, initiatives the school had considered. Even when asking specific questions about the Crunch&Sip® program, interviewers contextualised these within the broader context of the school's entire health curriculum so as to mask the specific purpose of the study.

Interviews were audio-taped, with the consent of participants, and later reviewed by the researchers. All interviews were transcribed and entered into the software package *QSR NVivo* (v.9). Through this method, 16 major nodes were identified with a further 60 sub-nodes. These were then structured with the aim of answering the five research goals. The results of this analysis are presented hereafter.

3 Results

3.1 Nutrition versus Physical Activity

When initially describing how health was incorporated into their school, participants tended to mention physical activity long before nutrition, regardless of whether they were from a Crunch&Sip® certified school or not. An analysis of the language used to describe physical activity programs in schools suggested most principals and teachers considered it a natural part of their core business.

“Sport is huge at our school”

“We really value our physical education program”

“We try to expose our students to lots of different kinds of movement”

This contrasted with their descriptions of nutrition programs, which were frequently couched in language suggesting schools considered these to be initiatives in addition to core business.

“Nutrition is not only covered during in-class lessons, we try and go that extra step”

“We have a philosophy that by doing all the little extra things then that makes a good school”

This seems to suggest that physical activity programs are entrenched within the psyche of most schools, whereas nutrition programs are not, possibly due to the greater roles schools have historically played in physical education compared to nutrition. It may also have been exaggerated by the introduction of the government mandate for schools to ensure students achieve at least two hours of physical activity per week; this mandate was mentioned frequently during interviews. Thus, until such time as the government mandates Crunch&Sip® as a compulsory program within all WA schools, school-based nutrition programs will probably continue to be viewed as less of a priority than physical activity programs.

3.2 Rewards of Crunch&Sip® participation

The various motivations suggested by schools for participating in Crunch&Sip® were clustered into eight nodes as outlined by theme hereafter.

3.2.1 Direct Health Benefits

One of the most frequently suggested and obvious motivations for participating in Crunch&Sip® is the direct health benefits children gain from increasing their daily intake of fruit and vegetables.

“Number one is that they’re eating good food”

“It’s just another way to get a bit more nutritious food into them”

“It’s an extra piece of fruit that they probably wouldn’t eat normally”

“They’re healthy, they’re energetic, they’re well, they’re not buzzing out with too much sugar, and they’re not going without food”

“There are certainly kids bringing in fruit that didn’t bring in fruit before”

3.2.2 Reinforcing Nutrition Education

As educators, participants particularly appreciated the synergistic way that Crunch&Sip® reinforced the health messages being taught to students within the classroom. The general consensus was that providing children the opportunity to put into practice what they are being taught is one of the best ways for them to learn.

“Children learn a lot better by doing instead of face-to-face teaching—it’s a way of getting them involved—everyone is involved”

“It’s a bit less of ‘do as I say’ because you get to put it into practice each day”

“as teachers covering health ed. you talk about nutrition and healthy eating, but if you have a whole school program—like Crunch&Sip®—then it’s going to have far more impact than just a 30 minute lesson over 5 weeks”

“At the same time it helps teachers reinforce the healthy message”

“It reinforces the message the school is already trying to communicate”

3.2.3 Long-term Healthy Lifestyle Modelling

Many schools felt confident that exposing their students to fruit and vegetable consumption on a daily basis at primary school age would empower the children to make independent, healthy food choices for the rest of their lives.

“We see both immediate and future benefits for the kids from Crunch&Sip®”

“It’s not just healthy eating—it’s giving kids skills and knowledge for life”

“We’re trying to make sure they’re better off in 30 years’ time because of something they’re doing now”

“It’s about lifestyle, so kids learn now how to have a healthy lifestyle for when they leave school”

“It’s about promoting a lifestyle to them—it’s not just about the direct health benefits”

3.2.4 Straightforward and Simple

Many schools mentioned that a major attraction of the Crunch&Sip® program is its simplicity, making it a relatively straightforward program to implement.

“It’s uncomplicated—there’s no controversy about it—the facts on it are very clear in that it’s beneficial to your health so there’s every reason for us to promote it without working around any issues or whatever the case may be”

“It’s a pretty uncomplicated program”

“It’s not a difficult program—and the catchy name helps”

“It’s so simple, so straightforward—it doesn’t really involve us teachers doing much at all”

3.2.5 Evidence-based

For some schools, the fact that the Crunch&Sip® program has been established upon a sound evidence-base made the program instantly attractive.

“If a program comes with the evidence-base that it actually works, then it has a bigger chance of getting a guernsey in the school”

“That’s the way that schools are required to head these days”

“It’s less and less about ‘this sounds like a good program let’s do it’—it’s more about whether the research backs up what the program claims to be able to achieve”

3.2.6 Improved Concentration in Class

Many participants believed that Crunch&Sip® breaks improved children’s concentration levels and overall behaviour in the classroom.

“We found that children were lacking energy in the afternoon. It [Crunch&Sip® breaks] adds ‘fuel the tank’ to allow them to continue through the afternoon”

“It comes through the classroom—discipline-wise—the kids are more focussed and less likely to be distracted”

“The idea is we use it as a little bit of a spark to get them through the afternoon”

“It gives them a bit of a boost”

Indeed, one principal suggested his school adopted Crunch&Sip® primarily as a strategy to improve overall classroom behaviour, and suggested it had been highly successful at achieving this goal.

“We had heard it could be a possibility to improve concentration in the class, work levels, all those sorts of things. We’re really quite pleased with the results”

Some participants believed that improvements in behaviour could also be attributed to the children consuming whole foods rather than additive-laden processed foods.

“There’s a direct correlation between what kids eat and the way they behave at school”

“The kids with reasonable food inside them are more able to concentrate and focus on the lessons”

Largely for this reason, schools typically aimed to implement Crunch&Sip® breaks midway through the longest period of lessons throughout the school day. Depending on the school, this was either at around half-past-nine in the morning, or around two o’clock in the afternoon.

“We’ve got some kids who don’t eat a lot of breakfast so it seems to bring focus to kids who are a bit hungry”

“I think it’s very good because we stop every day at 2 o’clock and it saves them being really hungry when they get home and it just picks up their energy levels”

3.2.7 Enjoyable for the Children

Schools consistently reported that their students very much enjoy having Crunch&Sip® breaks in class.

“Oh they think it’s great”

“I think they like it because they get a break in the afternoon”

“The kids look forward to it—it’s a socialising time as well”

“The kids love it because they get to eat and drink in class”

“The kids that have fruit think it’s great. The kids that don’t bring fruit think it ‘sucks’ because they’re not allowed to eat their food”

3.2.8 Positive Parent Feedback

A number of teachers had received positive feedback from parents whose children had increased their requests for fruit and vegetables since the school had implemented Crunch&Sip®. It was evident that the teachers found this to be particularly rewarding.

“We’ve got positive comments from the parents already—changes in their kids’ choices”

“parents were saying ‘my kids have never asked for any kind of fruit or vegetable in their lunch box, and now because the school’s done the Crunch&Sip®, everyday it’s ‘I need Crunch&Sip® for 10 o’clock’ “

3.2.9 More Time for Physical Activity

One oblique benefit suggested by several schools was that Crunch&Sip® breaks during class allow children to spend more time being physically active in the playground, because they don’t need to spend as much time eating before they play.

“They’re having all of that recess time to run around and play”

“The kids can use the whole recess break to be physically active—Crunch&Sip® promotes that aspect for us as well, for sure”

Other participants noted that without Crunch&Sip®, eating often directly competed with physical activity as children tended to rush their food in order to start playing as soon as possible.

“We worked out that if kids were able to eat the fruit before recess time they were eating something healthy and then they would go off and have their 20 minutes play—otherwise they’d take one bite of their apple, throw it in the bin and run and play”

“We found kids at recess time wanted to go and play—for the 20 minutes they weren’t stopping and eating”

3.3 Reasons for Crunch&Sip® Success

Schools currently implementing the Crunch&Sip® program were asked why they believed they were able to successfully maintain the program. Three main themes emerged.

3.3.1 Teacher support

Consistent with the NSW data, the principals of successfully participating schools identified teacher support as a crucial factor in the success of the program.

“As it happens during class time, all teachers need to be on board with it”

“All the staff were given the opportunity to discuss it and we all agreed to implement it”

“The whole staff is on board”

“We’re all for it, definitely”

“No one has said ‘I don’t have enough time in the day’ ”

“All the teachers thought it was a great idea—as teachers all we want for them to do is eat healthy all the time anyway—because if they don’t eat healthy they’re a pain in the class”

“Staff are very supportive”

“I think a top-down approach rarely works”

“It’s a matter of getting the ground-swell of staff to implement a particular program”

A comment from one regional school also highlighted that it is far easier to get staff consensus in small schools, thereby potentially clarifying why the NSW data suggested small schools are twice as likely to successfully implement the program as larger schools:

“In a school this size, it’s kind of one in all in”

3.3.2 Parent Support

Another important factor identified by schools was having ongoing support from parents, consistent with the other main factor identified by the NSW study.

“Oh, it makes it so much easier”

“If the school didn’t have parent support it wouldn’t work”

“You’ve got to have the parents involved as they’ve got to send the fruit in”

“Parental support is absolutely important”

“Parental agreement is absolutely important”

Differences in parental support were most evident by SES. Typically, the parents from upper SES schools were more likely to be described taking an active interest in their children’s education, being generally health conscious themselves, and being supportive of the goals of Crunch&Sip®. For most such schools, parental support was taken for granted.

“There’s generally high interest amongst the parents”

“They’re a pretty engaged crew”

“Most of the parents have pretty healthy lifestyles themselves”

“You can see they’re [the parents are] health conscious”

That is not to say that all lower SES schools reported difficulties with parental support. Amongst successfully participating schools, there was some suggestion that putting in particular effort to educate parents about the program was initially required, but once the parents understood the goals of program, most became wholly supportive.

“Once they understand it they’ll really work to adhere to it”

“We tell them ‘you’ve got to eat, so you might as well eat something half decent’ ”

“It’s quite unusual to have a parent who’s not adhering to it”

“The parents go out of their way—they really want to look after their kids”

“The parents at this school really like it”

“They appreciate it”

“In fact, we find parents will go out of their way to buy that sort of food”

“We have no issues from parents—it’s just a part of every family’s budget”

However, as shall be discussed in the next section, amongst schools from some of the most disadvantaged areas, lack of parental support can be a ‘deal breaker’ for program implementation.

3.3.3 Entrenched Within School Culture

Many certified schools reported that Crunch&Sip® had reached such a point of integration within daily class routines that it was virtually unnoticed as a discrete program. Interestingly, non-certified but implementing schools reported much the same.

“It’s certainly well and truly entrenched”

“It’s just there a part of the school structure of the day”

“It’s just part of the culture of the school now”

“It doesn’t need a lot of looking over or tinkering”

“It’s just part of the school day”

“It’s a regular part of daily life here”

“Crunch&Sip®’s just a normal part of everyday now”

“It’s become seamless”

One principal emphasized just how ingrained Crunch&Sip® had become at his school:

“It’s so entrenched at the school now that someone would have to go about actively deconstructing it [Crunch&Sip®] to disappear”

3.4 Crunch&Sip® Certification

When Crunch&Sip® certified schools were asked why they had decided to become certified, some felt it was simply a logical progression of program implementation. None could recall barriers or difficulties in becoming certified. Indeed, all claimed it was an “easy” process.

3.4.1 Part of the Bigger Picture

By becoming certified, schools reported feeling a greater sense of belonging to the wider program. It provided a sense of ownership of the program and adoption of the policy provided direction for the entire school community.

“We are all adults here and we understand what we should be eating, but when you belong to a program it just helps steer the school in the right direction”

“So the motivation is really to belong to something and to say we are part of that program and to say this is what we do”

“You become part of the bigger picture”

“We did it so we could be ‘singing from the same song sheet’ ”

3.4.2 A Unifying Force

Some schools suggested that going through the certification process helped engender a greater sense of ownership of the program for the whole school, rather than just a few program champions.

“It was through that process that we felt that by doing that we got ownership and the staff had ownership, there was a sense of accountability—it became a whole school project rather than from one or two particular classrooms’ point of view.”

“It gave us a sense of ‘let’s do this together as a whole school and make it a part of our program’ ”

“It creates staff ownership—being involved with it—then taking ownership of it and then from there they take it to the rest of the staff”

3.4.3 Funding

One motivation for becoming a Crunch&Sip® school was the funding allocated to some schools for becoming certified.

“We have registered to be a Crunch&Sip® school and to kick start that we got a \$600 grant”

However, no school who received funding believed that it was sufficient to ever sustain the program.

3.4.4 Information

By becoming certified, some schools felt they would be “better informed” about up-to-date Crunch&Sip® educational materials and upcoming events and competitions.

“I think like most things by jumping in with both feet you get all the other benefits—I mean that’s not the motivation but it is ‘something for nothing’ — you are certified plus you get all the information and you are ‘one of them’ so to speak”

3.4.5 Merchandise

A common reason why schools chose to become certified was in order to obtain ‘motivational materials’ such as the plaque, water bottles, bookmarks and tally charts.

“The Crunch&Sip® plaque is good as it serves as a constant reminder to us to keep up the program”

“We’ve already received some stuff but we’re intrigued to see what else is coming”

“I believe once we are up and running we will have more goodies coming”

The water bottles were particularly popular as schools felt children having their own Crunch&Sip® water bottle helped them take ownership of the program. It was mentioned by a few teachers that since becoming a certified school they no longer received water bottles and would like to see a resupply, particularly for new students each year.

3.5 Barriers to Crunch&Sip® Certification

When the uncertified but participating Crunch&Sip® schools were asked why they were yet to formally become certified, it was apparent that many had made a deliberate decision not to do so. The reasons schools provided are presented by theme below.

3.5.1 Paperwork

Some schools perceived the certification process to be an arduous task for which they were unwilling to dedicate time.

“To be honest, all the paperwork and that, that goes with being certified—time to fill it out—there’s no real benefit to us in doing it, so it’s not on our high priority list”

“There are other things that are mandated in the classroom and Crunch&Sip® doesn’t fall into that category for us”

“It’s more because we’ve got so many other things going on too”

“If we didn’t do all the other things then I’d probably have time for that as well”

“We’ll implement everything first—all the other programs too—and implement the policy later. We want the kids to start enjoying it rather than waiting for us to do the paperwork”

“I would rather be teaching the kids”

“We just don’t have any time”

“It’s a workload issue”

Given that certified schools universally described the process as ‘easy’, non-certified schools were asked if they knew what was actually involved in becoming certified. Most admitted they had no idea but suggested even dedicating time to find this out was a low priority for them. As such, it seems likely that the biggest deterrent to becoming certified is the assumption that it is a labour-intensive process.

3.5.2 Specific Crunch&Sip® policies

Another suggested reason why some deliberately chose to avoid becoming a certified Crunch&Sip® school is because they did not want a separate policy for each extra-curricular program they implemented. These schools preferred a holistic, all-encompassing school policy on health and suggested that having a separate Crunch&Sip® policy would detract from this vision.

“We’re actually trying to get to the point of having one policy that’s more about sustainable living”

“The things we do have to fit into the direction of the school”

“We didn’t want a plaque to sit on the wall just for Crunch&Sip® because we’re doing so much else as well”

3.5.3 Simply Unnecessary

Finally, some schools felt they did not need to become a certified school as they could perceive no extra benefit in it. Many of the schools suggested they are *“doing it anyway”* and their greatest satisfaction came from knowing their students were benefiting from the program; no school plaque was necessary.

“We don’t need the extra bits—the acknowledgement”

“Realistically, the benefit of Crunch&Sip® is doing it with the kids—not in getting a plaque to sit on the wall”

“It is already intrinsically rewarding for the teachers”

3.6 Barriers to Crunch&Sip® implementation

Schools that had attempted to implement Crunch&Sip®, but failed, provided a number of explanations for what happened.

3.6.1 Not bringing in fruit or vegetables

Some schools encountered problems with children persistently not bringing any fruit or vegetables to school to participate in Crunch&Sip®.

“We tried for three years but decided to stop last year because a lot of the kids didn’t bring anything no matter how much we ‘sold’ it”

“Lots of kids weren’t bringing anything in. Ideally we would like everyone to bring it in, so when it’s 10 o’clock everyone can pull out their fruit and vegetable stuff and can have their water bottle”

“We are seeing some kids who never bring anything it”

“The teacher really has to ‘push’ it because some children don’t bring anything”

3.6.2 Lack of parental support

Schools largely attributed children’s failure to bring fruit and vegetables to a lack of parental support for the program. This was consistently identified as the foremost barrier to the success of the program, particularly those from the most disadvantaged areas.

“The problems existed from the word ‘go’ because of the lack of support from home”

“We don’t have a huge support-base with parents”

“They’re not going to rush to the shops so their child can take an apple to school the next day”

3.6.3 Poverty

Several schools in lower SES areas suggested that many parents in their catchment lived on limited means, and were poor at budgeting and planning ahead.

“Often the problem was parents literally being able to organise themselves to make sure they’ve got the fruit in”

“I don’t think they [parents] object to it—it’s just a question if they haven’t got any apples or anything available in the house”

“Our parents don’t plan for the future”

“Our parents aren’t that good at organising themselves”

“By Monday, there’s no money left”

“Quite often on a Monday morning, our parents have spent all their money and they’re hanging until the next pay day”

“Our parents don’t particularly have the organisational skills to organise themselves to make sure they’ve got the bread and the fillings and the muesli bars and everything you would expect to see in a lunch box”

“They don’t budget very well”

“They are typical of people living in poverty”

“When they’ve got money they spend it—they don’t give a thought to the next day—or the day after or the day after”

“They’ve got it, they spend it”

“In a place like this...Centrelink payments would usually come in on a Thursday and shopping would consist of packets of chips and McDonalds, etc.”

“Sometimes kids would be lucky to get a sandwich, bread, jam or anything”

3.6.4 Laissez-faire attitudes toward nutrition

The same schools reported that many parents appear unconcerned about their children’s diets.

“If the parents tend to get them anything at all it’s fast food”

“At a guess, 80% of children’s parents don’t care very much about what their children eat”

“Because of their demographic and the income they’re reaching for things that are easiest to prepare”

“Many don’t have a lot of time to prepare food, or if they do, they’re finding things that are convenient”

“It’s easier for them to give their kids five dollars and order from the canteen every day”

3.6.5 Lack of parental knowledge

Some schools speculated that parents' lack of concern could stem from a lack of education about healthy eating.

"Education of the parents is absolutely what the problem is"

"Lots of parents didn't understand what's a healthy snack. It became 'yes/no' for what they were allowed to bring"

Several schools attempted to educate parents via workshops or by providing information in school newsletters to combat this problem.

"We're trying to educate the parents as well as their children"

"Healthy eating tips and suggestions for lunchboxes have been put in the school newsletter"

"We're trying to do a total education package for the whole family"

"It's not easy—50% of my school is ESL and of those 70% are here on refugee visas"

3.6.6 Supply of Fresh Produce

For the students in lower SES schools where fruit and vegetables are generally not supplied by parents, no schools were prepared to supply fruit and vegetables out of their own budget.

"We are not funded by anybody to feed these kids"

"For us to do something like that we would have to provide all the Crunch&Sip® [fruit and vegetables]"

Some schools had secured fresh produce donated by local supermarkets or orchards. However, acquiring the actual produce was only part of the problem, as detailed hereafter.

3.6.7 Food Transportation and Preparation

Even for schools with arrangements for locally donated fresh produce, there remained the issue of transportation. Often, teachers collected the donations voluntarily, and then prepared it for consumption, but this was viewed as unsustainable, especially if required on a daily basis to satisfy the Crunch&Sip® certification criteria:

“We’d have to do it all but we just don’t have time—we’re a pretty skeleton crew up here”

“You’ve got to have someone cut it up”

Teachers who were disinclined to go to these lengths indicated they would be more supportive of the program if children brought in cut fruit and vegetables, or if parent volunteers helped prepare the produce, such as was commonly reported in schools from less deprived areas. No teachers felt they had sufficient spare capacity to dedicate their own time to cutting up the fruit and vegetables for Crunch&Sip®.

In one school, canteen volunteers helped cut up the fruit and vegetables. However, this school reported difficulties delivering the prepared fruit and vegetables to classrooms at a consistent time every day, causing some teacher concern about the program due to erratic classroom disruptions.

3.6.8 Classroom Disruption

Consistent with the NSW data, many teachers felt Crunch&Sip® took up too much of their class time in an already crowded curriculum. Similarly, additional delay caused by younger children eating too slowly was cause for frustration.

“We thought it took away from learning time”

“We’re a school and we need to educate”

“It wasn’t feasible to take 20 minutes out of the lesson to eat a piece of fruit”

“Classroom teachers were finding it another chore in the day”

Some teachers also complained that children required more toilet breaks due to the constant availability of their water bottles in class, also causing class disruption.

“Because they’re sipping water all the time, children want to go to the toilet more often”

3.6.9 Slipped Between the Cracks

Some schools suggested that Crunch&Sip® simply ‘fell by the wayside’ without any deliberate decision to ever stop the program.

“It just slipped between the cracks”

“It just stalled”

“There is so much to do and so much going on [in the school] it literally just got forgotten in the scheme of things”

“When all that’s happening [suspension, assault cases, etc.] to be honest taking five minutes out to bite an apple and have a drink of water isn’t a top priority”

“I think it just got lost”

“No one made a conscious decision to stop doing it”

“It sort of just fizzled out”

3.6.10 Absence of a Crunch&Sip® Co-ordinator

Consistent with the Pilbara data, a number of schools, especially in rural areas, attributed the demise of the program to Crunch&Sip® co-ordinators moving schools and no one else volunteering to pick up the role. Some suggested the Crunch&Sip® co-ordinator was the lynchpin predicting the success or failure of the program.

“All the programs in the school depend on somebody giving their time to maintain the program”

“If a person is responsible for it then the program doesn’t die”

“You must have someone willing to do it”

“Someone has to bother to do it, who receives the e-mails and acts on them”

In contrast, some schools where Crunch&Sip® has achieved 'entrenched' status no longer have program coordinators, but the program continues unabated.

"It's just continued on because it had enough momentum of its own"

"It's so simple, so straightforward, it doesn't really involve teachers requiring to do anything"

This suggests Crunch&Sip® co-ordinators are most important in the establishment and early maintenance of the program, until 'entrenched status' has been achieved.

4 Discussion

The present research provided data from sixteen schools representing a good mix of SES, metropolitan and regional, and Crunch&Sip® certified and non-certified stratifications. These schools agreed to participate without knowledge of our specific interest in the Crunch&Sip® program, thereby minimising specific response biases regarding the program. As such, we can be reasonably confident that the data yielded from the present sample are sufficient to generalise to a diversity of schools within the state.

Perhaps the foremost conclusion from the present data is that nutrition programs are viewed as non-core school business in contrast to physical activity programs. From a strategic viewpoint, this presents a clear direction for Crunch&Sip®. The assumption that schools should place greater value on physical activity than nutrition should be challenged in a long term program of social and political engineering and advocacy.

In the shorter term, the present research yielded a rich array of data regarding the Crunch&Sip® program. These clarified a number of conflicting results from the NSW and Pilbara studies, reinforced the wisdom of many current program policies and practices, and provided a number of novel insights. The two main factors previously identified for motivating schools to participate in the Crunch&Sip® program were that it: 1) reinforces the health curriculum message of consuming fruit, vegetables and water; and 2) improves students' concentration and learning outcomes via the opportunity to 'refuel' in class. On the whole, the present results confirmed these factors as the most significant motivators for schools, while at the same time providing some new insights.

First and foremost, the Crunch&Sip® program was admired for its 'catchy' title, simplicity and intuitive appeal. Being educationalists, both principals and teachers admired the program for its qualities of reinforcing nutrition messages learnt in class, especially given that it was an enjoyable activity for the children. Schools also perceived a number of positive health outcomes of participation, including students' immediate increases in consumption of whole foods, displacement of 'junk food' consumption, and positive reinforcement of longer term, healthy eating behaviours. Some schools also mentioned a previously unidentified, indirect health benefit that they attributed to Crunch&Sip®, namely that consumption of fruit and vegetables in class increased students' time for physical activity during recess. Some schools from lower SES also saw the program as highly complementary to their efforts to feed hungry children sent to school without breakfast and/or lunch.

Many schools attested to the Crunch&Sip® program improving students' concentration in class due to the 'mental break' it afforded them, which in turn was associated with better classroom behaviour. Indeed, this behavioural outcome was actually the main attraction for instigating the program for at least one school, with the health outcomes being a welcome but secondary outcome. An interest in maintaining concentration levels was also a key interest of schools using the program to combat the hunger associated with students being sent to school without breakfast or lunch. Some schools were also convinced that children's consumption of fruit and vegetables lead to lower hyperactivity due to the displacement of food additives contained in processed foods. The anecdotal basis of the food additive claim, and other general behavioural claims, means that these are difficult to objectively confirm as benefits of the Crunch&Sip® program. However, these claims are all testable hypotheses, which could be confirmed through properly designed comparison trials, the evidence for which would provide powerful data to advocate for the program.

One less immediately obvious appeal of the program was that some schools felt part of the 'bigger picture' by participating in the Crunch&Sip® program. Such schools appeared to value the esteem associated with being Crunch&Sip® certified and had integrated 'membership' of the program into their social identity. Such schools placed great value in overt indications of 'membership' such as displaying the program plaque. This is obviously a highly desirable goal as it suggests such schools will remain steadfast participants. However, there were other schools for which certification appeared to hold little allure in terms of increasing their school's esteem—if there is such a thing as a school with high self-esteem, these schools had it already—and consequently the promise of certification with accompanying plaques was not a motivating factor. This high 'self-esteem' typically corresponded to schools in high SES, offering at least one explanation for why the NSW research suggested schools from lower SES were twice as likely to be Crunch&Sip® certified.

Within non-certified schools that were practicing fruit and vegetable breaks, there were also instances of principals being unwilling to invest the necessary energy to undertake the necessary steps to become Crunch&Sip® certified under the false assumption it would be an arduous task. However, principals that *had* gone through the certification process universally described it as a simple and relatively painless process. Therefore, the program might consider promoting the ease of the certification process to vacillating principals by providing an average amount of time required by previous schools to complete the process, complemented by a few testimonials from other principals for added authenticity.

Two schools, both from low SES, mentioned being persuaded to implement the Crunch&Sip® program after being offered financial incentives to help cover setup costs. These incentives were quite modest and the principals at both schools clearly indicated the amounts would be inadequate to make the program sustainable in anything but the short term. Nonetheless, both principals were willing to attempt to implement the program in their schools, suggesting some pre-existing level of interest in the program for which the financial incentives were sufficient to ‘tip them over the cusp’. Related to financial incentives, many schools greatly valued the Crunch&Sip® merchandise and were keen for resupply. The positive reinforcement and goodwill generated by supply of the merchandise should not be underestimated.

Most schools suggested that the best predictors of successful program implementation are teacher consensus and parental support; affirming the wisdom of current Crunch&Sip® program guidelines that emphasise the importance of these factors. Principals at schools where the program had been successfully introduced described teacher consensus as ‘essential’ in order for teachers to have a sense of joint responsibility and ownership of the program. In the smaller schools, where the influence of a single Crunch&Sip® coordinator represented a greater proportion of staff, teacher consensus appeared easier to achieve. At larger schools it appeared easier for teachers to be non-committal and ‘slip through the cracks’ of Crunch&Sip® implementation. These results are consistent with the NSW research suggesting smaller schools were twice as likely to be Crunch&Sip® certified. However, smaller schools, especially those in rural areas, appeared to be more affected by staff turnover when Crunch&Sip® coordinators left and were not necessarily replaced, consistent with the Pilbara research. The loss of Crunch&Sip® coordinators appeared to have a varied effect on the continuation of the program at schools. For some it had a crippling effect but at others, where the program was already thoroughly ingrained, coordinators no longer seemed necessary. Thus Crunch&Sip® coordinators appear to be crucial in the early and intermediate stages of program implementation but perhaps even unnecessary at the mature stage of implementation.

Some teachers described allocating sufficient time to implement fruit and vegetable breaks into daily class routines as a difficult thing while others described it as routine. The crucial difference between such groups appeared to be how well established was the Crunch&Sip® program within the culture of the school. In schools where the program appeared to be thoroughly ingrained teachers seemed to accept the fruit and vegetable breaks as a normal part of daily class practice—much like virtually all schools viewed physical activity. In contrast, in schools where there was a level of ambivalence about

the Crunch&Sip® program, some teachers seemed to view the breaks as an added imposition upon them in an already overcrowded curriculum.

Parental support was easily achieved within most schools as most parents were sufficiently educated to understand and appreciate the rationale of the Crunch&Sip® program; indeed many were approving and even grateful. Predictably, the schools encountering the greatest difficulty fostering parental support were those located in areas of deprivation and low education. Some schools had attempted to educate parents about the rationale for the program via leaflets and information sessions but this seemed to have met with mixed success. If it is not already practiced, such schools might benefit from standardised Crunch&Sip® parent education materials, freeing schools from the necessity of developing such themselves.

Finally, some schools faced a near herculean task to overcome the various barriers to certified implementation of the Crunch&Sip® program. The most reliable manner by which these problems seemed to be overcome was for the schools to arrange their own supply of fresh produce, usually without funding and only manageable via donations from local businesses, Foodbank, parent volunteers to prepare the fruit, etc. The necessity to supply fresh produce every single school day appeared to be one of the greatest barriers to some schools seeking certification. As such, it is recommended that the strict requirements for certification might be made slightly more flexible to take into account local circumstances.

5 Recommendations

In summary, the following recommendations are made:

1. Pursue a program of social engineering to make nutrition as high a priority as physical education at schools.
2. Investigate the feasibility of empirically testing the benefits of Crunch&Sip® program implementation in a controlled comparison trial at matched schools.
3. Produce testimonial materials attesting to the ease with which the paperwork associated with Crunch&Sip® certification can be fulfilled.
4. Ensure certified schools are resupplied with Crunch&Sip® merchandise on a regular basis to account for new students.
5. Develop standardised Crunch&Sip® parent education materials, if these do not already exist.
6. Consider making certification requirements flexible to recognise local circumstances.

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