

Cooking literacy

The role of the school curriculum

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Introduction

Food is one of the fundamentals for life. It not only sustains life, but can also support good mental and physical health, improving wellbeing, productivity, and quality of life. For children and youth it optimises their ability to learn, their educational achievement and allows them to reach their full potential.

The food environment we now face is increasingly complex and difficult to navigate. Its influence makes it increasingly difficult to have a nutritious and healthy dietary pattern. There is a strong awareness of the need to help people navigate the food system if they are to make choices that will protect long-term health.

Childhood and adolescence is a key developmental stage where habits are being formed and skills learnt that set children up for a positive future. The role of parents, school and society is to help our children develop the basic life skills they need to deal positively with the demands of everyday life. Being able to prepare and cook a healthy dinner meal (cooking literacy) is one such essential skill.

Cooking literacy is important. We cannot expect people to take control of their health and make healthy choices if they do not know how to choose and cook foods.² It is also important for:

- understanding and control: understanding what makes up a healthy food and meal, and building the ability to choose nutritious foods;
- choice: empowering with the choice over what is eaten instead of dependency on convenience and fast foods;
- life skills: enhancing life skills through the ability to feed self and family.

Vegetables.co.nz has recognised the general decline in skills and ability to cook healthy meals in New Zealand. It is particularly concerning that our children and young people are growing up knowing little more than how to cook toast or turn on the microwave.

Vegetables.co.nz is therefore calling for cooking literacy to be strengthened and prioritised within the core school curriculum, so that all children in New Zealand grow up empowered with the knowledge and skills to cook their own healthy dinners.

Teaching cooking literacy to children gives them a skill for life leading to better nutrition and thereby lowering the risk of health problems, which will provide a better positioned workforce and long term savings for New Zealand's health system.

Executive Summary

There are many indicators that cooking literacy is on the decline in New Zealand and internationally. Cooking was once part of the school curriculum and this, along with parental instruction, were the main ways children learned to cook. Cooking literacy is no longer part of the curriculum, and family structures have changed resulting in less opportunity for acquiring cooking literacy. As youth transition into adulthood, they often lack the essential and basic life skill of cooking their own meals.

A lack of cooking literacy in a household lessens food choices and creates reliance on ready-prepared and fast food. This is associated with poor nutrition and has adverse immediate and long-term health effects. For children, poor nutrition limits their 'opportunity to learn', increases their risk of overweight and obesity, and places them at higher risk of long-term adverse health outcomes. This in turn impacts on educational attainment, quality of life, income, and productivity and places a strain on our health system.

Although the evidence on cooking literacy programmes is not high quality, it has consistently suggested the efficacy of such programmes to improve cooking ability and cooking confidence in children and youth. This in turn has been associated with better diet quality. When assessed, most cooking literacy interventions seem to improve some aspect of diet, such as preference or intake of vegetables. Longer-term health outcomes have rarely been assessed, although there is some indication of a positive benefit on body weight. Furthermore, improved cooking skills may lessen the impact of food poverty, which is experienced by one in five New Zealand households. Taken together, evidence supports the potential of cooking literacy to influence factors that impact on health, educational outcomes, and obesity. Creating change in the underlying factors could potentially minimise burden on the health system and support a productive and engaged workforce.

In essence, if we are going to ask people to learn about healthy eating and make healthy choices then we must ensure they have the skills and ability to follow through. Developing the ability to prepare healthy meals will empower our children and youth to be able to access and enjoy a nutritious diet within their own budgetary, cultural, social and time constraints over their lifetime. The school curriculum is the most appropriate place to teach and develop cooking literacy skills as it reaches all children and provides cross-curricular learning. The New Zealand Medical Association has called for it to be a statutory requirement that all schools provide food skills including cooking and growing food.

Evidence Overview

The Problem: lack of development of cooking literacy skills in children and youth

1. Cooking literacy is defined in this paper as the skills, knowledge and confidence to prepare and cook healthy and culturally appropriate dinner meals that are nutritious, tasty quick and affordable.
2. Children and youth are at a crucial stage of development where they are learning the skills that will set them up for a healthy, productive and fulfilling life. Both childhood and adolescence are critical formative periods and eating behaviours and patterns are being developed that will affect long-term health.^{3,4} Eating behaviors and habits established in childhood track into adulthood.⁵ Thus, developing healthy habits during childhood not only supports immediate but also long-term health.
3. Poor nutrition and eating patterns can deprive children of their 'opportunity to learn', are associated with worse educational outcomes, increased risk of obesity, and increased risk of poor health and wellbeing outcomes. It is one of the main risk factors for non-communicable disease.^{6,1,7}
4. Lack of cooking literacy can be a barrier to healthy eating, and contribute to overweight and obesity, especially in low-income groups.^{8,9} Cooking literacy is essential for children and youth to have the knowledge and skills to prepare healthy meals and make informed choices about what they eat. It has been noted internationally that youth who are transitioning into adulthood often lack even basic food-related skills.¹⁰ Youth who lack cooking literacy have little understanding of ingredients and cooking processes and are less able to judge whether a food is a healthy choice.²
5. Cooking literacy is necessary to practically implement nutrition education and knowledge. Lang and Caraher note that without cooking skills, choice and control are diminished and dependency on the food industry is created.² When families are unable to prepare healthy foods and meals themselves, they are deprived of the choice to eat more affordable and healthier food options.
6. New Zealand's recently revised Eating and Activity Guidelines for adults recommends to "choose and/or prepare foods and drinks with unsaturated fats... that are low in salt ... with little or no added sugar, that are mostly 'whole' and less processed". The ability to follow these guidelines depends on a certain level of cooking literacy.¹¹
7. It is frequently postulated that children and youth increasingly do not have the skills to prepare healthy foods and meals. Although there is limited objective evidence on the level of cooking skills both in New Zealand and internationally, qualitative research suggests skills are lacking.¹² There are other indications that cooking skills are on the decline:
 - A Weight Watchers survey in 2012 of 1000 people in the Generation Z age cohort (born from 1990) found cooking skills were being lost. Four out of five didn't use any fresh ingredients in their dinner meals. Twenty-nine per cent were unable to identify staple vegetables such as zucchini and leeks. Forty five percent said youth don't know how to cook, and one-quarter reported not cooking because they don't know how.¹³
 - In 2005, a survey sponsored by Watties of 249 adults and 439 children aged 8 to 14 years found the only food preparation children had any level of confidence with was cooking toast or making a sandwich. The children were far more confident with digital and technological activities than cooking. Skill levels for activities like boiling an egg or peeling a potato were low. Encouragingly, the survey found children were keen to learn to cook, with interest peaking around the ages of 10-11 years.¹⁴
- Twenty percent of secondary school students in the Youth'12 Health and Wellbeing Survey self-reported not being able to cook a meal from basic ingredients such as raw vegetables or foods either at all or without help.¹⁵ Youth who lived in homes experiencing poverty were more likely to report not having any cooking ability. Twenty percent of students reported not having cooked at all in the past year.
- In the New Zealand Children's Food and Drink Survey, 28% of parents reported their child helped prepare or cook food nearly every week or more, and 16% reported they never helped with cooking at home.¹⁶
8. Interviews with youth in Auckland in 1995 found that they had learnt cooking skills and nutrition from two main sources: their family and from cooking lessons at intermediate school.¹⁷ Cooking literacy is thought to be declining due to a variety of factors including changes in the secondary school curriculum away from practical cooking skills, changes in the food environment (eating out, fast food and convenience foods), changes in family demographics (dual income and single parent families), and technological advancements (eg. microwaves for heating ready meals).¹⁸⁻²⁰
9. Home cooked meals are associated with higher fruit and vegetable intake (by 0.8 serve) and better diet quality in children and adolescents (including less deep fried food and sugary drinks).^{21,22} In adults, they are also associated with a healthier diet and lower calorie intake in the NHANES survey in the US.²³
10. For many, the alternative to home cooked meals is fast food and ready-prepared convenience foods. Lack of cooking literacy has been associated with increased reliance on eating out of the home and at fast-food restaurants,²⁴ reliance on ready-prepared meals,^{25,26} and with limited ability to provide food in accordance with preferences.²⁷ Focus groups with Maori, Pacific and low-income households in New Zealand found people had an underlying lack of confidence in their ability to prepare satisfying and tasty healthy meals. Despite their desire to feed their family well, the usual solution was takeaways.²⁸
11. Foods consumed outside the home are usually higher in calories, sugar, unhealthy fats, refined carbohydrates, and salt.^{26,29,30} Frequent consumption of these foods has been associated with poor health outcomes.^{26,31-33} Furthermore, increased consumption of foods away from home has been associated cross-sectionally with a higher BMI^{34,35} and lower intake of fruit and vegetables.³⁵
12. A ten-week cooking literacy intervention with parent-child dyads significantly decreased dinner meals eaten out of home from 56% to 25% of meals.³⁶ Jamie Oliver's Ministry of Food cooking skills programme in Australia lead to a statistically significant reduction in fast food purchased and an increase in eating family meals at the dinner table.³⁷

The solution: teach children cooking literacy as part of the core school curriculum

Cooking literacy programmes can improve skills and confidence

13. Although there is limited high quality data on the impact of cooking literacy interventions in children and young adults, and findings should therefore be interpreted with some caution, they show a generally consistent positive impact on the outcomes measured.
14. Cooking literacy programmes within schools have been shown to improve children's self-reported self-efficacy or confidence with cooking, improve their cooking skills, and/or create a more positive attitude towards cooking.^{18,38-46} Parents have noted an increased willingness for children to help prepare foods at home and encouragement of siblings to join in.²⁰ Cooking confidence

has been associated with healthy eating⁴⁷ and increased purchasing of fruit and vegetables.⁴⁸

15. In the Chefs in Schools programme in the UK, chefs teamed up with a local school to deliver cooking sessions to 9-11 year olds. Students in the intervention schools showed statistically significant gains in cooking confidence, vegetable consumption, and willingness to ask for recipe ingredients to be purchased at home. Post-test, the proportion of children who reported being able to cut up fruit and vegetables on their own increased from 10% to 73%, compared to a 3% increase in control schools.⁴¹

Cooking literacy can improve nutrition

16. There is much room for improving dietary quality for New Zealand's children and youth. Only 30% of secondary students reported meeting the recommendations for fruit and vegetable intake over the past week.⁴⁹

17. Cooking literacy can facilitate an understanding of the relationship between food, nutrition and health.^{19,50}

18. Cooking skills have been associated with healthier eating or better nutrition in children and youth^{21,51,52} and in adults.²⁵ Cooking skills in the home have been associated with increased intake of fruit and vegetables, wholegrains, fibre, folate, vitamin A and calcium.^{21,53-55} Conversely, lack of cooking skills has been cited as a barrier to choosing some foods,^{2,56} and linked with poor food choices.^{25,26} Providing cooking literacy instruction can help children and youth develop the skills to support healthy eating throughout their life.⁵⁷

19. The Youth '12 survey of secondary school students in New Zealand found that both cooking ability and cooking frequency were associated with likelihood of meeting recommended intakes of fruit and vegetables. Cooking ability was also associated with less likelihood of frequently consuming fast food and soft drinks.¹⁵

20. In **adults**, cross-sectional studies which have assessed the relationship between cooking and food skills and dietary quality have all found that greater skills are associated with healthier dietary choices such as increased fruit and vegetable intake, less convenience foods and takeaways. Intervention studies have been less consistent in findings of improved dietary quality, but overall they show small positive changes in dietary and food choices.⁵⁸

21. A systematic review of cooking literacy programmes for **children** found they could positively influence food preferences, attitudes and behaviours. Six of the eight studies in the review were of programmes implemented in schools as part of the curriculum, with a median of 10 cooking classes. Children in the intervention groups were more willing to try new foods, had improved attitudes towards cooking and food, were more able to use basic cooking techniques like cutting up fruit and vegetables, following a recipe and measuring ingredients. Four of the eight studies assessed daily intake of fruit and vegetables. One found a statistically significant increase in fruit only, another in vegetables and two studies had non-significant increases. The two studies that measured preference for fruit and vegetables found a significant increase from pre-intervention.⁴³

22. A review of food literacy programmes (with cooking skills as a component) for **youth** found improvements in food and nutrition knowledge, cooking self-efficacy and ability, and increased fruit and vegetable intake. The one study that assessed overall diet did not find a statistically significant impact. One-third of these studies were conducted in a school setting. Only a few of the programmes were theoretically based, and five out of seven of the theoretically-based studies created positive dietary changes.¹⁸

23. A systematic review of school teaching kitchens identified seven quantitative studies on the impact of cooking literacy programmes on diet in **children and youth**. Five of the studies

found statistically significant increases in the consumption of targeted foods.⁵⁹

24. Cooking literacy programmes in the classroom can allow children to experiment with unfamiliar foods, and research has shown a consistent effect in eating more of the new foods, and creating a positive change in self-reported eating patterns of the whole family.^{19,44} Children have requested foods at home that have been part of the programme, but were previously refused.²⁰

25. A review of published literature on cooking initiatives in schools found four papers that met their criteria published up to 2008⁴⁰:

- The highest quality study in the review was the evaluation of the Cookshop programme in the United States, delivered in schools in low-income areas. Cookshop delivered a mix of food and environment lessons along with 10 practical cooking skill lessons, parental involvement and changes in school lunches. Children who participated in Cookshop had a higher preference for plant foods, better knowledge and behavioural intent, and older children were more confident in their cooking ability. It also had an effect on actual (not self-reported) eating behaviour, with less food that was included in the programme left on the plate after lunch.³⁹
- The other notable study was a randomised controlled trial of a curriculum-based programme for low-income youth within the USDA's Expanded Food and Nutrition Education Program in the United States. There were seven lessons of experiential activities and food preparation. Pre/post testing found no difference between intervention and control in eating a variety of foods, but statistically significant differences in nutrition knowledge, food selection and food preparation and safety practices.⁶⁰
- Whilst all the studies in the review were short term, overall it found evidence for an association between cooking skills and improved nutrition, knowledge, change in food preferences, increased cooking confidence, and healthier eating habits. There remains a need for better quality and longer-term evaluations.⁴⁰

26. The most recent review identified 20 cooking interventions, most in the past ten years, two of which were randomised controlled trials. The main findings were:⁵¹

- Most studies showed improvements in nutrition-related knowledge, consumption of fruit and vegetables, cooking skills and confidence.
- Other positive outcomes were identified in some studies such as enhanced peer relationships and team building skills and enjoyment of cooking.
- Despite many of the studies being pilot or feasibility studies, the authors felt there was sufficient evidence to support investment in larger programmes with more comprehensive evaluation.

27. The act of cooking itself can encourage consumption of healthier foods. Children who had cooked a meal, compared to children who ate a meal parents had cooked, ate 76% more salad and 27% more chicken.⁶¹ Self-preparation of meals by children can increase liking of healthy food, but not unhealthy food, compared to food made by others.⁶²

28. Long-term impact on total diet quality is more difficult and costly to assess. However, there have been a small number of studies conducted which suggest cooking literacy for young adults is associated with a healthier diet overall.^{53,63}

29. Children who have participated in cooking literacy programmes positively influence the cooking of their parents.¹⁹ A school-based kitchen classroom project in London found that children acted as 'agents of change' by influencing cooking and food choices at home.⁴⁴ Furthermore, children who participated in the Chefs in Schools programme in the UK felt more confident asking their parents to buy items for a healthy meal.⁴⁰ 90% of the participants in the Let's Get Cooking school cooking clubs reported practising their skills at home, and 79% had showed their skills to a family member.⁶⁴ Nearly 20% of parents whose

children had participated in the Stephanie Alexander Kitchen Garden programme reported subsequently preparing more meals at home.⁶⁵ They can encourage parents to try healthier cooking methods and increase confidence to make homemade dishes.⁶⁶ A review of food literacy programmes in adolescents found six studies showing positive changes in making recipes at home that had been introduced in the intervention.¹⁸

Cooking literacy could improve children's opportunity to learn

30. Cooking literacy has been shown in the previous section to positively impact on nutrition. What children eat can influence their behaviour and achievement at school. There is strong evidence that a child's diet affects attendance and behaviour in school, and clear and consistent evidence of a relationship between good nutrition and long term academic outcomes.⁶ Conversely, a Western dietary pattern has been associated with significantly poorer academic performance in maths, reading and writing independent of maternal education, race, family income functioning and structure in Australian youth.⁶⁷ No studies have objectively assessed the impact of cooking literacy interventions on educational outcomes.

31. The Stephanie Alexander Kitchen Garden programme is a garden to table experience for 8-12 year old school children being expanded across Australia.⁶⁸ A nationally funded evaluation of the programme in 2012 by the University of Wollongong found 98% of teachers saw a positive impact on classroom learning. Students in schools who had received the intervention were more likely to try a new food, especially if they had cooked or grown it, compared to those in control schools. They liked cooking more and helped with cooking at home more. Nearly 20% of parents reported they cooked more meals at home after their children had been in the programme, and 72% reported their child was more willing to cook at home. However, there were no statistically significant differences between intervention and control schools in eating habits, or self-reported serves of fruit and vegetables per day. Teachers and parents reported improvements in social behaviours, with 86% of teachers reporting improved teamwork skills in students. There were also improvements in social interactions, leadership, bullying, difficult behaviours, sense of pride, and a reduction in social exclusion.⁶⁹

Cooking literacy could reduce obesity

32. Childhood obesity is one of the greatest health challenges we face.⁷⁰ Rates of childhood overweight and obesity in New Zealand are at record levels and show no signs of reducing. One in three children in New Zealand are now overweight or obese.⁷¹ The importance of taking action to reduce rates of childhood obesity in New Zealand has been recognised in the government's recent Childhood Obesity Plan.

33. Weight in childhood predicts weight in later life. If a child is obese, they are twice as likely to be obese as an adult compared to lean children.²⁹ Parents who are overweight or obese when a child is conceived, or who are eating an unhealthy diet, increase the risk of their child being obese.¹ Overweight and obesity in childhood compromises future health outcomes.⁷²

34. There is a negative relationship between obesity and educational achievement, socio-economic status and health. A report by SUPERU and NZIER notes the vicious cycle this creates especially for deprived families who are more likely to suffer from obesity. In children and youth obesity not only increases risk of premature death it adversely impacts on self-esteem, academic accomplishment and future earning potential.^{1,73,74} It compromises emotional, psychological and social wellbeing in children.^{1,75}

35. The costs of obesity in New Zealand are substantial. The cost of lost productivity due to obesity alone was estimated as

between \$98-\$225 million in 2006. Direct health costs were estimated at \$624 million. Since then, adult obesity rates have increased.^{74,76}

36. Teaching cooking literacy in schools is recommended by the US Institute of Medicine as a tool to help prevent childhood obesity.⁵⁷ This seems a logical recommendation as lack of cooking literacy has been associated with worse diet quality, overweight and obesity (except in Youth'12¹⁵),^{23,25,26,63,77} and school-based interventions can be effective at reducing body fat in children.⁷⁸

37. Although there is limited data on the direct link between cooking literacy and obesity, the following studies suggest cooking literacy development has potential:

- LA Sprouts is a 12-session gardening, nutrition and cooking programme with Latino 4th and 5th graders (average 10 years). A convenience sample of 135 children participated in the study, and over half were overweight. After 12 weeks there was a statistically significant difference in weight. Overweight participants had only a 1% body weight increase compared to 4% in controls, and a 1% decrease in BMI compared to a 1% increase in controls. All participants, healthy or overweight, saw improvements in blood pressure, with a 5% overall decrease in blood pressure compared to a 3% decrease in the control group. The only dietary factor reported was fibre (based on a food frequency questionnaire for the previous 24 hours) and intake increased by 22% in the intervention group compared with a 12% decrease in controls.⁷⁹ This was a pilot study, and a subsequent randomised controlled trial was conducted. It confirmed greater reductions in BMI z-score (-0.1 vs -0.04) and waist circumference (-1.2 vs 0.1cm) in participants compared to controls. It also assessed presence of metabolic syndrome, with fewer participants having metabolic syndrome post-intervention compared with an increased number of controls.⁸⁰
- A combined nutrition and cooking literacy taught by teachers in schools in Portugal over six months found children in the intervention group had a statistically significant lower increase in BMI z-score and fewer children moved into the overweight category (5.6% vs 18.4%) compared to controls.⁸¹

38. At a time when our health system is beginning to face the increasing cost and burden of non-communicable disease, it is time to invest in ensuring our children grow up empowered with the skills and ability to manage their own health. With the strong influence that healthy eating has on risk of non-communicable disease, it seems obvious to invest in developing cooking literacy from a young age. Developing cooking literacy skills in schools should form part of a strategy to tackle non-communicable disease. Cooking literacy is therefore not only a pedagogical issue, but is also a policy one.⁵⁰

39. Obesity is a result of multiple social, economic, environmental, cultural and biological drivers and its causes are complex. No one factor on its own will reduce childhood obesity, but cooking literacy is one factor within the system that could help create a shift to healthier body weight.

Cooking literacy could lessen the impact of food poverty

40. Food poverty, also called food insecurity, is not having assured access to sufficient food that is nutritionally adequate, culturally acceptable, safe and obtained in socially acceptable ways.⁸²

41. Food poverty is a concerning and substantial issue in New Zealand, and it appears to be worsening. Between the Youth'07 and Youth'12 surveys of secondary school students there was a notable increase in reports of "parents worrying about having enough money for food".⁴⁹ National nutrition survey data shows that one in five adults report not being able to afford to eat properly.⁸³ There are wide ethnic disparities, with Pacific males almost four times more likely to live in a household experiencing food poverty than non-Pacific males.⁸⁴

42. In childhood, food poverty has been associated not only with poor health but also with behavioural and psychosocial problems (including disruptive behaviour and aggression), developmental risk and reduced quality of life.⁸⁵⁻⁸⁷ It is known that undernutrition affects a child's physical and mental development⁸⁸ and undernutrition in early childhood may well lead to lasting cognitive impairment and underachievement.⁸⁹ Food poverty disproportionately increases risk of obesity in children, at least partially due to reliance on low quality energy-dense but nutrient-poor foods.⁹⁰
43. Cooking skills have been related to food poverty.⁸² Lack of cooking skills and kitchen appliances limit choice and control over food:
- A study of 142 households with young children in Canada found households where parents self-rated their cooking skills as low had eight times the odds of food poverty compared to households with the highest levels of cooking skills, after adjusting for household income.⁹¹
 - There are many factors that influence food choices within low-income households. Focus groups with low-income women in the US found many with the lowest education level had not been exposed to cooking growing up, and the range of foods they were exposed to in childhood influenced current food choices. The first opportunity to learn to cook was when they left home and had to cook for their own children.⁹² Other focus groups found that young parents very rarely had home cooked meals, if at all, due to a lack of cooking skills.⁹³
44. In focus groups with Maori, Pacific and low-income households for the Enhance food poverty project, lack of knowledge and skills was identified as one of the main barriers to healthy eating. This was alongside lack of money, the cost of healthy food, habit and availability of healthy food. They suggested cooking literacy training as one of the initiatives to help reduce food poverty. This is summed up in a comment from a focus group participant:¹²
- "Sometimes we don't know what else to cook because we do not really know how to cook"
45. For low-income families, additional barriers to home cooking have been identified. These include the need to avoid food waste and children not eating food, lack of time, and fewer skills in selecting and preparing healthy foods and following recipes.⁹⁴ A school-based cooking literacy programme can help address these issues. Children develop the skills and confidence to prepare dishes at school, which they can then cook or help cook at home. This can help avoid food waste, reduce parental involvement time, and develop the skills needed to prepare a healthy meal.
46. Focus groups with children from households at risk of food poverty in the US found they wanted to be taught to cook. They were interested in cooking and learning cooking skills.⁹⁵
47. Cooking Matters is a six-week cooking course for adults, children and families in the United States that has been operating for over thirty years. Impact evaluation found families who completed the course cooked meals more often, made healthier and more affordable meals which persisted for at least six months after the course. Before the course families sometimes worried about being able to afford enough food, but after the course they rarely worried about it and were more confident in their ability to stretch their food budget.⁹⁶

Cooking literacy is a fundamental skill that will help prepare our children and youth for a productive and healthy life

Schools are the best setting for intervention

48. The World Health Organization Commission on Ending Childhood Obesity, of which Sir Peter Gluckman is co-chair, emphasises the need to use the compulsory school years for pedagogically driven and embedded nutrition education.¹ Similarly, the US Institute of Medicine has urged the government to make schools a national focal point for obesity prevention.⁹⁷ The International Obesity Task Force (now World Obesity) found schools play an important role in preventing obesity and promoting healthy eating through the food available, encouraging healthy food choice, and empowering students to prepare healthy meals through practical cooking classes.⁹⁸
49. The World Health Organization Commission on Ending Childhood Obesity has called for governments to "increase the nutrition literacy of children and adolescents by mandating inclusion of nutrition and health education within the core curriculum in schools ... and making food preparation classes available to children and their caregivers."¹
50. The New Zealand Medical Association has called for it to be a statutory requirement that all schools provide food skills, including cooking and growing food.⁷¹
51. Schools are required to promote healthy food and nutrition to students under clause 5 in the National Administration Guideline.¹⁰⁰ Cooking literacy is the practical application of healthy food and nutrition and should be a natural component of this promotion.
52. The NZ Curriculum states that "it is expected that all students will have had opportunity to learn practical cooking skills by the end of year 8". Practical cooking skills are important, but are one component of cooking literacy. The practical application needs to be the ability to prepare a healthy dinner meal, and for this to be well-defined to ensure that sufficient skills are taught to **all** students.
53. Schools are the one setting where all children spend a substantial period of time, can reach all children, and have a role in developing life skills. They are the most effective and efficient way to reach not only children, but the wider community.²⁰ Provision of cooking literacy programmes in schools may be of greatest importance for people in lower-income groups.¹⁰¹
54. Teaching cooking literacy within the school curriculum provides a structured learning environment regardless of socio-economic status or gender. It is available over a substantial time frame which facilitates practical skills, theoretical learning, reflection, group communication and consolidation.¹⁰² It provides experiential learning and critical thinking skills along with technical proficiency.¹⁰³
55. Teaching cooking literacy as part of the school curriculum not only provides children with a fundamental life long skill, but it can teach them important science, social science, economics, technology and mathematics skills.⁹ Results from an evaluation of the Stephanie Alexander Kitchen Garden Programme in Australia found it became a natural place for integration of the school curriculum including art, information and communications technology, science, environment and sustainability, nutrition, health and hygiene, geography, cultural diversity, and writing.⁶⁸ This helped allay teachers and schools concerns about demands on the school curriculum.
56. Family life is increasingly busy, and all the evidence points to dinner preparation being a busy and pressured time for modern families in New Zealand.^{28,104} This leaves little time for parents to impart cooking literacy to their children. Parents have overwhelmingly reported time constraints as preventing them letting children cook with them.²⁰ Students in a cooking literacy programme have also reported that they would like to do more

cooking at home but didn't because their parents didn't have enough time.⁴⁴ The World Health Organization has recognised that teaching children cooking literacy in schools as part of broader nutrition education is important, not only as it is the school's role to teach life skills, but because parents often do not have the skills to teach cooking.¹⁰⁵

'No one has a stay-at-home parent anymore. So, everybody's going home tired and hungry, feed the kids, get them off to soccer, so there's no time where parents are spending time with their kids in the kitchen'. (Teacher)¹⁰⁶

57. The Project Cook survey by Wattie's in 2005 found 60 percent of parents wanted schools to take a greater role in teaching children to cook. Ninety-nine percent of parents felt it was a shared responsibility between the school and parents to teach cooking literacy and nutrition. The children in the survey liked the idea of a cooking literacy programme at school because it would be fun, help them be healthy, and they could learn to make their own meals.¹⁴

58. Developing cooking literacy within schools is part of developing responsible members of society, by providing the opportunity to gain realistic and practical life skills that will help students become independent and competent individuals who can take control of their food choices.⁵⁰ It equips students with the knowledge, confidence and skills to have a greater level of control over their food and take ownership of their health. Youth themselves could see the benefits that developing cooking literacy would bring and that it could help them make healthier choices, not only now but in future.⁵⁰

Conclusion

Developing cooking literacy with children and/or youth as part of the school curriculum can improve cooking confidence and ability that translates through to the home setting. It can improve food choices and nutrition, which has known benefits for physical and mental health and wellbeing, educational achievement, and obesity. There are indicators that cooking literacy programmes within schools could potentially have some level of impact on improving body mass index. Cooking literacy can also positively impact on food poverty by developing the skills to use more affordable and basic food ingredients. Importantly, developing cooking skills is necessary to be able to implement nutrition education and advice and to empower students to have a greater level of choice and control over what they eat.

Cooking literacy and the ability to prepare healthy dinner meals is a fundamental life skill. Teaching it as a compulsory part of the school curriculum ensures it will reach all students. It has the ability to develop multiple skills across the curriculum.

While cooking literacy can only ever be one of the part solution to improving diet quality, it is a fundamental part of the solution. Whilst the food environment has a greater influence on eating behaviours, developing cooking literacy makes it far easier to navigate the food system in a healthy way. Setting the foundations for a healthy diet can help to improve educational achievement and health, leading the way for students to live a healthy and productive life.

The World Health Organization Commission on Ending Childhood Obesity has called for governments to "increase the nutrition literacy of children and adolescents by mandating inclusion of nutrition and health education within the core curriculum in schools ... and making food preparation classes available to children and their caregivers."¹

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