Nutrition Education: Towards a Whole-School Approach

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Abstract

Purpose: Schools are widely accepted as having the potential to make substantial contributions to promoting healthy eating habits in children and adolescents. This paper presents a case study of how a whole-school approach, planned and implemented through a health promoting school framework, can foster improved nutrition in schools by creating a supportive environment for healthy eating habits.

Design/methodology/approach: A case study approach was used to investigate the influence of a health promoting school approach on improvements to nutrition in the school environment. Data were collected using in-depth interviews, student focus groups and documentary evidence, such as school planning documents and observations of health promoting school activities.

Findings: This study illustrates how initiatives to promote a healthier school environment increased demand for nutritious food in the school community, which in turn impacted the supply of these foods at the school tuckshop. The study provides insight into the key factors that facilitated these changes in the school, both internally, in terms of organisational change processes within the school, and externally, through support from a health promotion agency. The study also illustrates the centrality of

educational leadership in the school context, even in an area typically identified as a “health” issue.

Originality/value: This article presents qualitative research identifying organisational processes that instigate change in the provision of nutritious foods within the school environment.

Keywords: health promoting school, nutrition, environment, Australia.

Paper type: Research paper

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Introduction

With the problem of overweight and obesity in young people now an established international concern in industrialised countries (WHO, 1997), schools have been identified by governments and international bodies (Doak *et al.*, 2006) as a priority setting to promote healthy eating habits among children and adolescents. While nutrition education has for many years been widely integrated into the curriculum (e.g., as part of health education), recognition of the influence of social and environmental factors on food choice has broadened the focus to include considerations about the overall school community environment. Traditionally, this has not been seen as part of the duty of a teacher; however, broader notions of education and recognition of the importance of providing a supportive and learning environment have led many schools to re-examine their structures, policies and roles in the community. To address such considerations, a whole-school approach, embodied by the health promoting school (HPS) model, is increasingly being endorsed as an effective way to promote nutrition and health in the school setting (Clift and Brunn Jensen, 2006; Lister-Sharp *et al.*, 1999; NHMRC, 1996; Stewart-Brown 2006; WHO, 2004).

Since the First International Conference on Health Promotion in 1986 and the presentation of the Ottawa Charter, the World Health Organization (WHO) has promoted policy initiatives that encourage and support a comprehensive approach to promoting

health across the entire school community (Clift and Brunn Jensen, 2006; Lister-Sharp *et al.*, 1999; WHO, 1996). In the Western Pacific region, a set of guidelines published in 1995 supported the development and growth of health promoting schools with a focus on six areas: school health policies, the physical environment of the school, the social environment of the school, community relationships, personal health skills and health services (WHO, 1996).

Evidence of Effectiveness for Nutrition

Some of the most compelling evidence for the effectiveness of the HPS approach in promoting the health of children and adolescents is based on nutrition-related outcomes. A recent synthesis of robust systematic reviews of controlled trials of school-based health promotion initiatives by Stewart-Brown (2006) showed that among the most effective programmes promoting health are those that focus on healthy eating, physical activity and mental health. This synthesis confirmed an earlier review by Lister-Sharp *et al.* (1999), who concluded that whole-school interventions, particularly those involving changes to the school environment and interventions involving families, were more likely to be effective in promoting healthy eating behaviours than those that did not.

A review by Shepherd *et al.* (2002) of 22 intervention studies promoting healthy eating and physical activity in secondary schools using multi-factorial interventions showed that most programmes were effective and that the greatest benefits were observed in girls and

older students. Whole school approaches and the provision of healthy food in canteens were seen as key success factors.

While evidence of the effectiveness of the HPS approach on promoting nutrition in the school setting has been built largely on post-hoc analysis of school-based interventions, prospective studies specifically testing the effects of the HPS approach either on health outcomes or behavioural determinants of health are relatively rare. However, a recent Australian study showed that an intervention employing an HPS model enhanced the consumption of both water (in place of sweetened drinks) and fruit consumed at lunch for up to two years after the initial intervention (Laurence *et al.*, 2007). Beyond this example, there is ample evidence of a more general nature that the intentions behind treating schools as “health environments” often lead to long-term improvements in the health behaviours of school-aged children (Downey and Boughton, 2007; Jones *et al.*, 2007; Reynolds *et al.*, 2007, Doak *et al.*, 2006).

This paper presents a case study of how one school used the HPS approach to institute changes in the school environment to promote healthy eating habits. The study provides insight into key factors supporting the adoption, implementation and sustainability of the approach as well as how the approach instigated changes at the case study school to support healthy eating behaviours. This paper also discusses how HPS and other initiatives can lead to broader improvements in the school environment and concludes by exploring how these initiatives can be applied across school communities.

Description of the research

This research is a case study of the implementation of the health promoting school (HPS) approach to foster improved nutrition in a primary school setting in Southeast Queensland, Australia, conducted between October 2000 and April 2002. The case study is extracted from a broader study that evaluated the “Western Gateway Health Promoting Schools Grant Scheme”, which aimed to promote health in the school setting using an HPS approach. This programme was coordinated by a public health agency (Queensland Health), and it involved supporting ten school communities by giving each a grant of AU\$28 000 over three years (November 1999 – November 2002). The programme also included professional development workshops and support from a programme manager who provided expertise and links to health resources to assist schools in implementing the approach. The primary school setting was selected from the broader study to be researched in depth due to the school’s commitment to implementing the HPS approach. This school was also chosen due to the implementation of a “Kids Café”, where students prepare, sell and serve nutritious food to other students and staff members as a part of the HPS approach; this programme improved the nutritional quality of the food choices in the school environment. The aims of the case study were as follows:

- Describe the Kids Café school nutrition initiative with attention to the HPS “structural” aspects (defined as tangible artefacts of the initiative) and HPS “process” aspects (defined as the methods of operationalising structures of the initiative at both the school and classroom levels).

- Identify the key supporting factors of the HPS approach that facilitated the adoption, implementation and sustainability of the Kids Café school nutrition initiative that instigated changes in the school environment to promote healthier nutrition.

Methods

Case study methodology was used to investigate the influence of the HPS approach on the promotion of nutrition in the school community (Patton, 1990; Yin, 1994). Data were collected using in-depth interviews with representatives from groups within the school community such as school staff members, parents, students and health service and community agency workers. Additionally, student focus groups and documentary evidence, such as school planning documents and observations of HPS activities, were used in the collection of data. Data collection methods proceeded in two phases, each approximately 6 weeks each in length. The first phase collected data in November/December 2000, and the second phase collected data in November/December 2001.

In-depth interviews conducted with 23 representatives from groups within the school community were used to collect the majority of the data. The representatives included 4 teaching school staff members, 4 programme co-ordinators, 8 parents and tuckshop representatives and 7 students. Four student focus groups were conducted with students

from years 4–7 (aged 8–12 years) of varied genders, cultures and abilities. There were 5–7 students in each group.

Direct observations of an HPS committee and a nutrition-tuckshop sub-committee meeting were conducted along with observations of whole-school community activities such as an HPS Awareness Day, the Kids Café opening ceremony and Kids Café student workshops and curriculum activities. An inter-observer reliability process was conducted at one Kids Café student workshop with two investigators observing whether the processes of the workshop encouraged student participation and valued student input. The results of the inter-observer reliability process revealed little divergence between the perceptions of the investigators, who agreed that the workshop processes promoted and valued student input.

Documentation collected for analysis included school and Kids Café planning documents, school progress reports on the HPS implementation, minutes of HPS and nutrition-tuckshop sub-committee meetings, Kids Café curriculum materials, speech manuscripts from the opening ceremony of the Kids Café, a Kids Café showcase award submission, a Kids Café conference presentation and local newspaper articles.

All sources of data were cross-compared to obtain a thorough understanding of the Kids Café and the key supporting factors of the HPS approach that facilitated the adoption, implementation and sustainability of the Kids Café initiative that instigated changes in the school environment to promote nutrition (Yin, 1994).

Data were collected on the implementation of HPS structures and processes relevant to the Kids Café school nutrition initiative. HPS structures focussed on school policies, school organisational activities (such as whole school activities), the physical environment of the school and school community partnerships (such as school committees). Processes related to the development of structures, such as inclusive, participatory and democratic processes involving all members of the school community, were investigated. The HPS structures and the processes of the Kids Café were examined in both the broader school and classroom environments, including curriculum approaches that promote student participation and real-life learning experiences.

Consistent with a theory-building approach, the data collected allowed for patterns, themes and categories to emerge from the data (Patton, 1990; Strauss and Corbin, 1990). Full exploration of the data was achieved by theoretical sampling over the two data collection phases, whereby the emergence of findings from the first phase of data collection led to further study of the phenomenon in the second phase of data collection in order to reach a more complete understanding (Hammersley, 1992; Strauss and Corbin, 1990). This process allowed all major variables to evolve from the data and the relevant categories to reach saturation (Strauss and Corbin, 1990).

Data Analysis

Thematic data analysis procedures focused on the HPS structures and processes relevant to the Kids Café and revealed inter-relationships through which the café instigated changes in the school environment to promote healthier nutrition. In-depth analysis of these relationships identified key supporting factors of the HPS approach that facilitated the adoption, implementation and sustainability of the Kids Café to instigate these changes in the environment. The themes were categorised in terms of their properties, causal factors, involved parties and consequences (Strauss and Corbin, 1990) and were organised into data display matrices (Miles and Hubermann, 1994). To ensure the validity of the findings, data triangulation and decision rules for inclusion (e.g., data confirmed by 2 methodological sources) guided the selection of the themes entered into the data matrix displays (Miles and Hubermann, 1994).

Results

The primary school under study is a small school located in Ipswich, an urban locale with a socio-economic profile comparable to other Queensland regions but with a more multi-cultural population. The school is made up of approximately 40 pre-school students and 180 primary-aged students. As described in the school prospectus, the school aims to provide a quality education in a supportive environment and is committed to providing basic skills and knowledge as a foundation for future learning experiences. The school is staffed by a principal and 10 teaching staff members and is supported by specialist,

support and ancillary staff members, including a visiting guidance officer, as well as visiting teachers for special needs and areas such as behaviour management. The majority of students attending the school come from an English-speaking background. The Aboriginal and Torres Strait Islander population and the migrant population are relatively small, with 16 students from an Aboriginal and Torres Strait Islander background and 6 students from a non-English speaking background. A significant number of students are identified as having special needs, with approximately 70 students requiring support classes for learning difficulties.

The primary school has been active in health promotion and has indicated over a number of years a commitment to addressing health issues and to the principles of the HPS approach through their involvement with projects that encouraged partnerships between the school and the broader community. Two key drivers of the HPS approach in this school community had a close and supportive relationship with the programme manager of the Western Gateway programme, and an excellent representation of school community groups, especially students, always attended the professional development workshops held by this programme.

Description of the Kids Café

The primary school initiated their HPS approach in 2000 by developing a representative health promoting school committee. A “Health Promoting School Awareness Day” was held where students, staff members, parents and community members helped launch HPS

in their community. As a part of a curriculum activity that day, 19 senior school students (aged 11–12 years and of mixed gender and abilities) conducted a wide survey that represented the views of the 300 students, school staff members, parents and the broader community in attendance. The information drawn from these surveys was used to form a vision of the school community's "ideal" school. The HPS committee subsequently identified priority areas and made programme plans in consultation with other members of the school.

Nutrition emerged as one of the priority issues to be addressed in the school community. At the time this research was conducted, there was no state-wide policy support for the supply of nutritious food in schools, and the food provided in the school tuckshop, a school-based commercially oriented food service providing main meals that is operated by paid and unpaid parent volunteers, lacked nutritional quality and variety. Previous attempts by school staff had failed to improve the food choices in the tuckshop. The preliminary processes of consultation by the HPS committee identified this as a contentious issue since the tuckshop staff members were unwilling to risk a potential loss of profits in the tuckshop due to the introduction of more nutritious but potentially less profitable food.

To address the priority placed on nutrition by the school community, the HPS committee decided that a curriculum-based policy offered the best opportunity for change. A senior teacher, using a curriculum framework and drawing on the results of school-community wide priority identification process, worked with the senior school students to

collaboratively address the problem. Through a student-centred learning approach, senior students responded to the identified nutrition issue by suggesting the development of a Kids Café where a nutritionally balanced meal could be made available for sale in the school community and where community members could eat in a pleasant and social environment. The students further identified a market for the Kids Café since the tuckshop only operated for 2 days of the school week.

The development of the Kids Café provided a real-life experiential learning activity that engaged students in their learning; developed students' food selection, preparation and advocacy skills; and simultaneously addressed learning outcomes in health and physical education, science, society and environment studies, mathematics and English. Through the curriculum, an action research model was employed through which menus were devised based on student preferences for nutritious food to be sold at the Kids Café. Additional learning opportunities were offered as students identified recipes, created budgets and purchased ingredients. It became very clear that, while this project had nutritional benefits that were of major interest to health authorities, the main driver as far as school staff members were concerned was that this was an educationally significant topic that could be addressed from a variety of key learning perspectives and was being driven by a learning model that promoted active student learning. In addition, it was inclusive of all types of learners and, most significantly, was championed by a senior and well-respected teacher.

The Kids Café occupied a temporary space within the school facilities, and, as a part of the curriculum, students were responsible for promoting the menu of the café, collecting orders, preparing and serving food and cleaning up. The Kids Café offered “meal deal” items such as vegetable fried rice, healthy burritos, fruit jelly cups, juice and milk drinks for a total of \$2.00, which became a cornerstone of the menu. The Café became so popular with students and the school community that a permanent space was developed for it. Increasingly, additional core features of school life became engaged in this learning and lifestyle space, not only in support of the activities of the café, but also with regard to other educational activities related to arts, music and performances and uses by parents and the broader community.

Reflecting a model of education that looked outside the school walls for support and encouragement, early in 2001 a permanent area was developed through partnerships with local businesses, community agencies, parents and the broader community. Approximately AU\$20 000 of funding was obtained from a number of community agencies (including AU\$10 000 of the original grant from the “Western Gateway Health Promoting School Grant Scheme”) to develop the space. Local businesses donated concrete pavers that formed the foundations of the café site and shade sails to cover the area. One parent helped to design garden beds around the café area, and several school community working bees were held to construct the café, which included students, school staff members, parents and the broader community engraving the pavers used for the foundations. After completion, the Kids Café was officially launched with strong attendance from the school community.

By late 2001, the high demand for nutritious food, reflected in up to 52 orders per week for Kids Café meals, started to threaten the profits of the school tuckshop operating during the other 2 days of the week. After reviewing and monitoring the Kids Café initiative, the HPS school committee consequently decided that the Kids Café should work more closely with the tuckshop by introducing Kids Café menu items onto the school tuckshop menu. This was supported by students, as a part of the curriculum, and they helped tuckshop staff to prepare menu items and spent profits from the Kids Café on new tuckshop equipment and facilities to support the introduction of the new menu items. The tuckshop tested the “meal deal” concept of a ham or chicken salad roll with a juice and fruit jelly cup 1 day per week by selling only the meal deal and preparing no other food. For the meal deal to be profitable, the price of the meal deal sold through the tuckshop was increased to \$3.50. Approximately 60 orders were received per week, a slight improvement over the number of orders that were received through the Kids Café originally.

The Kids Café continued to operate as a curriculum activity, although on a smaller scale that was more sustainably integrated into the school curriculum. As a part of this activity, students were involved in researching and preparing new recipes and testing them by operating the Kids Café in the second half of the school year over a 2-week period. Successful meal ideas were then transferred to the tuckshop to be listed on the tuckshop menu.

Key Factors Supporting the HPS Approach

This case study highlights a number of factors of the HPS approach that facilitated the adoption, implementation and sustainability of the Kids Café to instigate changes in the school environment to promote healthier nutrition. These factors include the following: HPS co-ordination within the school community, embedding of the HPS approach into the culture of the school, funding support, and health department (Queensland Health) support.

HPS Co-ordination within the School Community

The need for an “internal champion” was very clear. The senior teacher who co-ordinated the Kids Café was integral to all stages of the adoption, implementation and sustainability of the HPS approach. As a project champion, this person was empathetic with all school community members, including students, parents, school staff members and health and community agencies, and she was able to move the project forward by “pushing the right buttons”. As a senior teacher, this person was also able to demonstrate how the HPS activities could be embedded within the curriculum framework and could contribute to learning outcomes. As an organisation dedicated to learning and teaching that had a heavy curriculum to work through, such educational support was critical, and other school staff members began to see the benefit of these activities and supported them. This was essential for the sustainability of the approach through the school community. Excellent processes of communication and understanding between school staff members,

students and parents were also critical for the ongoing satisfaction with the HPS activities.

Embedding the HPS Approach into the Culture of the School

Embedding the HPS approach into the culture of the school as “the way things are done” greatly assisted the long-term sustainability of the Kids Café. This integration process was pursued at a number of levels by ensuring that the Kids Café activities were viewed as accepted aspects of school structures (e.g., curriculum frameworks) and as part of the physical infrastructure in the school (e.g., the permanent café area). Being flexible and open to innovation and change by conducting initial trials before full adoption of changes also contributed to the ongoing maintenance of this programme.

Funding Support

The grant (AU\$28 000 over 3 years) provided to the school community to assist with the implementation of the HPS approach was a key factor in supporting the adoption, implementation and sustainability of the Kids Café. The flexible nature of the funding and application process, whereby the school was able to determine priorities internally rather than receive them from an external body, supported the adoption of the HPS approach by giving the school community ownership over the funding and the programme. At first sight, this externality seems at odds with the clear requirement of the project to be formulated, adopted and implemented within an educational rather than a

health paradigm. However, the resources should be seen as offering not only an extension of the funding available to the school but also as an investment in empowerment and school-centred management decision making.

The implementation of the HPS approach in the school was substantially assisted by the funding of extra personnel to enable consultation and planning with external community agencies to pursue further resources to support the development of the Kids Café. This external funding, together with advice and support from a body external to the school, was critical for the development of physical infrastructure to support the Kids Café and sustain it in the long term.

Health Department Support

Support from Queensland Health, the co-ordinating body of the “Western Gateway Health Promoting Schools Grant Scheme”, greatly assisted the implementation of the HPS approach in the school. This support included the co-ordination of professional development workshops during which different schools could network with each other as well as link with health and community agencies that could provide support. The type of support provided by the programme manager was also identified as a key factor for the implementation of the approach. The manager’s willingness to work with the primary school, to provide personal support and to link the school with appropriate personnel greatly assisted in the school’s capacity to implement the HPS approach.

Discussion

This case study shows how the HPS approach can bring about changes in the school environment that support healthy eating habits among children. In particular, it demonstrates how the HPS approach was successful in providing a structure and framework for student demands for nutritious food to be heard. It also demonstrated how the availability, affordability and accessibility of nutritious food can be promoted in the school environment.

The student-centred and real-life learning curriculum approach of the Kids Café, which linked to the broader school environment, was central to creating demand for nutritious food and driving its supply in the school environment. The student involvement to develop nutritious food ideas on the Kids Café menu was the critical link between the demand and supply of these items on the Kids Café menu.

Other such initiatives that link the school curriculum with improved availability, affordability and accessibility of nutritious food in the school environment include school-based food gardens. Growing evidence supports the potential for the use of school-based food gardens as a useful nutrition education tool (Lautenschlager and Smith, 2007; Somerset and Markwell, 2008). There is also general agreement that gardens can be a useful addition to school resources (Graham *et al.*, 2005). While evidence of the tangible contributions that school-based food gardens make to the school food supply is limited, the links between the learning and awareness generated in the

curriculum and the mere availability of produce within the school community have been shown to improve the healthy eating behaviours of children (McAleese and Rankin, 2007).

This study also provides insight into the processes involved in the adoption, implementation and sustainability of the HPS school environment. It revealed the need for a process not only to demonstrate positive benefits during the initial stages of adopting the approach but also to ensure that these benefits were communicated to the broader school community in order to broaden support and embed the approach in the culture and practices of the school environment. The case study suggests that the school staff member co-ordinating the HPS approach in the school community plays a critical role in engaging others in the whole process within a range of frameworks including the learning and teaching curriculum.

Funding and support greatly facilitated organisational change by providing resources and personnel to assist in demonstrating the benefits of the HPS approach and further building it into the culture of the school. Typically, the limited internal funding available in schools is already allocated to essential activities so that a project grant of this nature is necessary to allow the initial stages of the HPS approach to get under way, as programmes like HPS might be perceived as extraneous by the school organisation. As the body of evidence supporting the benefits of HPS activities grew in terms of the school environment, educational outcomes and the core business, the school was in a position to give the project greater priority in the internal school funding cycle.

The importance of school community partnerships in the development of the HPS approach, and particularly the central role played by school staff members in the process, has been confirmed by others (Inchley *et al.*, 2007; Leurs, *et al.*, 2007; Mukoma and Flisher, 2004). This research broadens insight into the desirable qualities of school staff members who co-ordinate the approach and the processes employed through the curriculum that assist in effecting whole school environment change. This study also provides insight into how these changes can be supported by partnerships with external agencies that provide additional funding and resources to develop the physical environment to sustain school environment improvements.

Application of the findings of this study to other school environments should consider the size of the school community and the type of school. This study was conducted at a small primary school of approximately 230 students and staff. The transferability of these findings to larger primary schools or secondary school environments must recognise larger schools' capacity to undertake a whole-school approach to nutrition initiatives, particularly those that employ links across curriculum areas. It is possible that a number of classes in a primary school context or general curriculum area within a secondary school context, such as a home economics area, could initiate changes in the school environment throughout the scope of their studies. The other consideration for instigating change in larger school environments is the potential for food service provision to be more commercially orientated and therefore more reluctant to adopt nutritious food items. Devising potential menu items based on student preferences

through curriculum studies along with the testing of menu options before full adoption of changes, as found in the primary school case study, are possible ways to overcome these challenges.

Conclusions

One of the key elements of success in a whole-school approach is that it provides an opportunity to apply broader social, environmental and economic factors to drive behaviour. This is in accordance with the wider perspective captured by investigations into the social and behavioural determinants of health (Wilkinson and Marmot, 2006) as well as with the recognition that a supportive learning environment allows schools to achieve their primary educational purposes. A key observation of the Kids Café intervention was its rapid success, so rapid that it started to provide unintended competition to the more commercially oriented tuckshop. In the context of a socio-ecological, whole-school approach, the key to this success was the link between the curriculum and learning imperatives within the school environment and the high value of school-community partnerships. This, in turn, provided a practical framework to develop supportive school environments that promote healthy eating behaviours among children and adolescents.

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