

THE IMPLEMENTATION OF A HEALTH-RELATED FITNESS INTERVENTION:  
A CASE STUDY OF TWO PRIMARY SCHOOLS  
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Coronary heart disease has been found to have its origins in childhood. One of the most significant risk factors associated with coronary heart disease is a low level of physical activity in children. Australian children are not only less active than perceived by the general public; many are also overweight. As a direct response to this problem the Western Australian Schools Physical Activity and Nutrition project WASPAN was developed and implemented for Year 6 children.

This case study focused on the process of this implementation in two primary schools in Perth. It acknowledges that the school environment, the school principal, the teacher and the home background all influence the acceptance and degree of success of the new program.

A system of multiple methodology (triangulation) was employed. Techniques included: field notes, survey, questionnaire, interview, activity diaries, heart rate monitoring, systematic interval recording, documental records and fitness testing. The teachers at the two schools implemented the physical activity program in two vastly different ways. This highlighted many of the problems associated with the implementation of new curriculum material in schools and the complex mirad of variables impinging upon the process of moving curriculum inovation from surface change to institutionalised change. The picture that developed over the year of the two teachers' different and contrasting processes of implementation became the major emphasis of the study and showed that: (i) teachers react very differently to new curriculum materials. Few teachers will use new materials effectively without ongoing support and this process may take months until the program becomes institutionalised.

~ii) Principals can be very influential in the process of curriculum implementation.

(iii) New programs need to be 'school specific' and recognise the restraints of time, weather, resources, incontinuity etc.

(iv) Children are a product of their home environment and this may not be a background that encourages or endorses activity.

(v) Parents have a great influence on their children's activity levels. Schools must communicate their goals and encourage parents to become partners in the development of children's activity levels.

Humans are created with the natural ability to be physically active. Previous generations needed this ability to survive, but this is no longer the case. The technological influences of our modern society have reduced the amount of time individuals spend engaged in either moderate or vigorous physical activity. There is increasing evidence that coronary heart disease (CHD) risk factors are not exclusive to the adult population. The common impression of schools filled with highly active children is far from the truth. Several studies and reports have found that children are not as active as they might be assumed to be and that cardiovascular risk factors are now common in children (Berenson, 1986; Vaccaro & Mahon, 1989). Many primary school teachers have experienced negative feelings during their own physical education schooling. When this

factor is linked to inadequate teacher training preparation it is little wonder that teachers are unable to successfully implement physical education programs. Often feeling uncomfortable in this teaching role many will revert to 'playing games' or platoon style 'daily fitness' classes. Recognising the pressures that are placed on primary school teachers by the overcrowded curriculum Tinning (1987) claims that physical education classes are characterised by: ...poor choice of activity, little attempt to develop appropriate social behaviour, inequitable distribution of teacher attention among pupils, sexism and inappropriate expectations with respect to pupil performance (p. 8).

Many teachers still see physical education as a 'break' from classroom activities rather than an integral part of childrens' learning and lifestyle enhancement. In the light of increasing sedentary behaviour and the associated cardiovascular disease findings it has become even more important that teachers are able to work with physical education material that is carefully designed, developmentally sensitive, enjoyable for children and promotes student achievement of the goals/objectives of physical education.

#### Western Australian Schools Physical Activity and Nutrition project (WASPAN)

The WASPAN project contains physical activity materials designed for classroom teachers who may have little experience or knowledge in the area of systematically developing childrens' health related fitness. The experimental, medically driven project is designed for Year 6 children aged 11 and 12.

This paper is concerned with a study of the physical activity component of the WASPAN project which included three distinct sections.

i) 15 - 20 minutes of daily fitness.

ii) 60 minutes classroom health-related fitness knowledge component weekly.

iii) Two, 30 minute physical education lessons for each week.

The daily fitness activities are based on developmentally appropriate activities taught in a systematic manner utilising the principles of interval training (Taggart,

1991). Running activities including relays and team pursuit constitute the main core of the program together with jump rope and health hustle activities. These are integrated with classroom lessons designed to give understanding to the physical activities the children are involved in and cover issues related to exercise, fitness and health. These lessons are based on six 'themes' which centre around understanding the concept of health related fitness and are consistent with the K-10 Health Education syllabus (Western Australia Ministry of Education, 1985). Fitness is not the only component of physical education and the WASPAN program includes details of the more traditional motor skill development lessons which are designed to assist teachers in their physical education classes. WASPAN is designed for children in the upper primary years, it is not a K-7 program like 'Daily PE/Fitness'. The activity and classroom sessions were designed for boys and girls approaching or in the early stages of adolescence.

#### Curriculum Innovation

Teachers are constantly bombarded with glossy curriculum packages which, the authors claim, will answer all the educational questions presented in that specific subject area. However before a new package becomes institutionalised in the day-to-day class program two preliminary stages of change need to be negotiated (see figure 1). In order for new curriculum material to be considered there is usually a degree of dissatisfaction with current practice. As a consequence, improvement of some kind is deemed necessary. At this stage new material is reviewed either by the teacher or the school (e.g. Daily Physical Education, WASPAN). The selected resources are then used on a trial basis. Marsh (1986) calls this the "Initial use phase" (p. 102). At this time the innovation is at its most vulnerable and in most danger of failing.

Insert figure 1 here

The teacher must see the new program as fulfilling a special need. This period may involve a dramatic shift in the teacher's philosophy and personal beliefs. Support from the principal and other staff at this stage (between stages two to three in figure 1) is highly desirable. Institutionalisation can only occur if the innovation becomes inter-woven and formalised within the school curriculum. According to Tester and Watkins (1987), in order for any project to become institutionalised it needs to become "part of the normal operation of the school" (p. 18), and for this to happen the strategy of involving staff, the principal and parents in mutual adoption within the particular school environment is highly desirable.

#### SURFACE CHANGE

°) The use of new and revised materials and (Relatively Easy) activities: for instance, direct instructional resources like curriculum packs. (Initial use phase).

2) The use of new skills, teaching approaches, styles and strategies, that is; changes in teaching practices with attendant changes in the teaching role.

#### INSTITUTIONALISATION

Changes in beliefs, values, ideologies and

#### REAL CHANGE

understanding with regard to pedagogical (Very Difficult)

assumptions and themes. This can involve a major re-orientation of philosophy and self-image.

(Levels of change in the adoption of new programs in schools. adapted from Sparkes, 1989, p. 60)

In the case of WASPAN, the teachers were all volunteers and therefore had either seen their present program as being deficient in some way or seen the 'new program' as having benefits for them. All organisational procedures and activities were explained and demonstrated to the teachers. The concept of regular, enjoyable and varied activity with individualised attention to the different levels of ability in the class was stressed. The concept of 'a shared idea' (Watkins and Tester, 1988) is of vital importance to the ultimate successful institutionalisation of any innovation. If the teachers, who will ultimately be implementing the program, have not been consulted or had the new curriculum discussed with them, it would be little wonder if they lack enthusiasm for new material. Conversely the teachers who are able to discuss, analyse

and perhaps contextualise the material in the new curriculum may ultimately become involved to the extent that they perceive themselves as having a vested interest in the success of the innovation.

Many innovations are implemented in schools (as this program was) without regard to the specific school and the school's environment. Every school is different and this is why school based curriculum is often more successful than centrally administered programs. Marsh (1986, p.106), acknowledges the "large number of teachers who argue that their major task is to be a skilful classroom teacher and not be involved in sharing and planning activities" but says that teachers ultimately prefer to be consulted and feel involved in the design of new curricula. The role of the principal in the success or failure of an innovation in school is a critical one. Pettit and Robinson (1989) found principals in Darwin gave low priority to in-servicing in physical education. The principal will often decide if the teacher's time-table will accommodate the new program and, most importantly, whether or not they decide either to support or neglect the innovation during the various stages of implementation (see Figure 1).

The 1990's have seen a change in role for the principal from an authoritarian position of total power to that of team leader who involves the staff in decision making and who also takes more interest in the content of the classroom curriculum. The development of the curriculum has become a shared task of both teachers and principal. Although the teacher is bestowed with the delivery of the material to the children, the principal has the ultimate responsibility and accountability for the quality of the education the children receive and the concomitant student outcomes. The principal has the fundamental legitimate power in the school and ultimately decides if a curriculum innovation succeeds or fails by the level of his/her support.

Taggart (1990) acknowledges that home environment will influence children's behaviour patterns. He suggests that effective teachers will be aware of ]≠the complex nature and differences of their children's home backgrounds and just as many home environments "do not encourage children to develop reading skills" (p.212) the same will be true for fitness skills, and therefore, children need to enjoy being physically active in controlled systematically

developed lessons at school. Once the children become comfortable physically responding in the school

situation their behaviour can be shaped with the aim of generalising that behaviour into their out of school environment.

### Methods

A multi-case study approach similar to that employed by Bogdan and Biklen (1982) was used to research the in-school and out-of-school activity patterns of 2 Year 6 class and selected high and low fitness children at two different government primary schools. A variety of methodologies were incorporated to respond to a series of research questions set a priori which focused on the teacher, principal and parent's attitudes towards the development of increased activity levels in the children and the implementation of a new fitness program (WASPAN). One important benefit of this form of methodology is being able to cross reference or triangulate results. Triangulation, states Dobbert (1982), serves to "enhance validity and reliability through increasing the number of perspectives employed. Multiple perspectives permit cross-checking of all types of data for accuracy and completeness. They also add to depth and breadth of interpretation" (p. 265). Multiple methodology will not make up for inaccurate or badly collected data but by using different combinations of methods and subjects reduced error and a greater understanding of the situation can often be achieved.

In order to go beyond the scope of general class data four children from each school were chosen for a more in-depth investigation. Based on the results of fitness tests (detailed later) two boys and two girls of high fitness and two boys and two girls of low fitness in each Year 6 class were selected. These 16 children and their parents were also interviewed.

### Data Collection

Data was collected in the natural setting, that is, the school and the home. A multiple methodology system of data collection was employed. The techniques and procedures are listed in table 1.

(Insert Table 1 here)

Table 1 data

Collection Techniques and Procedure	TERM 2	TERM 3
TEACHER	Fn. Tl.	Fn. Tl. Q. I.
PRINCIPAL	Fn.	Fn. I.
PARENTS	Q.	I.
CLASS	Fn. Ft. S.	Fn. Q. Ad. S.

TARGET as above as above as above + I.  
 CHILDREN n.=Field Notes; Tl.= Teacher's Log;  
 Q=Questionnaire; I=Interview; Y t.=Fitness Test;  
 S.=Survey (happy face, hands-up); Ad.=Activity Diary; .\*:

Parent interviews were held with the target children's parents only.

#### Field notes

During 30 visits made to each school in terms 2, 3 and 4 field notes were made using structured and unstructured formats. The recordings focused on the teacher and the children before, during and after the fitness session. Times of visits, duration of the activity sessions, weather, equipment used and number of children

present were all noted. Less structured recordings reflected the teacher's enthusiasm, degree of participation and confidence with the program as well as comments made by the teachers' and the children. It is the process of the day to day machinery of the school that constitutes the "real world" and can be influenced by many variables. The regular interruptions and problems that occur on an almost daily basis are often missed by studies that measure variables at prearranged intervals.

#### Happy Face Class Survey

The 'happy face' class survey is a simple and effective method of finding the children's attitudes towards the various activities that comprise the fitness sessions. The surveys were administered on two separate occasions and because they formed a part of the program they were administered by the teachers. On both occasions the children were asked by the teacher to think about the activities they had been involved in during their fitness class that term. The children were told they could choose either "love", "okay" or "hate" for each activity.

#### Questionnaires

Identical questionnaires were administered to both classes on two occasions, once in term 3 then again at the end of term 4. The questions were multiple choice with a space for alternative responses. The children also took home a short questionnaire with an accompanying letter for their parents to complete. The questionnaire administered to the teachers was based on the WASPAN Program evaluation questionnaire included in the WASPAN teachers manual. The researcher read the questions

through with the teacher at each school and recorded the teacher's responses in their presence. Interviews A semistructured interview was conducted with the target children in term 3 and again in term 4. The interview questions were designed to obtain more informative responses concerning exercise, fitness and activity attitudes, influences and values. By using a semistructured format the researcher was able to follow

questions with clarification and pursue directions which may have emerged as a result of the interviewee's responses. The interviews with these children served as a form of reliability (triangulation) check on the information collected from the questionnaires. Only the parents of the target children were interviewed. A letter home made the point that parents had no obligation to become involved in the study and that if they did, confidentiality would be maintained. Interviews were held at the school or at the parents' home, depending on parent choice. Separate interviews with the class teachers and the principals were also conducted. In all cases the interview was tape recorded with permission, transcribed and then shown to the interviewee, who declared it to be an accurate representation of the interview. The interviews followed a semi-structured format. Activity Diaries In term 3 activity diaries were distributed to all children and were completed each day during a 7 day period. The diary was developed from the exercise diary used by the National Heart Foundation (1991). The second set of diaries were issued in term 4 and utilised a two week period of recording. This was used to account for any dramatic abnormality which might have occurred in a shorter time scale (e.g. a week of rain). The child's parent or care giver was asked to sign each days activity entry as a true record of the activity the child had engaged in. Documental Evidence Teacher's logs are included in the WASPAN teachers physical activity manual and provide a record of the fitness activities the class had completed and a record of how long each session lasted. There is a separate log for each term with a space for each day's activity. The logs provided the researcher with a record of how much of the program each teacher had been able to cover and how much time they had allocated to the program. At Eastwick school there was additional documental evidence in the form of End-of-the-Year Reports which included fitness. These reports were completed by the children themselves and then signed by

the teacher and principal. Fitness Testing Fitness testing is a method of performance analysis and a crucial step in the eventual self monitoring of fitness levels by individual students (Corbin, 1987). Of the six tests detailed in the Australian Schools Fitness Manual (Pike, 1986), Three tests were chosen because of their potential to be influenced by a systematic fitness program rather than discriminate in favour of individual genetic capabilities. The three health-related test items chosen were: sit and reach; a measure of lower back and hamstring flexibility sit-ups; a measure of abdominal muscular strength and endurance 1.6km run; a measure of cardiovascular endurance. Based on a comparison with national norms children were identified as being of low or high fitness status.

Summary of Results and Discussion

The two schools involved in this

study were chosen on the basis of socio-economic location (Australian Bureau of Statistical census, 1986 ). Pseudonyms have been used for schools and individuals in the study. Grove Hill Primary School was situated in a high socio-economic area with approximately 220 children and a non-teaching principal. The year 6 class had 23 children and a male teacher. Eastwick Primary School was an older school situated in an area of higher density housing and defined as a low socio-economic area. The 150 children were from a wide variety of ethnic backgrounds. The principal did some teaching. A female teacher took the year 6 class of 28 children. The results show how the same fitness program introduced in two schools within twenty kilometers of each other can be implemented in vastly different ways and with differing degrees of success.

The Principals At Eastwick school the principal supported the innovation in two important ways. Firstly, he was a good role model. Several studies have noted the importance of effective role models to young children whose behaviour and attitudes can be influenced to a great degree during childhood. (Lee and Owen, 1987; Shepherd and Godin, 1986). At Eastwick the principal was a very positive role model for the children and the staff alike. He introduced recess activities and personally monitored them. We formulated strategies for keeping the children occupied, especially during lunch and play time. This involved activities and resources like bats and balls. At first these activities were

supervised, but as time went on the supervision was slowly withdrawn (field notes). The Eastwick principal changed and took part in cross-country running activities with the children. He trained the athletics team and came out to watch the schools morning fitness classes at least once a week. The principal at Eastwick school also supported the innovation in practical ways. Together with Ms. Thomas (the class teacher) he developed the strategy whereby if she was a few minutes late during terms 3 and 4 (she took on additional family responsibilities due to the ill health of a close relative) he would watch her class as they performed self-directed warm up on the netball court. He also made a point of asking Ms. Thomas to send any children to see him who had made a noticeable gain or made particular effort during the fitness sessions. The principal enlarged his general fitness philosophy with the statement: I believe that fit kids are happy kids. Self-esteem is enhanced. I was here and now I'm there and I'm really pleased with myself scenario. I see fitness as being a lifeskill, important to every individual regardless of whether they will play sport or not. (Eastwick principal interview). At Grove Hill the principal was far less physically active himself and he took no obvious interest in any form of physical activity or sport at the school. On one occasion during morning tea he looked out of the window and said the

activity level of the children made him feel that he should be doing more activity himself (field notes). He was aware of his own physical limitations and he was happy to delegate all responsibility with regard to physical activity to Mr. Kent the class teacher. Mr. Kent's a good person to be doing it (WASPAN), because he sees it as evaluable, and he's a good role model (Grove Hill principal interview). At Grove Hill the school policy was that teachers returning from any inservice or professional development seminar would give an account of the program to the staff at the next staff meeting. The principal admitted that he had at no time asked Mr. Kent to disseminate the details of the WASPAN inservice to the staff (field notes). By term 4 Mr. Kent had dropped the WASPAN program in favor of his own material. The principal was unaware of this. Mr. Kent commented; Several staff members would complain if too much emphasis was placed on fitness. They (the staff) would need to be educated about it (WASPAN). At the moment most of the staff wouldn't have a clue about this program

(Grove Hill teacher interview). Although Mr. Kent had the principals support to take part in the WASPAN project he did not have the confidence in his principal to consult him on any matter concerning physical education. Ratliffe (1990) found in his study on the influence of school principals on the teaching of effective physical education, that some principals were lacking the ability to criticise positively or commend the teacher regarding their physical education teaching. Although Ratliffe's study concerned specific teacher behaviours, it points out the potential lack of confidence that some teachers have in their principals to promote meaningful feedback in the area of physical education. Without this leadership or support, teachers may lose sight of the learning goals they have for their children and any associated accountability for attaining these goals. An issue that continues to plague physical education. The one philosophy the two principals shared was a regard for the traditional community pressure for academic success as a priority outcome for the children of the school. The parents and the school tradition have determined that the school has a music specialist, ... most schools opt for the music specialist; it's a shame we can't have all three [art, music and physical education] (Interview with Grove Hill principal). In a recent parent questionnaire from the school, parents prioritised literacy and numeracy but after science and computing, phys. ed. was raised as

a 'significant other' subject. It was interesting to me that phys. ed. got a guernsey (Interview with Eastwick principal). The Parents' home background of the children was considered important to establish the context of the children's physical activity environment. Few educational studies go beyond the teacher-pupil interaction to look at the parental attitudes

and behaviour and their impact on a child's school-related outcomes. At Eastwick the low fitness families were living in the low socioeconomic area close to the school. The high fitness children's families lived in an adjacent suburb of higher socioeconomic status. This discovery was only revealed as part of the interview process when addresses were noted and homes were visited. This is a very strong indication that the low fitness children are coming from a different environment than the high fitness children. This was not the case at Grove Hill where all the families lived close to the school in the same high

socioeconomic area as the school. Interviews were conducted with parents of high fitness children and with parents of low fitness children. These interviews revealed a great difference in the level of support given to children's activity. Mandy's brother is much more entertaining to watch than she is so we tend to spend more time supporting his activities. We tell her she'll be a big fat slob if she doesn't get moving (Interview with Grove Hill parent of low fitness child). The family taxi service is alive and well. Bill's dad umpires and coaches Bill's cricket team while I go between Bill and his brothers dropping them off and picking them up and trying to fit in my aerobics class as well (Interview with Eastwick parent of high fitness child). We don't really do anything active any more. We take Mandy everywhere in the car, but never to sporting things. She does go out and play, but sometimes she won't go out. It's awful, you can't get her out of the house. She just sits in front of the t.v. Sometimes if her friends come over they go out, but I don't know what they do (Interview with Eastwick parent of low fitness child). I've been very busy lately. I took him rollerskating a few weeks ago and his father took him for a game of golf on his weekend (Interview with Eastwick parent of low fitness child).

The parent questionnaires were a useful instrument to gain some general information concerning the attitudes of the parents towards fitness and activity. The Eastwick parents took less exercise at a vigorous level (29%) and a quarter of them admitted to a sedentary lifestyle, not having exercised during the last two weeks prior to the administration of the questionnaire. At Grove Hill 40% exercised vigorously in line with the national norm (National Heart Foundation Risk Factor Prevalence Study, 1989). Only 15% of Grove Hill Year 6 parents were classified as sedentary (no exercise during the last two weeks prior to the questionnaire). I've been pretty slack and I should do more because I used to be very fit when I was younger, swimming all the time (Interview with Grove Hill parent of low fitness child).

Understanding that up to a quarter of the children at a school such as Eastwick will have sedentary parents or quite usually a single parent (as was the case in three of the four low fitness children's families) is something that designers and implementers of physical

activity programs must be sensitive to in the future.

Those programs aimed at the 'middle class mesomorph' type child are clearly missing many children, and as in this study, a large proportion of these children are from lower income families. Sparkes (1989) and Tinning (1990) make the point that lower income families cannot as easily make the 'approved' middle-class rational decisions concerning their health, due to social and political pressures. If these circumstances are not intervened upon at school, the fit will get fitter and the less fit will have the already instigated barriers reinforced.

A large proportion (67%) of the Eastwick respondents recorded 'Lack of time' as a major reason why they did not exercise more. 'Lack of time' says Wankel (1988) often tends to be a rationalization rather than a true reflection of reality. The problem is usually a question of priorities "a question of what a person wants to make time for" (p. 378). Effective time management appears to be less easily achieved by low income families and particularly single parents. Parents at

Eastwick were supportive of the WASPAN program and letters come had outlined the work the children would be covering.

The information we received was good because usually it's the same story of parents only getting information if there's a problem. If there's no problem we hear nothing. It's a real shame because the family needs

reinforcement. They need to know if they're doing the right thing as

a family unit (Interview with Eastwick parent of high fitness boy).

His kind of communication with home is time consuming but can only lead to a fostering of the parent-teacher relationship and a closer partnership in the development of positive activity behaviours in children. The

The teacher is the instrument by which curriculum is imparted to the children. The positive outcomes achieved by the children are directly proportional to how the teacher implements the curriculum.

Innovations, says Bolam (1974) are not objective and unchanging, but are constantly being modified and redefined as a result of experience. Mr. Kent and Ms. Thomas perceived that the situation at their

schools and in their own classes warranted the introduction of a new health related fitness program. Both teachers approached their respective principals to ask to be included in the WASPAN program and attended the consequent two inservice days. By making these choices both teachers have,

at this stage, begun the process of change at the surface level of Sparkes' (1989) model of change. Mr. Kent scheduled a 15 minute fitness session (of the suggested 15-20 minutes) directly before recess, while Ms. Thomas scheduled 30 minutes at the start of each morning. Field notes reported that many of Mr. Kent's sessions (at least one a week on average) were eaten up by the pressure of finishing classwork before recess while Ms. Thomas only missed the scheduled activity if the rain was intense. In

this case the session was usually rescheduled for later in the day. When Mr. Kent was asked why some of his fitness sessions were being missed he replied; Is spelling more important than fitness? It comes back to the age-old dilemma of time on the time table to cover everything adequately. By mid year there are reports, parent open days, this and that and everyone screaming more mathematics, more English, more writing! (Interview with Mr. Kent). In addition to the daily fitness sessions, one or two weekly knowledge based classroom lessons and the Friday afternoon sports period, Ms. Thomas also included the two 30 minute skills teaching lessons included in the WASPAN program. At Arrove Hill Mr. Kent did not schedule these skill sessions into his class time-table. The outcome of this omission is that daily fitness has come to mean physical education in Mr. Kent's class. Certainly not an intended outcome of the WASPAN program. (1988) found a similar situation in schools he researched in relation to the 'Daily Physical Education' program. The move to stage two of Sparkes' model of change was made by Ms. Thomas who was using new skills, teaching approaches, styles and strategies. These changes, both conscious and unconscious, overt and covert, began in term 1 of the school year 1991. Mr Kent was using WASPAN material with his own teaching approach and style and strategies. Ms. Thomas relied heavily on the program materials. She displayed the weekly timetable of activities on the classroom wall although she was conscious that the sessions were sometimes taking too long to complete, she believed this was compatible and consistent with her new values and goals for the children. I've seen the benefits with the children. By putting it up on the board (the fitness timetable), they know they've got it every day, they know what to expect and when (Interview with Ms. Thomas). Ms. Thomas had good support from her principal and she occasionally used parents to lead her class. The children were given responsibility for

areas of the program, such as leading the health hustle and warm-ups. By doing this she has given both herself and the class a sense of commitment towards the program and an active role in its delivery. She had entered into a 'partnership' with the children in the WASPAN program. By including others in the program delivery and eliciting support from parents and the principal Ms. Thomas has embraced the concept of the 'shared idea' of successful curriculum change. In contrast, by the end of the first term Mr. Kent held a diminished perception of the relative advantage of the innovation. He had found the regular 15 minutes of allocated time difficult to maintain and the preparation for the fitness sessions an additional concern. He was uncomfortable with the prescriptive nature of the program and usually preferred to use his own activities. "I know it should be 20 minutes every day, with 15 minutes of that, flat out. It

takes 5 minutes getting out there, putting out cones, putting kids in teams and explaining what they have to do (Interview with Mr. Kent) by the third term Mr. Kent's fitness sessions bore little resemblance to the WASPAN program. For Mr. Kent the WASPAN manual became as Kirk, Gore and Colquhoun (1989) found with Daily P. E., "a non-prescriptive source of ideas and resources" (p. 25). Fitness had become repetitive and was firmly based on running, either around a track or in relay form. As a result the Grove Hill children increased their cardiorespiratory fitness but decreased their performance on the other fitness criteria (strength and flexibility) which were targeted in the WASPAN program. It may be argued that cardiorespiratory fitness in itself is a worthwhile outcome and it was the fitness scores for the 1.6 km run that was the method by which Mr. Kent justified his running emphasis. However, the lack of variety in the program and low levels of enthusiasm from the teacher made the fitness sessions fall short of the WASPAN objective of encouraging enjoyable sustainable activity in the children. Ms. Thomas continually related the knowledge based classroom work the children had covered in the intensive 6 week classroom program, in term one, to the practical work. Tinning (1991) stresses this link as a critical component of any health related fitness program. At Grove Hill no such integration was evident. In terms of accountability, Mr. Kent saw the decreasing times in the 1.6 kilometer run as evidence of total fitness gains for his class. Accountability, say

Sparkes (1989), reflects the value the school awards physical education against the other more publicly accountable subjects. It also supplies an insight into the reason why teachers, whose time is at a premium, approach the planning and organisation of a daily physical education program in a haphazard fashion, even when they personally value physical education. She herself is accountable for improvements in the children's fitness and activity levels. She reflected on the amount of time allocated and engaged for the program. She also gave the program status by including fitness on the End-of-Year school reports for the first time in the school's history. The teacher as the major change agent in curriculum innovation will determine the degree to which a new program is successful or not. The implementation of the program will depend to a large extent on the relative advantage of the innovation compared with what was in place before and the amount of extra work required for implementing the innovation. A change in pedagogical direction is a major step for teachers to take and as Sparkes (1989) suggests, this can involve a re-orientation of the teacher's philosophy and self-image. This is a step that Mr. Kent was not prepared to take. At Grove Hill he was seen by the teachers and the principal as the teacher with the expertise in physical education (as recorded in field notes and interview with the principal). The idea of adapting his personally practised and

Ms. Thomas held

well-perceived (by the principal) routines towards a seemingly more prescriptive program of activities was not acceptable to him. The Children's might be expected with different socioeconomic areas, initial testing showed the mean fitness levels of the children at Grove Hill to be higher than that of the Eastwick children. Compared with the Australian Schools Fitness Test norms (Pike, 1986), the mean fitness scores recorded for both boys and girls at Grove Hill were above the 50th percentile on all three fitness scores in June, while the mean scores for the Eastwick children were all below the 50th percentile on all three fitness scores. This would tend to support recent evidence from Australia that children from lower socioeconomic backgrounds are less fit (Gilksman, Dwyer & Lodarczyk, 1990). During the year the children at Grove Hill received only half the allocated time for their daily fitness session compared with the children at Eastwick. Although both schools began by following the

program, by June (term 2), when the first fitness test was administered, the WASPAN fitness program was no longer being used by the Grove Hill teacher. By the time the next set of three fitness measures were administered by the researcher in November the Eastwick class had made comprehensive gains on all criteria. Most importantly, the children had made these gains following a developed and varied program designed to systematically increase the children's fitness, physical activity levels and knowledge in order for them to feel confident enough to increase their activities out of class. Before we started the fitness program I was always the tiredest in our basketball team

because I play a year above my age group. But now I'm finding I can keep up with them all (Eastwick school Yr. 6 boy).

By term 3 the children at Grove Hill were following a modified running and relay program based on the teacher's own soccer club fitness drills. The lack of attention to the WASPAN program meant the children were not getting the overall fitness development and variety (with potential for carryover) from the activities. The continuous running certainly elevated the children's heart rate and maintained

participation.

However in terms of enjoyment and the subsequent influence on lifestyle behaviour their repetitive use must be questioned. Although the 'happy face' survey showed the children at Grove Hill enjoyed their activities more in December than in September the Eastwick children were generally far more enthusiastic towards all activities.

My fitness would have to be my best. I like to compete in school fitness games. I think the school fitness program has taught me a lot (Donna, Eastwick school Yr. 6 child in end-of-year self report). Table 2 shows the student preferences for the different activities the teachers used from the WASPAN program (Happy faces

survey). (Insert Table 2 here)

A high percentage of children at both schools thought the running activities were okay or better. These figures (97% at Eastwick and 95% at Grove Hill) reflect a great deal of improvement in running times for children at both schools. The much higher percentage of children at Eastwick school who 'loved' the running activities may also reflect the variety of the WASPAN program which was still in operation in term 4. Triangulation between the student happy face survey and the questionnaires revealed that these were the same respondents who reported that they



get better than the fit ones, and they know they won't come last (Interview with Mr. Kent).

Principal, primary school, is answerable to parents and to society in general. Although the emphasis on the academic curriculum has changed over the years to encompass several other areas considered important for children to learn, society and therefore schools, are still a long way from giving health and physical education the kudos any educationalists say they deserve. The priority that principals give to physical education in a school can greatly influence the whole ethos and consequent ambience of the school. At Eastwick school the principal included himself as part of a team which realised the benefits of the new innovation and strongly supported its implementation. As a physical role model the principal at Eastwick was seen by the children as being positively and actively in favor of physical activity. Historically, problems in physical education such as low fitness, poor motor skill performance, and examples of poor sportsmanship have not been deemed significant enough to report to parents. Even with the increasing incidence of cardiovascular risk factors occurring in children, little importance is given to enlisting the cooperation and understanding of parents as partners in the improvement of increasing sedentary lifestyles of primary school children. The part parents can play in helping to shape children's physical behaviour has been demonstrated successfully in the past (Taggart, Taggart and Siedentop, 1986). Teachers and parents need to communicate children's fitness and activity levels to and from the school and home and strive to collaborate if any development is to be made with those children who most need it; the middle and low fitness children. Tinning (1991) has recently drawn attention to the fact that school based programs do not relate to the contexts of home life "...the school is implicated in reproducing notions of a healthy lifestyle which are illconceived, and lacking in contextual reality" (p. 10). These considerations must be addressed in future programs as well as in the education of our teachers. Mr. Kent did not attempt to enlist the help or advice of other teachers or to disseminate the program in any way. Collaboration should be a direction for the future. The public display and sharing of ideas is in everyone's best interest. Although the WASPAN program is designed specifically for Year 6 children, many of the activities and

strategies could be utilised by other teachers in their own programs. Placek (1984) found that teachers tended to plan what they would do during the lesson rather than what the children should have learnt by the end of the lesson. Because the WASPAN program was designed for classroom teachers, lesson plans, equipment lists etc. were all included in the manual. In addition the program's principle aim: "to develop in children an enthusiasm for

physical activity and to maintain and encourage that enthusiasm so that they become committed to pursuing an active lifestyle" (WASPAN teachers manual, 1991) was implicit in all aspects of the program delivery. Ms. Thomas did a certain amount of planning in other ways for the program, Mr. Kent did none. At Eastwick the class knew the activities they would be following each week. They would begin a warm up if the teacher was late and the relief teacher was always given a fitness session to instruct if the class teacher was not available. Parents were invited into the school to help with the program. Children in the class organised simple routines for the health hustle and supplied the music prior to the activity taking place. At Grove Hill any planning was conspicuous by its absence. The teacher followed the program in the first term but then found it to be too rigid for his purpose. He wanted to be able to choose when and how to teach an area in which he considered himself to have a degree of expertise. He felt that the regular routine of the program locked him into a situation that was a threat to his pedagogical independence.

Recommendations

Teachers must

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make a commitment if they are to implement a regular health-related fitness program. They should be enthusiastic and clear in their objectives. The fitness programme should be given status in the curriculum. This is acquired by elevating the profile of the program so that the principal, other teachers and the children's parents are all made aware of it. The timing of the fitness period is also important and every effort should be made to make fitness the first class of the day. Individual improvements should be rewarded with recognition from the principal and a letter home. Teachers must endeavour to establish health-related fitness profiles for all children and/or include physical activity levels on the school report. In-service training must stress the aim of increasing activity levels which can be achievable in an environment of high levels of continuous class

participation, a variety of activities, and perhaps most importantly, enjoyment. The teacher is instrumental in the successful implementation of a curriculum innovation. In physical activity the innovation should not only be a well planned and designed package, but should also stress team work, enthusiasm and participation by the teacher as well as the importance of regularity, variety and weekly pre-planning. Teachers should believe in the development of children's healthy lifestyles. As a result they should hold themselves accountable for improving outcomes in this area just as they do in English and Mathematics. These are essential elements of successful curriculum implementation. Are they too much to expect from our teachers as we strive to combat an increasingly sedentary society? The Principal The principal can make a very important contribution to the

successful implementation of any innovative program. In the case of the WASPAN physical activity program the principal needed to be kept fully informed of the progress of the programme and of children's improvements, especially the low fitness children. The teacher and the principal should take time to discuss the aims and goals of the program and how these might be evaluated. With the principal's support a staff meeting could then be the place for the teacher to disseminate details of the programme to the staff. In order for a curriculum innovation to become fully implemented in a school the principal must personally be prepared to support and co-champion the cause with the teacher. In this way both staff and parents can be accessories in the successful institutionalisation of the innovation. The principal should be reminded to come out and observe the fitness session on a regular basis and even to change into gym shoes and join in appropriate activities. Parents have a great influence on their children's activity levels. Schools must impress upon parents the value they are placing on increased activity and why they believe this is a most worthwhile goal. Schools and parents can become partners in the development of children's activity levels. Increased communication between school and home is vital. Inactive parents can be encouraged to be more involved in the promotion of healthy lifestyles for their children. Parents can be invited to occasionally lead or simply join in activities at school. They can accompany their children in walking, jogging, game or other recreational activities. They may even decide to let their children walk to school rather

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than drive them. Communication to the home should encourage parents to support their children's out-of-school activity by participating with their children and by signing the children's activity diaries. The positive outcomes that children achieve in terms of increased activity should be recognised and communicated to the parents.

Many Year 6 children are not suitably active and need help to modify their behaviour to become more active. Emphasis should be given to children who most need support in this area. These children are usually overweight, will have sedentary parents and in many instances they will live with a single parent, usually a mother, in a low socioeconomic area. There may also be a second group of 'at risk' children in a class. These children are of average fitness and appear not to be given the same attention as others (e.g. low and high fitness children) in the class. As a result these children may develop a negative attitude towards fitness and physical activity which is of great concern as these children near adolescence. The development of a remedial program for low fitness / inactive children should be a priority. Such a program would aim to increase the activity levels of children rather than their performance on fitness tests. Increased fitness,

self-esteem and peer acceptance will often be positive by-products of this process. Activity levels would be monitored by the teacher with children completing activity diaries on a regular basis and discussing the activity levels achieved.

During the daily fitness program the children should be encouraged to take more responsibility for the activities. This responsibility should be shared between low and high fitness children preferably working in partnership (buddy system). In this way they will become more involved and feel that they have some 'ownership' of the program.

The children must acquire knowledge and understanding about their physical health. They should take and record pulse rates and fitness measures, learning how to develop their fitness and activity in ways that are fun and rewarding to them.

In order for curriculum innovation to move from levels of surface change to real institutional change, several factors need to be considered. These factors may include the 'readiness' of the teacher to change, the support of the principal and the appropriateness of the curriculum material. Because a curriculum package is visually well presented, contains visual aids and other accessories does not mean it will

necessarily contextualise to the specific school/teacher situation.]<sup>©</sup> What is certain is that health related physical education, if taught well, can ]<sup>ø</sup>have a valuable role to play in linking the knowledge concerning physical activity to ]<sup>Æ</sup>physical participation. Well conceived physical fitness programs that emphasise the ]<sup>@</sup>attainment of increased activity levels rather than the temporary attainment of ]<sup>”</sup>physical fitness must be given emphasis in school curricula. Teachers using these ]<sup>≠</sup>curriculum materials need to be fully aware of the intrinsic aims and objectives of such programs and also understand something about the individual children's specific circumstances.

## References

Australian Bureau of Statistics. (1986) Population and housing distribution census. Perth. W.A.

Berenson, G. S. (1986). Implications arising from determinants of cardiovascular risk in early life. In G. S. Berenson (Ed.) Causation of cardiovascular risk factors in children: perspectives on cardiovascular risk in early life. (pp. 324-335). New York: Raven Press.

Bogden, R. C., & Biklen, S. K. (1982). Qualitative research for education. Boston: Allyn & Bacon.

Bolam, R. (1976). The management of innovation in schools. Milton Keynes: Open University Press.

Curriculum Branch, Physical and Health Education Branch. (1985) . Health education K-10 syllabus. Perth: Education Department of Western Australia.

Dobbert, M. (1982). Ethnographic research: Theory and application for modern schools and society. New York: Praeger.

Gay, L. R. (1987). Educational research, competencies for analysis and application. (3rd ed.). Columbus: Merrill.

Gliksman, M. D., Dwyer, T., & Wlodarczyk, J. (1990). Differences in U modifiable cardiovascular disease risk

factors in Australian schoolchildren: The `` results of a nationwide survey. Preventive Medicine, 19, 291-304.

Kirk, D., Gore, J., & Colquhoun, D. (1989). Teachers' use of the Daily physical `V education program and the problem of fitness development. ACHPER National Journal, 120, 23-26.

- Lee, C. , & Owen, N. (1986). Exercise persistence: Contributions of psychology to the promotion of regular physical activity. *Australian Psychologist*, 21 (3), 427-455.
- Marsh, C. J. (1986). *Curriculum: An analytical introduction*. Sydney: Novak.
- National Heart Foundation of Australia. (1990). Risk factor prevalence study: Survey No. 3 1989. Canberra: National Heart Foundation of Australia and Australian Institute of Health.
- National Heart Foundation of Australia. (1991). *Exercise give it a go: Teaching and learning activities*. National Heart Foundation Publication.
- Pettit, A. , & Robinson, J, (1989) . "That hustle thing" The theory and practice of daily physical education in Darwin. *ACHPER National Journal*, 124, 28 - 30.
- Placek, J. H. (1984). A multi-case study of teacher planning in physical education. *Journal of teaching in Physical Education*, 4(1), 39-49.
- Pyke, J. E. (1986). *The Australian schools fitness test*. South Australia: ACHPER.
- Ratliffe, T. (1988). Principal training for effective staff development. *Journal of Teaching Physical Education*, 7 (3), 228-234.
- Sparkes, A. (1989). Health related fitness: An example of innovation without change. *The British Journal of Physical Education*, 20 (2), 60-63.
- Taggart, A. C. (1990). Huffing and puffing as physical and health education: A reaction to Tinning. *Unicorn*, 16 (4), 211-213.
- Taggart, A. C. (1992). The systematic development of fitness skills for primary aged children. In T. Williams, L. Almond, & A. Sparkes (Eds.) , *Sport and physical activity: Moving towards excellence* (pp. 401-410) . London: E. & F. N. Spon.
- Taggart, A. C., Taggart, J. & Siedentop, D. (1986). Effects of a home-based activity program: A study with low fitness elementary school children. *Behaviour Modification*, 10 (4), 487-507.

- Templin, T. (1983). Triangulating ALT-PE: A research consideration. *Journal of Teaching in Physical Education*, 3, 38-41.
- Tester, G. & Watkins, G. (1987). Anatomy of an innovation Part 1: Implementing daily physical education. *ACHPER National Journal*, 118, 16-18.
- Tinning, R. (1987). Physical education in Australian primary schools. In R.Tinning (Ed.), *Teaching physical education reader*, (pp 7-21). Geelong: Deakin University.
- Tinning, R. (1988). The good ship physical education - A view from the crows nest. *Plenary Papers: ACHPER National Biennial Conference* (pp.9-17). Canberra: ACHPER Publications.
- Tinning, R. (1990). Physical Education as Health Education: Problem Setting as a Response to the New Health Consciousness. *Unicorn*, 16 (2), 81-89.
- Tinning, R. (1991). Health Oriented Physical Education (HOPE): The case of `W physical education and the promotion of healthy lifestyles. *ACHPER National Journal*, 134, 4-10.
- Tinning, R., & Hawkins, K. (1987). Montaville revisited: A daily physical education programme four years on. In R. Tinning (Ed.), *Teaching physical education reader*, (pp 3-12). Geelong: Deakin University.
- Wankel L. M. (1988) . Exercise adherence & leisure activity. Patterns of `W involvement & interventions to facilitate regular activity. In R. K. Dishman `Z (Ed.), *Exercise adherence: It's impact on public health*, (pp 369-396). Illinois: Human Kinetics.
- Western Australian Schools Physical Activity and Nutrition Project. (1991) . E WASPAN teachers manual. Perth: University of Western Australia.
- Watkins, G. & Tester, G. (1988). Anatomy of an innovation Part 2 - The impact`W of daily physical education at Guildford primary school six years on. *ACHPER National Journal*, 119, 9-11.
- Wilkinson, S., & Taggart, A. (1985). *Physical education and sport observation coding manual for basic ALT-PE*. Columbus, Ohio: The Ohio State University.

Vacarro, P., & Mahon, A. D. (1989). The effects of exercise on coronary Heart disease risk factors in children. *Sports Medicine*, 8 (3), 139-153.