

**Development of an Instrument to Assess  
the Prevalence of, and  
Teacher Knowledge and Attitudes  
Towards,  
Spinal Health Promotion in Primary  
Schools**

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*I hereby certify that the work embodied in this thesis is the result of original research and has not been submitted for a higher degree to any other University or Institution.*

Signed: .....

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## 1.0 SYNOPSIS

Spinal Health Promotion in schools presents a valuable opportunity for addressing the modifiable risk factors associated with back pain in children and potentially in adults.

The human spine is made up of three regions, comprising the cervical (neck), thoracic (mid back) and lumbar (low back) region. This study deals with low back pain.

Back pain is a well recognised public health concern in adults. However, more recent studies have shown an incidence of back pain in children and especially adolescents which is almost comparable to that found in adults.

Certain modifiable risk factors are associated with childhood back pain. These include heavy lifting, bending, twisting, prolonged sitting, poor muscle strength, lack of flexibility, unsatisfactory posture, as well as poorly designed furniture.

As childhood is a time when health-related habits are being established, attempts to modify health behaviours of children and ultimately adults tend to be more successful than for older groups. Schools are appropriate places to reach children for promoting health in general and have also been identified as ideal access points to deliver spinal health education, skills development and the implementation of appropriate spinal health-promoting organisational changes.

Some studies have shown that childhood spinal health education and appropriate organisational changes may be effective in diminishing the risk factors associated with back pain in children. Various authors have, however, experienced difficulties in implementing school-based health education programmes, including those which contain a spinal health component.

Little is known about contemporary school policies, practices and the factors which facilitate or inhibit the implementation of spinal health promotion practices and curricula in primary schools in Australia.

This thesis describes a pilot study designed to refine a questionnaire which will subsequently be used to answer the following questions:

- i) What primary school organisational policies and practices exist which address the spinal health of children?
- ii) What do primary school teachers know and think about spinal health promotion in schools?

The principal study will involve a cross-sectional survey using self-administered confidential questionnaires which will be mailed to teachers in charge of co-ordinating the Health and Physical Education component of the school curriculum.

This pilot study involved a process of refining the survey according to a structured process of review by experts and pilot testing.

Three subject groups were involved: Health and Physical Education teachers, curriculum developers and Spinal health experts. Forty teachers were systematically sampled from Catholic, State and Independent primary schools from the White Pages telephone directory.

Ten curriculum developers were systematically sampled from a list of members of The Australian Council for Health, Physical Education and Recreation (ACHPER). Ten spinal health experts were sampled from nominations made by the respective administrative bodies of a multidisciplinary group of health professionals involved in spinal health.

Teachers and curriculum developers rated the *clarity* and *acceptability* of the individual questions as well as the overall *clarity* of the questionnaire. In addition, teachers completed the questionnaire items in order to assess the procedure of the survey and the dissemination of results.

Spinal health experts were recruited to rate the *accuracy* and *comprehensiveness* of selected questions.

The pilot study found that the procedure was adequate as evidenced by both a high response rate and generally favourable comments by respondents in relation to the overall questionnaire.

The results showed that the survey appeared *clear* and *acceptable* to the Health and Physical Education teachers according to a modified Content Validity Index, but in need of some modifications. In addition, the selected spinal health experts stated that the questionnaire was *accurate* and *comprehensive* but required further modifications.

The distribution of responses was generally acceptable but, in parts, required some modifications in order to better discriminate between responses.

Teacher responses regarding knowledge and attitudes towards spinal health promotion and the prevalence of spinal health promoting policies and practices in primary schools appeared to be distributed according to expected trends.

		Process of Refining Questionnaire		
		✓ Teachers n=40 ↓	↓ Curriculum developers n=10 ↓	↘ Spinal experts n=10 ↓
Individual Questions:	<b>clarity</b>	N/A	✓	✓
	<b>acceptability</b>	✓	✓	N/A
	<b>accuracy</b>	N/A	N/A	✓
	<b>comprehensiveness</b>	N/A	N/A	✓
Questionnaire Overall:		✓		

## 2.0 BACKGROUND

### 2.1 Burden of Illness

Dwyer<sup>1</sup> defines low back pain as a symptom produced by disorders of the lumbar spine. It is estimated that 80 per cent of the Australian adult population will have a complaint of lower back pain for a period of greater than two weeks in the course of their lives<sup>2</sup>. Back pain and disability secondary to back injury are serious public health concerns in terms of personal disability, lost work time and health care dollars. Occupational back pain due to manual handling related accidents is estimated to be costing Australia between \$615 and \$1,125 million per year.<sup>3</sup> In 1993-94, the Victorian Workcover Authority estimated that back injuries accounted for 25% of all injuries. It is estimated that in Victoria the cost of back injuries in adults over the past 10 years amounted to \$6.2 billion<sup>4</sup>.

Considerably more research has focused on low back pain in the adult population compared with data describing the prevalence and risk factors associated with low back pain in children and It is generally believed that low back pain is uncommon before the age of 20 years<sup>5</sup> However, community-based studies have shown that children often report back pain <sup>6</sup>. In a review of the literature, prevalence values of 7-63% for lifetime prevalence of back pain were reported among children and adolescents<sup>7-16</sup>.

Troussier<sup>17</sup> in Scandinavia surveyed 1,178 students aged 6 years to 20 years (mean age 12.3 years) with a previously validated questionnaire. Over 73 per cent of the children had experienced back pain at least once. Relative to 5 year to 9 year olds the relative risk of low back pain rose to 2.79 for 10 year to -12 year olds and 16.5 for 16 year to 20 year olds, suggesting an increased risk of low back pain in older age groups. Bevaegelseskonsulent<sup>18</sup> surveyed 459 children from seven Danish schools in years three, six and nine to investigate the prevalence of back, knee and foot complaints. The researcher found that between 15% and 25% of children experienced low back pain on a daily basis ( $p < 0.05$ ).

In the only Australian study, Ebrall<sup>19</sup> surveyed 610 male adolescents (representing the entire male population of two secondary schools), and reported an overall sample prevalence of low back pain at 57%. This descriptive study was based on self-reported data gathered by self-administered questionnaires. The instruments were developed in close consultation with a psychologist and statistician and the questionnaires were tested during development for clarity and consistency. The rate was higher than that reported by most overseas data amongst studies of a similar design. Ebrall proposed that this resulted from a broad definition of low back pain.

## 2.2 Modifiable Risk Factors for low back pain

While it may be impossible to prevent all low back pain in adults and in children, several risk factors and trigger factors have been identified that are amenable to prevention<sup>1</sup>. Researchers have argued that it is important to reduce the initial episode of low back pain and to prevent further injuries to weakened tissues by addressing some of the modifiable risk factors<sup>2</sup>. This has implications for both children and for adults.

The modifiable risk factors have been variously classified as **constitutional** (poor flexibility, poor muscle strength, anthropometric, previous history of low back pain), **postural/structural** (dysfunctional spinal curvatures, such as scoliosis and increased kyphosis), **recreational** (tennis, volleyball and cycling) and **environmental** (unergonomically designed furniture, heavy lifting, twisting, bending, stooping and prolonged sitting). Trigger factors are those that contribute to an acute episode of low back pain, for example, a single instance of incorrectly lifting a heavy weight. As there is a degree of overlap between these two factors, both will be considered here<sup>20</sup>.

Low back pain can be acute or chronic in nature. Acute (sudden onset) episodes of low back pain often follow single traumatic incidents such as heavy lifting or falls, whereas chronic episodes may be due to repeated or excessive loads on the spine (poor posture, prolonged sitting, poor muscle tone and poor flexibility)<sup>1</sup>. Essentially, the prevention of low back pain consists of avoiding both traumatic episodes and chronic loads.

Few studies have attempted to investigate the modifiable risk factors associated with childhood low back pain. The proposed modifiable risk factors for children have been synthesised and presented in Table 1, p.8. This table is a compilation of modifiable risk factors as identified by Frymoyer<sup>21</sup> in 1983, but also includes modifiable risk factors associated with low back pain as derived from other researchers since that time.

In a study by Bevaegelseskonsulent<sup>18</sup>, tight hamstrings were associated with an increased incidence of low back pain ( $p < 0.05$ ). In the group of students with tight hamstrings fifteen percent complained of low back pain compared with seven percent in the group with relatively normal hamstring flexibility, according to a standardised measuring technique.

Salminen<sup>22</sup>, in a Finnish study of 1,503 children, found that endurance strength in the abdominal, back and hamstring muscles was decreased compared to control pupils who complained of no back pain, indicating that poor physical fitness in these muscle groups may contribute to the development of low back pain. Studies<sup>23-26</sup> in the adult population suggest that low endurance of large-muscle groups, particularly the back extensors, puts one at a greater risk of long-term back pain within the next year. Thus the importance of promoting hamstring flexibility as well as hamstring and abdominal muscle endurance in the prevention of low back pain.

Several researchers have studied *anthropometric risk factors* for low back pain in children and adolescents. Fairbank<sup>8</sup> reported, in a study of 446 school children, that those who reported low back pain tended to have decreased lower limb joint mobility ( $p < 0.03$ ) and increased trunk length ( $p < 0.05$ ) compared with pupils without lower back pain.

**Table 1: Modifiable risk factors associated with low back pain in children**

<b>RISK FACTOR CATEGORIES</b>	<b>Frymoyer<sup>21</sup></b>	<b>Other Studies from 1993 onwards</b>
<b>Constitutional</b>		
Poor Flexibility	✓	Bevaegelseskonsulent <sup>18</sup>
Poor muscle strength		Salminen <sup>12,22</sup> , Biering-Sorenson <sup>23</sup>
Anthropometric		Nissinen <sup>27</sup> , Fairbank, Ebrall <sup>17</sup>
Previous history of low back pain	✓	
<b>Postural/Structural</b>		
Scoliosis (abnormal spinal curvature)	✓	
Increased kyphosis (Hunched over curvature)	✓	Salminen <sup>12</sup>
<b>Recreational</b>		
Competitive sports		Balague <sup>31,40</sup>
<b>Environmental</b>		
Ergonomics		Mandal <sup>33</sup> , Aagaard-Hansen <sup>34,35</sup> , Knusel <sup>36</sup> , Storr-Paulsen <sup>37</sup> , Bendix <sup>41</sup>
Use of backpacks		Troussier <sup>17</sup>
Prolonged sitting and static postures, (ie more than 30 mins)		Balague <sup>31,40</sup> , Frymoyer <sup>32</sup> , Kelsey <sup>43</sup>
Stooping/ bending	✓	
Pushing or Pulling	✓	
Lifting	✓	Walsh <sup>38</sup> , Chiou <sup>39</sup> , Snook <sup>42</sup>
Carrying	✓	Kirkaldy Willis <sup>20</sup>
Falls and Jolts	✓	Kirkaldy Willis <sup>20</sup> , Dwyer <sup>1</sup>



Nissinen<sup>27</sup> studied the anthropometric factors in a cohort of 859 4th-grade children. Trunk asymmetry odds ratio (OR) 1.19, confidence interval (CI) 1.00-1.39, and sitting height (OR) 1.24, (CI) 1.03-1.46, were significant determinants of back pain. The conclusions were that sitting height may contribute to low back pain in children thus emphasising the need for correct sitting posture as well as appropriate furniture.

Dillane and Ryden<sup>28,29</sup> found that those with a previous history of low back pain were four times as likely to experience additional episodes of low back pain after the initial event, hence the value in preventing the initial episode and/or promoting spinal health through preventive measures.

Adopting posture which decreases the biomechanical stresses on the spine may have a role to play in promoting spinal health. Frymoyer<sup>25</sup> has identified the presence of scoliosis (abnormal spinal curvature) and increased kyphosis (hunched over curvature) as being associated with back pain in children. Kirkaldy Willis<sup>20</sup> suggests that both of these conditions may arise from birth as well as from functional causes (associated with poor postural habits from childhood).

Salminen<sup>12</sup> conducted a survey involving 370 children between the ages of 11 years to 17 years and found that 20% had symptoms that were mostly mild and localised to the low back. Salminen also found an association between increased kyphosis and low back pain. At this stage of development a considerable increase in the height of the trunk occurs when compared to that of arm length. It has also been suggested that the postural faults adopted during childhood and puberty also affect habits in adulthood and that postural habits easily become irreversible<sup>12, 30</sup>. Thus spinal health promotion at an early age may have a crucial role to play in prevention.

Balague<sup>31</sup> reported that children involved in competitive sports reported low back pain more often (24%;  $p=0.007$ ) than other children. A significant positive correlation was observed between history of low back pain and the following specific sports: tennis (prevalence of low back pain 29%), volleyball (27%), and cycling (26%), ( $p<0.05$ ).

Several studies have examined the relationship between ergonomics (eg. the design of the school-place to suit the activities of children) and low back pain. Poorly designed school furniture may contribute to excessive mechanical stresses to children's spines<sup>33-37</sup> and hence contribute to the development of low back pain.

Troussier<sup>17</sup> found that the use of a backpack was negatively associated with low back pain.

Balague<sup>31</sup> associates higher hours spent watching television with an increased risk of low back pain in children. Troussier<sup>17</sup> also identified hours spent watching television as being associated with an increased risk of experiencing low back pain. Avoiding prolonged sitting may thus play a part in the prevention of low back pain.

Frymoyer<sup>25</sup> lists carrying as being associated with an increased risk of developing low back pain. Kirkaldy Willis<sup>20</sup> suggests that carrying weights of more than 10% body weight may place loads on the spine which lead to low grade injury and ultimately back pain.

Frymoyer<sup>25</sup> lists falls and jolts as risk factors for low back pain. Dwyer<sup>1</sup> and Kirkaldy Willis<sup>20</sup> both acknowledge the link between these incidents and the increased association of developing low back pain.

Lifting as a risk factor for lowback pain was examined by both Walsh<sup>38</sup> and Chiou<sup>39</sup> for the adult population. Similar studies could not be found for the population of children. Lifting has, however, been quoted as a risk factor in previous studies<sup>22-40</sup>. Where possible, avoiding the carrying of heavy weights, preventing falls and jolts and the lifting of heavy weights may present an opportunity for prevention<sup>41-44</sup>.

Despite the paucity of data relating to definitive modifiable risk factors for low back pain in children (and adults), there is sufficient evidence to suggest that attention to the constitutional, postural, recreational and environmental risk factors in childhood will decrease the burden of illness which arises in childhood and may recur in adolescence and adulthood.

## **2.3 Schools as an access point for Spinal Health Promotion**

Childhood has been reported as a time when habits, attitudes and lifestyles are being established and are still malleable. Hence attempts to modify health-related behaviours of children tend to be more successful than those directed to older groups<sup>44</sup>. Several authors with an interest in the prevention of low back pain emphasise the need for health promotion measures in the child population<sup>45,46</sup> and the advantages of using Australian schools as access points for health promotion have been documented. The school is a place where children spend a large percentage of their lives<sup>47</sup>, including the developmental years in which health risk behaviours are often adopted as lifetime habits. Schools are recognised learning institutions with existing infrastructure and systems that provide opportunities for modifying behaviour in a cost effective manner<sup>48</sup>. Schools provide access to nearly the entire population of young people and also provide a valuable link with parents and caregivers. Therefore they offer an ideal setting for interventions which target health-risk behaviours in a school-aged population.

Most schools are involved in some form of health education. The focus has, however, been largely on the formal curriculum which does not take into account the other influences which shape the health status of children. In contrast, an alternative approach involves all members of the school community working together to provide students with integrated and positive experiences and structures which promote their health. This includes both the formal and informal curricula in health, the creation of a safe and healthy school environment, the provision of appropriate health services and the involvement of the family and the wider community in efforts to promote health<sup>49</sup>.

This broader concept offers the following advantages:

It utilises a holistic model of health which includes the interrelationships between the physical, mental, social, and environmental aspects of health. It also addresses the significance of the physical environment (eg. buildings, play areas) in contributing to the health of children. The concept also recognises the importance of the social ethos of the school in supporting a positive learning environment and one in which healthy relationships and the emotional well-being of students are strengthened. In addition it focuses on active student participation in the formal curriculum to develop a range of life long health-related skills and knowledge.

## **2.4 Effectiveness Of Health Promotion In Schools**

Health promotion in schools has been demonstrated to result in significant reduction in health risk factors<sup>50, 51</sup>.

Luepker and Perry in the CATCH (Child and Adolescent Trial for Cardiovascular Health) study<sup>52</sup> assessed the effect of classroom curricula and home-based interventions on reducing cardiovascular disease risk factors. The study involved a randomised controlled field trial at four sites with 56 intervention and 40 control elementary schools. Participants included a total of 5,066 third to fifth grade students from ethnically diverse backgrounds in public schools located in California, Louisiana, Minnesota and Texas.

Twenty eight schools participated in an intervention which included school food service modifications, enhanced physical education, and classroom health curricula. Twenty eight additional schools received these components plus family education over three consecutive years. The classroom and home curricula were implemented by classroom teachers over a fixed time during each school year.

At the school level, the two primary end points were changes in the fat content of food served at lunch, and the amount of moderate-to-vigorous exercise in the Physical Education programmes. For individual students, serum cholesterol change was the primary end point. Other end points included psychological factors, recall measures of eating, physical activity patterns and other physiological measures. The results showed a significant decrease in the percentage of energy intake from fat, falling from 38.7% to 31.9% in intervention schools compared to 38.9% to 36.2% ( $p < 0.001$ ) in control schools. The intensity of physical activity in Physical Education classes also increased significantly in the intervention schools compared with the control schools ( $p < 0.02$ ).

## **2.5 Effectiveness Of Spinal Health Promotion In Schools**

As is the case for school health promotion in relation to cardiovascular disease, Dwyer<sup>1</sup> and Boulton-Davies<sup>53</sup> have suggested that health promotion focusing on spinal health should also occur in schools.

As for cardiovascular health promotion in schools, evidence exists for the effectiveness of spinal health promotion interventions in reducing low back pain risk factors amongst school children. Robertson and Lee<sup>45</sup> in a randomised controlled study, in Australia, reported some immediate improvement in sitting posture and lifting technique in 10 year to 12 year olds following a preventative back-care programme. Three intervention sessions were conducted over a five week period. Each session consisted of a lesson and a collection by two physiotherapists of data on the students' lifting behaviour and sitting postures. They used standardised criteria for assessment. Ninety-one students attended the first session, 89 attended the second and 100 the third. Pre-tests were conducted to determine correct baseline lifting and sitting postures and post-tests measured the impact of lessons. Correct postures were first demonstrated by the physiotherapists and reinforced via students practising the learned behaviours in pairs. The percentage of students not sitting acceptably at the conclusion of the trial was 33% for those who did not receive instruction and 15% for those who did. ( $p < 0.05$ ).

In a further Australian study conducted by Sheldon<sup>46</sup>, 27 Year six and 28 Year eight public school children were instructed in lifting through verbal presentation, demonstration and a practice session. Sheldon demonstrated that knowledge of risk factors involved in back pain and actual performance of a lifting task significantly improved after the brief instructional session. The session consisted of a 15 minute verbal presentation, with information about the significance of back injuries as a medical and economic problem and the risk factors associated with low back pain and injuries. Information was also included on the goals of prevention. This was followed by a visual demonstration of a partial squat lift. Student performance was assessed with multiple-choice tests and practical performance tests. Good retention of the

material at six to seven weeks post instruction was also evident. Combining verbal discussion, demonstration, and practice with feedback appeared to be an effective teaching strategy.. There was a statistically significant improvement ( $p < 0.05$ ) in all post- instruction scores in both the multiple-choice and practical performance tests for both grades. Long term habituation of health-promoting behaviours was not, however, evaluated.

## 2.6 Current Spinal Health Promotion in Australian primary schools

Although some evidence exists for the success of spinal health programmes in primary schools, little is known about the extent to which Australian primary schools incorporate spinal health promoting policies and practices, and the knowledge and attitudes of primary school Physical Education teachers towards spinal health promotion.

Some policies do exist in Australian primary schools which promote spinal health. These policies have not necessarily been designed to address spinal health in particular, but by their focus on health generally are beneficial to the spine and musculoskeletal system. These policies appear in their most comprehensive way in a national document known as the Curriculum Standards Framework<sup>54</sup>.

The Curriculum Standards Framework is a guide that may be used in a variety of school settings to achieve a common set of learning goals. It sets out eight Key Learning Areas including: The Arts, English, Health and Physical Education, Languages other than English, Mathematics, Science, Studies of Society and Environment and Technology. Health and Physical Education and to a lesser extent Science are the principal Key Learning areas in which topics such as spinal health are covered.

Each Australian State and Territory has a Curriculum Standards Framework providing schools with a common basis upon which to plan programmes, assess learning achievement, and report the achievement to the school community and Departmental networks. However, while there is an expectation that schools will address health as one of the eight national Key Learning Areas, there are no demands made to change specific health behaviours or to improve the health status of their students. Nevertheless, most schools encourage the implementation of policies and regulations such as non-smoking, 'no hat, play in shade' policies, and the encouragement of healthy eating practices through health canteens.

**Health and Physical Education** studies are designed to promote an understanding of physical activity and movement, food and nutrition, health, safety, human development and human relations. Within the Key Learning Area, personal action, beliefs, attitudes and values held by families, cultural groups and the wider community are examined, as are public policies affecting health and physical activity and the settings and context of activities in the area<sup>55</sup>.

The **Science** component of the Curriculum Standards Framework has four conceptual strands. The **Life and Living** strand has, in turn, three substrands of which **Structure and Function** appear to best cater for some aspects of spinal education at various teaching levels.

An example of this includes level three which 'Identifies external and internal features that work together to form systems in animals'. For example:

- the discussion of body parts that work together to allow movement
- the drawing and labelling of the human skeleton and nervous system.

## **Conclusion**

No data are available which describe in specific terms the prevalence of spinal health promoting policies and practices in Australian schools. Similarly, no data are reported which describe the knowledge and attitudes of Australian teachers towards the inclusion of spinal health promotion in Australian primary schools. In other countries, some barriers have been identified in implementing such programmes, including competition with other curriculum materials, financial costs and teacher training<sup>26</sup>. The extent to which these and other considerations apply in the Australian school context is unknown hence the need for the pilot study to refine the questionnaire which will later be used (in the principal study) to investigate these considerations.

## 3.0 RESEARCH AIMS

### 3.1 Aims of the Principal Study

#### Research Questions/Aims

The Principal (umbrella) study involves determining:

- A) the prevalence in Hunter Valley (NSW) primary schools of policies and practices that address the spinal health of children.
- B) the knowledge level of Hunter Valley primary school Personal Development and Health (PD&H) teachers in relation to spinal health.
- C) the attitude of Hunter Valley primary school PD&H teachers towards spinal health promotion in primary schools.

### 3.2 Aims of the Pilot Study

- A) To pre-test the procedure of the survey in a selected sample of Health and Physical Education teachers in primary schools.
- B) To assess the distribution of item responses from a selected sample of Health and Physical Education teachers in primary schools.
- C) To determine the *clarity* and *acceptability* of the study design, instruments and procedures by Health and Physical Education teachers in primary schools.
- D) To determine the *clarity* and *acceptability* of the study design, instruments and procedures by curriculum developers.
- E) To review the *accuracy* and *comprehensiveness* of the measurement instrument by spinal health experts.

## 3.3 Methods

#### Sample

##### Primary school Health and Physical Education teachers

These were selected from a sample of 40 primary schools in the Melbourne metropolitan area via a process of systematic sampling in which every 20th State, Catholic and Independent school was selected in the 1997 White Pages telephone directory. That is, from a possible 200 schools (200/40) every 20th listed primary school from the Melbourne metropolitan area was chosen in order to decrease potential bias.

## Curriculum developers

Ten curriculum developers were systematically sampled from a list provided by The Australian Council for Health, Physical Education and Recreation (ACHPER). A cover letter, written by the Vice President of ACHPER (Appendix G) endorsed the project and encouraged curriculum developers to offer their support. Ten curriculum developers were selected in order to refine the study according to a Content Validity Index developed by Lynn<sup>(56)</sup>. In this process the number of experts required, ten, is in part determined by how many agreeable and suitably qualified experts can be identified, and not so much on the population estimate principle.

## Spinal health experts

Ten spinal health experts (Appendix J) were selected following their nomination (by administrative staff in their respective professional organisations) as experts in the area of children's spinal health. Respondents included an orthopaedic surgeon, rheumatologist, specialist in rehabilitation medicine, chiropractor, osteopath, physiotherapist, occupational therapist, ergonomist and academics in Human Movement Science and Physical Education. Once again the number of spinal health experts chosen, ten, was based on the Content Validity Index developed by Lynn and Waltz<sup>56, 57</sup>.

## Procedures

### **Assessment of survey procedure, item discrimination and questionnaire *clarity* and *acceptability* by primary school health and Physical Education teachers.**

At mail out each school Principal was sent a kit requesting that the following attachments be passed onto the Health and Physical Education teacher:

- a survey with instructions to both comment on the *clarity* and *acceptability* of individual questions and the questionnaire overall, and to complete the questions themselves (Appendix B);
- a letter of endorsement - Head of Department of Human Movement Science, RMIT University (Appendix C);
- a letter of introduction (Appendix D) and a copy of the Ethics clearance letter received by the Catholic Education Office in the case of Catholic schools (Appendix E), and that received by Education Victoria in the case of State primary schools (Appendix F); and
- a reply-paid, self-addressed envelope.

The letter of endorsement, reply-paid envelope and follow-up calls, where required, were included to improve the response rate. Follow-up calls were designed to verify the willingness of school principals to participate and acted as a reminder to both principal and teacher of the project. They sought, as well, to answer any problems and to provide the Principal with the opportunity to comment. They were made at ten days, two weeks and three weeks and any verbal comments were recorded at the time of calling.



### **Assessment of *clarity* and *acceptability* of the study design, instruments and procedures by Curriculum developers**

All selected curriculum developers were contacted by phone to ascertain their willingness to participate. At mail out they were sent:

- the same survey sent to Health and Physical Education teachers with instructions to simply comment on the *clarity* and *acceptability* of individual questions and on the questionnaire overall (Appendix B);
- a letter of endorsement from the Vice President of ACHPER ( Appendix H ) and a letter of introduction ( Appendix I); and
- a reply-paid, self-addressed envelope.

The letter of introduction, reply-paid envelope and follow-up calls were included in order to improve the response rate. Where required, follow-up calls were made at ten days, two weeks and three weeks, noting any verbal comments at the time of calling. On receipt of the questionnaires, respondents were identified and the return-date noted.

### **Assessment of *accuracy* and *comprehensiveness* of the measurement instrument by spinal health experts**

Selected subjects were contacted by phone to ascertain their willingness to participate. At mail-out they were sent:

- an original survey (as per that containing the full complement of questions) to give the context of the six selected questions which they were required to comment on. (Appendix K)
- a questionnaire containing six questions related to *accuracy* and *comprehensiveness* - (Appendix L)
- a letter of endorsement (Appendix M), a letter of introduction (Appendix N); and
- a reply-paid, self-addressed envelope.

Once again, the letter of introduction, reply-paid envelope and follow-up calls were included in order to improve the response rate. Where required, follow-up calls were made at ten days, two weeks and three weeks, noting any verbal comments at the time of calling. On receipt of the questionnaires, respondents were identified and the return-date noted.

### **3.4 Measures**

Self administered questionnaires were utilised in the pilot study in preference to other methods, given the need to derive accurate and standardised information as well as the relative inexpense of the method. In addition, the logistical difficulties of reaching school teachers by phone was a consideration. A numeric code was used to identify respondents. This protected respondents' privacy whilst still allowing follow-up.

#### **3.4.1 The Survey Instrument (Appendix K)**

##### **(i) School Spinal Health Policies and Practices**

Respondents answered a checklist of 12 questions to determine their school's written policies and/or practices in Spinal Health Promotion (SHP). Barriers (such as competing priorities, financial restraints and inexperience) and facilitators (such as perceived advantages of promoting spinal health in primary schools) to Policies and Practices were explored.

##### **(ii) Teacher Knowledge of Spinal Health Promotion**

Twenty-five true and false questions assessed the general knowledge of teachers in relation to:

- a) the structure of the spine
- b) the functions of the spine
- c) how problems develop
- d) how to look after your spine.

A score of over 80% correct responses was considered "adequate" knowledge given the relative simplicity of knowledge tested.

##### **(iii) Teacher Attitudes Towards Spinal Health in Schools**

Forty six questions relating to teachers' attitudes towards the importance of spinal health promotion policies in their school were elicited. Eight topic areas were covered and "attitudes" were scored overall by section based upon responses to a 4-point Likert scale.

The sections included:

- a) identifying existing health promotion carried out in their school
- b) opinions as to the best location/s for carrying out spinal health promotion
- c) the importance of teaching spinal health promotion in schools
- d) the curriculum learning areas in which spinal health promotion would be most applicable

- e) perceived difficulties in implementing spinal health promotion in participant's school
- f) approaches perceived to be essential in developing a successful spinal health programme

#### **Assessment of survey procedure, item discrimination and questionnaire *clarity* and *acceptability* by primary school Health and Physical Education teachers**

Teachers' knowledge and attitudes towards spinal health promotion (in primary schools) as well as the prevalence of spinal health promotion policies and practices in those schools were assessed by 4-point Likert scale items and ratings. Four-point Likert scale items and open-ended questions were also used to provide rating concerning the *clarity* (eg. were the messages simple and unambiguous), and *acceptability* (was the language and presented information relevant and appropriate to teachers) of both individual questions and the questionnaire overall.

#### **Assessment of *clarity* and *acceptability* of the study design, instruments and procedures by curriculum developers**

The survey concerning the *clarity* and *acceptability* of the instrument was also sent to curriculum developers.

#### **Assessment of the *accuracy* and *comprehensiveness* of the measurement instrument by spinal health experts**

A survey was sent to spinal health experts to assess the *accuracy* (eg. is there sufficient evidence of association or of a causal relationship) and *comprehensiveness* (eg. are all the important factors included and the main points sufficiently emphasised ?) of the questionnaire. Spinal health experts from a broad range of disciplines commented on issues concerning anatomical and/or physiological aspects covered in the questionnaire and the existence (or otherwise) of evidence to justify assumptions (eg correct posture and back pain in children).

### **3.4.2 Analysis**

#### **The Modified Content Validity Index (MCVI)**

In order to quantify the *acceptability*, *clarity*, *accuracy*, and *comprehensiveness* of the survey items and the survey itself, a modified version of the Content Validity Index (CVI) first developed by Waltz and Bausell <sup>57</sup> was used. The CVI is derived from the 4-point Likert scale ratings where, for example, 1 denotes an *inaccurate* item and 4 an *accurate* item. The CVI as used by Waltz and Bausell is the proportion of items that receive a rating of 3 or 4. The CVI has also been used for entire instrument evaluation. The CVI for the entire instrument is the proportion of total items judged as 3 or 4. The modified version of the CVI used in this project relies on the calculations for items given a rating of 4. This is because a 3 response, whilst *acceptable*, requires the question to be changed. Given that the principal aim of the pilot study is to refine the questionnaire, this more stringent procedure has been utilised. In other words, a question will only be judged satisfactory if a certain percentage (80% or more)

of respondents select 4. Thus, for the purposes of this project, a modified Content Validity Index (MCVI) was used.

A minimum number of expert-agreements must be determined to assess both the individual item and total instrument *clarity, acceptability, accuracy* and *comprehensiveness* (CAAC). This will be achieved by calculating the proportion of experts who agreed, and then setting the standard error of the population to determine the cut-off for chance rather than real agreement. For ten experts, the proportion of experts whose approval is required to achieve CAAC beyond the ( $p < 0.05$ ) level of significance was 0.8. Therefore, 80% of the experts (eight) were required to score the item as 4 (for example, *clear*) in order to be included and considered *clear*. Items that did not achieve the minimum expert agreement will be eliminated or revised.

The MCVI for each item was established by the proportion of experts who rated the item as *clear, acceptable, accurate* or *comprehensive*, that is a rating of 4. The MCVI for the entire instrument was determined by the proportion of total items judged to have achieved CAAC.

### 3.4.3 Ethical Issues

Ethical clearance was initially obtained by the Ethics Committee of The University of Newcastle (Appendix P). In addition, permission to proceed (in principle) was gained from the Catholic Education Office and Education Victoria (The State Education Department in Victoria) - as per Appendices E and F. Education Victoria also required that Regional Directors be notified of the project (Appendix Q). These bodies in turn requested that the Principals of each participating school be contacted, and their approval sought, prior to proceeding with the study. Physical Education Teachers/Specialists were advised of the voluntary nature of the project and assured (in writing) that they were under no obligation to participate (Appendix D).

## **4.0 RESULTS**

### **4.1 Results and Discussion**

#### **Sample**

##### **Health and Physical Education Teachers:**

Of the 40 surveys sent to Health and Physical Education teachers, a total of 34 were received within one month following the mail-out date, giving a response rate of 85% over the month.

##### **Curriculum developers**

All ten curriculum developers agreed to participate and returned completed questionnaires.

##### **Spinal health experts**

All ten spinal health experts agreed to participate and returned completed questionnaires

##### **Assessment of item discrimination**

The prevalence of teacher responses to each of the questionnaire items is shown in Appendix A.

In general, it appeared that the distribution of responses supported the view that some spinal health promotion policies and practices are being catered for in primary schools, whereas others have been largely ignored. Policies and practices regarding the areas of physical education and fitness, as well as injury prevention, appear to be most prevalent in schools.

The policies and practices that seem to not be adequately covered include those that could be broadly classified as lifestyle factors, including issues of posture and ergonomics. Teacher knowledge of spinal health promotion seems to also be limited to the better known areas that deal with physical fitness and injury prevention.

A similar dichotomy appears to exist with a greater number of teachers appearing to believe that policies are required in the areas of physical education and injury prevention, more so than in ergonomics and posture.

In terms of the perceived importance of spinal health promotion relative to other topics being addressed in schools, spinal health promotion was identified as being important by only 20% of teachers. In contrast, 94% noted self-esteem as being important, while 50% considered heart health to be important.

In terms of the knowledge of teachers (Table A1.5), generally low levels of knowledge were evident for almost all items, varying from 7 to 33% of teachers scoring correctly on each item.

Similarly, whereas 68% of teachers considered workplaces to be a suitable location for spinal health promotion, only 32% thought that spinal health promotion was relevant in primary schools.

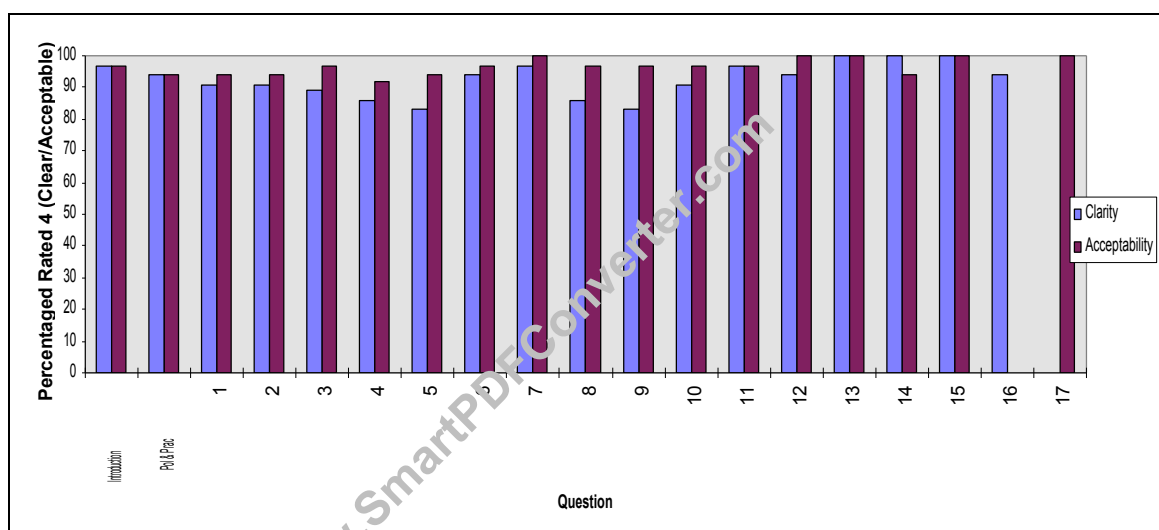
Finally, lack of knowledge, training and time were considered by approximately half of the teachers to be impediments to the inclusion of spinal health promotion in primary schools. Seventy-one percent saw competing priorities as the major difficulty.

### Assessment of the *clarity* and *acceptability* of the study design, instrument and procedures by Health and Physical Education teachers

Of the 17 items included in the instrument, 17 were judged as *clear* by teachers (that is, at least 28 out of 34). Of the same items 17 were judged as *acceptable* (that is 8 out of 34).

Figure 1 is a summary of teacher responses. It can be seen that the MCVI exceeded the 0.8 requirement for all questions and the questionnaire overall.

**Figure 1: Summary of Teacher Ratings for *clarity* and *acceptability***



According to the MCVI, the individual questions, and the questionnaire as a whole were both *clear* and *acceptable* to teachers. Some suggestions will, however, be incorporated in the revised questionnaire (Appendix R).

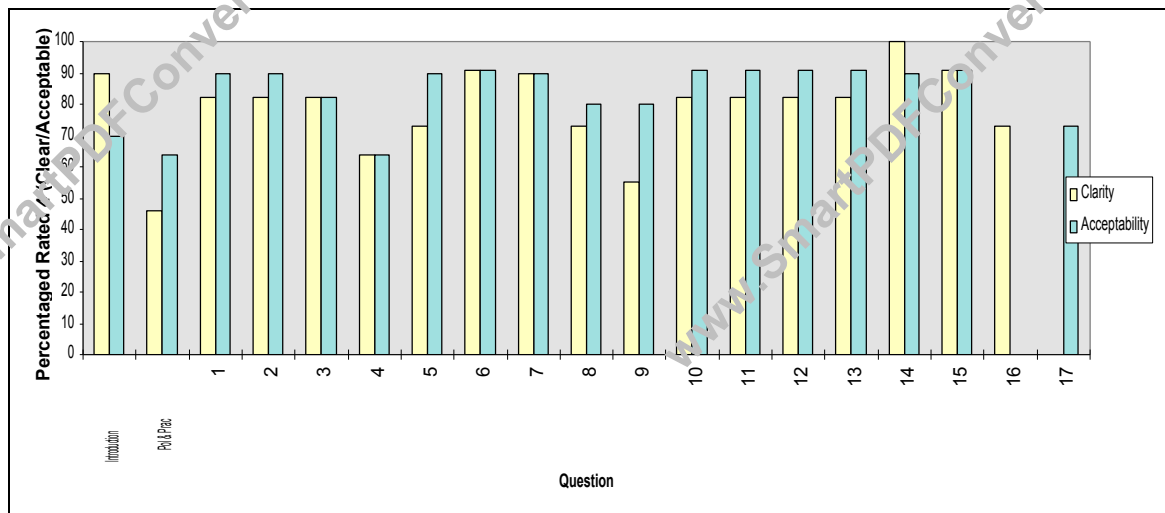
### Assessment of the *clarity* and *acceptability* of the study design, instrument and procedures by curriculum developers

Curriculum developers were, however, more critical of the instrument than were teachers. According to the MCVI, *clarity* was in need of review whereas *acceptability* (arguably a more important assessment criteria) achieved a borderline score.

Of the same 17 items, answered by teachers, 12 were judged as *clear* by the curriculum developers (corresponding to 8 out of 10) and 14 were judged as *acceptable* (8 out of 10).

Figure 2 summarises the curriculum developers' responses. The questions that did not satisfy the MCVI for *clarity* and *acceptability* include, the Introduction, questions relating Policies and Practices, and questions 4,5,6,7,8,9,16 and 17

**Figure 2: Summary of curriculum developers Ratings for *clarity* and *acceptability***



Frequent suggestions included simplifying the terminology and clarifying questions through appropriate examples. Point form was suggested when lists of items are referred to. Some terminology was not correct and some issues required further considerations (such as the importance of parental opinion in determining whether programs were implemented). Some suggestions for improving the instrument were, however, noted and appear in the refined questionnaire (Appendix R).

#### **Assessment of the *accuracy* and *comprehensiveness* of the measurement instrument by spinal health experts**

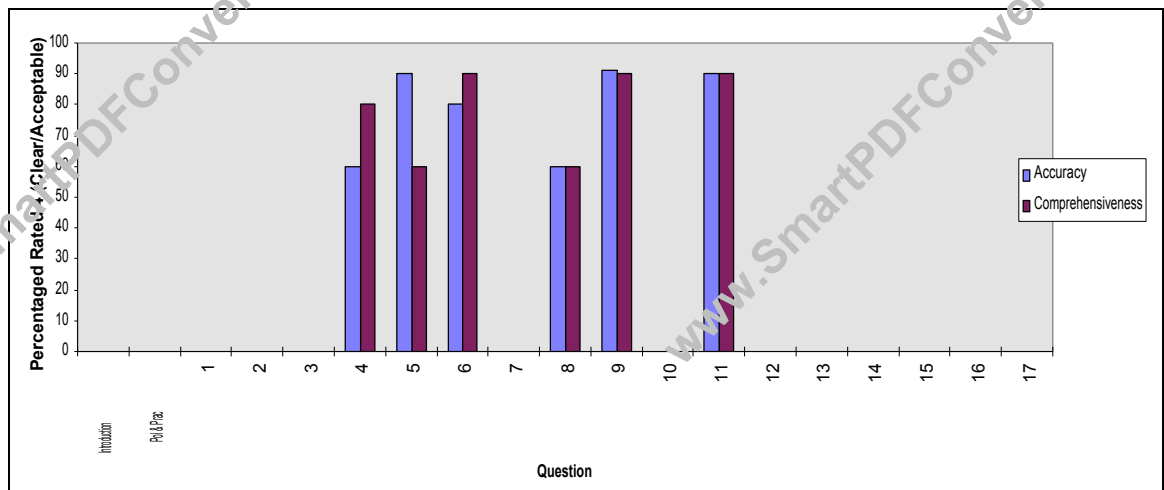
Spinal health experts were equally critical of the *accuracy* and *comprehensiveness* of the instrument but like curriculum developers proposed some suggestions which have been collectively incorporated into the refined questionnaire (Appendix R).

Of the 6 items specifically chosen for review by spinal experts, 4 were judged as *accurate* (8 out of 10) and 4 were judged as *comprehensive* (8 out of 10).

The questions reviewed by the selected spinal health experts include 4, 5, 6, 8, 9, 11. These were chosen because of their specialised content areas relating to spinal health.

Figure 3 summarises the spinal health experts' responses. The questions that did not satisfy the MCVI for *accuracy* and *comprehensiveness* include questions 4, 5 and 8

Figure 3: Summary of spinal health experts Ratings for accuracy and comprehensiveness



Frequent suggestions included utilising more precise terminology, and the subdividing and making of the questions more comprehensive by referring to other relevant groups including school councils and the Curriculum Standards Framework as factors which influence the implementation of the programme.

- \* The MCVI of 0.89 was based on a calculation that gives proportionally more weight to the larger groups (ie. teachers and curriculum developers).
- \*\* A more conservative method would give equal weight to each group regardless of group size and an MCVI calculated at 0.81, which is still marginally greater than the 0.8 figure (set for accepting the CAAC at level  $p < 0.05$ ).

#### Legend:

**Unit** = An individual question judged on an individual characteristic (e.g. *acceptability*)

A **unit** is acceptable if more than 80% of a group (Teachers, curriculum developers or spinal health experts) accept the unit, that is giving a rating of 4 on the likert scale.

Therefore :

- (i) Teachers answered 17 questions on the basis of two characteristics. => Teachers total number of units = 34
- (ii) Curriculum developers answered 17 questions on the basis of two characteristics. => Curriculum developers total number of units = 34
- (iii) Spinal experts answered 6 questions on the basis of two characteristics. => Spinal health experts total number of units = 1

Proceeding from this, we can find a value for the MCVI for group I

$$MCVI_I = \frac{\text{Number of acceptable units in group I}}{\text{Total number of units in group I}}$$

Finally, to calculate the whole instrument MCVI, there are a number of options in terms of weighing the value.



(I) Distributes the weight according to the sample size of each group

Define:  $i_n$  = number of people in group i.

$$\begin{aligned} \text{MCVI} &= \frac{\text{MCVI}_1 * n_1 + \text{MCVI}_2 * n_2 + \text{MCVI}_3 * n_3}{n_1 + n_2 + n_3} \\ &= \frac{(1 * 34) + (0.765 * 10) + (0.66 * 10)}{34 + 10 + 10} \\ &= 0.89 \end{aligned}$$

This method gives a MCVI value that is biased towards the teachers MCVI, as there is a larger sample size of teachers compared with the other groups.

(II) Distributes the weight evenly between the 3 groups.

$$\begin{aligned} \text{MCVI} &= \frac{\text{MCVI}_1 + \text{MCVI}_2 + \text{MCVI}_3}{3} \\ &= \frac{1 + 0.765 + 0.66}{3} \\ &= 0.81 \end{aligned}$$

This method gives an MCVI value that is biased towards the ten spinal health experts who answered 12 units only, but whose MCVI value was considered equally significance to the 34 teachers who answered 34 units.

Thus even if we adopt the more conservative MCVI calculation of 0.81 for the whole instrument, the criterion of *clarity*, *acceptability*, *accuracy*, and *comprehensiveness*, have been satisfied.

The MCVI for each criteria used to refine the survey can be seen in Table 2 .below

**Table 2: The MCVI for each criteria used to refine the survey.**

**A figure of 0.8 or above is required to satisfy the criterion of *clarity*, *acceptability*, *accuracy* and *comprehensiveness*.**

	<b>Clarity</b>	<b>Acceptability</b>	<b>Accuracy</b>	<b>Comprehensive ness</b>
<b>Forty Teachers</b>	1	1	N/A	N/A
<b>Ten curriculum developers</b>	≈ 0.66	≈ 0.78	N/A	N/A
<b>Ten spinal health experts</b>	N/A	N/A	≈ 0.66	≈ 0.66

Appendix R is a compilation of suggestions forwarded by teachers, curriculum developers and spinal health experts as a revised questionnaire.

## 5.0 CONCLUSION

Low back pain represents a serious burden of illness in both the child and adult population and some modifiable risk factors have been identified. Whilst preventive measures aimed at addressing the burden of low back pain are in themselves a priority for children, they also present a preventive opportunity for low back pain in adults.

The rationale for this is twofold. Firstly, a previous history of back pain increases the likelihood of subsequent attacks by three times and implicitly, by attempting to prevent initial episodes, future risks may be reduced. Secondly, childhood has been identified as a time in which habits are being formed and hence attempts to modify risk behaviours (including those associated with low back pain) tend to be more successful. The school environment provides an excellent opportunity for introducing spinal health promoting policies and practices as well as positively influencing teacher knowledge and attitudes towards spinal health promotion.

This pilot study aimed to refine a questionnaire which assesses ‘the prevalence of, and teacher knowledge and attitudes towards spinal health promotion in primary schools.’ The results showed that the procedure of the survey was adequate as evidenced by both a greater than expected response rate and generally favourable comments made by respondents in relation to the questionnaire overall.

The survey appeared *clear* and *acceptable* to the target group according to a Content Validity Index (which was appropriately modified and described as an MCVI), but perceived to be in need of further refinement according to curriculum developers. The spinal health experts (using the same Index) stated that it was *accurate* and *comprehensive* but required further modifications. The distribution of responses was generally acceptable but in parts required modifications in order to assist in the process of differentiation between responses.

Teacher knowledge and attitudes towards spinal health promotion and the prevalence of spinal health promoting policies and practices in primary schools appeared to be biased towards spinal health issues related to physical sports and to injury prevention. However, in what could be broadly classified as Lifestyle factors (encompassing postural and ergonomic issues) both policies and practices appeared inadequate.

Most of the spinal specialists admitted to their having limited knowledge in relation to spinal health promotion in children, as opposed to spinal health interventions once symptoms have developed (eg. manipulation, surgery, rehabilitation). This was true in spite of their being nominated by their peers as being the most knowledgeable in this sphere of expertise. A more effective means of locating the ‘experts’ would be one in which the nominated ‘experts’ in turn nominated who they consider to be the most knowledgeable. The process would be continued until no new nominations appear and those left would in turn be ranked according to frequency of nomination.

Certain strengths and limitations were associated with the study design. The study design was conducted relatively quickly and inexpensively and allowed the researcher control over both the selection of study subjects and the measurements used. Moreover, several factors under investigation (such as policies, practices, knowledge and attitudes) were able to be covered

simultaneously. In addition, the systematic sampling of participants assisted in minimising sampling bias. In the Principal study, bias is further limited as the entire sampling frame of schools in the Hunter Region is to be surveyed.

Whilst efforts have been made to match Personal Development and Health (PD&H) teachers in New South Wales with their Health and Physical Education teacher counterparts in Victoria, the results may not necessarily accurately reflect regional differences in terms of teacher background and work description.

In the case of the Principal Study, all the Personal Development and Health teachers of the Hunter (NSW) will be examined, hence the potential for inference to the reference population has been maximised.

In terms of generalising the data of the Principal study to the whole of the State or indeed the whole of the country, further consideration would need to be given the representatives of Newcastle schools and teachers in terms of the broader State and/or Australian PD&H (or equivalent) population.

In summary, the implementation of a principal study that has been firstly modified by suggestions forwarded by teachers, curriculum developers and spinal health experts (as per this pilot study) would provide a valuable first step in addressing the burden of illness of low back pain in both children and potentially also in adults.

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## 7.0 APPENDICES

### 7.1 INDEX TO APPENDICES

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## APPENDIX A

### Teacher Responses to Questionnaire Items

- Each table may represent the table for a number of different factors, but these have been grouped together for the sake of brevity.
- Total number of surveys = 34  
9 = no response

#### 1. Policies catering for Spinal Health Promotion

(“How well do you believe your school has catered for Spinal Health Promotion **policies**?”)

Level of Current Practice:	Total n	%
Very well covered	0	0
Quite well covered	9	26
Not very well covered	19	56
Poorly covered	6	18
9	0	0

#### 2. Practices catering for Spinal Health Promotion

(“How well do you believe your school has catered for Spinal Health Promotion **practices**?”)

Level of Current Practice:	Total n	%
Very well covered	0	0
Quite well covered	13	38
Not very well covered	17	50
Poorly covered	3	9
9	1	3

#### 3. How well could teachers incorporate a spinal health programme in their curriculum?

(“How well could you incorporate a spinal health programme into your curriculum?”)

	Total, n	%
Very well	4	12
Quite well	23	68
Not very well	5	15
Not at all	1	3
9	1	3

## APPENDIX A

**Table A 1.1 Prevalence of Spinal Health Policies and Practices**

**4. Areas covering policies and practices**

(“For which of the following areas does your school have policies (such as written guidelines) and/or practices concerning spinal health?”)

1 = Yes

3 = Do not know

2 = No

9 = Office use

POLICIES/PRACTICES	Policies		Practices	
	(n)	(%)	(n)	(%)
a) Posture				
Correct posture	5	15	5	15
Use of backpacks	1	3	4	12
Correct use of backpacks	1	3	4	12
Correct lifting	3	9	3	9
b) Fitness				
Physical fitness	28	82	3	9
Flexibility	15	44	6	18
c) Ergonomics				
Ergonomically designed furniture	5	9	4	12
Ergonomically arranged furniture	3	9	5	15
d) Injury Prevention				
Safe surfaces	13	38	3	9
Safe practices at play	22	65	3	9
Wearing protective equipment	11	32	2	6
e) Curriculum				
A spinal health curriculum	0	0	3	9

## APPENDIX A

**TABLE A1.2 Determinants of a Spinal Health Curriculum**

Main factors in deciding programme implementation

	Very important		Important		Not very important		Unimportant	
	n	%	n	%	n	%	n	%
Popularity with teachers	5	15	22	65	4	12	2	6
Cost	12	35	16	47	7	15		
PD&H teacher's opinion	3	9	21	62	7	20.5	2	6
Ease of teaching	10	29	15	44	8	23.5	0	0
Public health significance	6	18	22	65	5	15	0	0
Educational significance	22	65	10	29	0	0	0	0
Opinion of Principal	6	18	19	56	7	20.5	0	0

## APPENDIX A

**TABLE A1.3 Importance of spinal Health Promotion Policies and Practices**

1 = Very important

3 = Not very important

2 = Important

4 = Unimportant

	Policies					Practices		
	1 (n)	1 (n)	1 %	2 (n)	2 %	2 %	2 (n)	%
a) Posture								
Correct posture	10	23	62	11	32	29	17	50
Use of backpacks	7	17	50	15	44	20.5	20	59
Correct use of backpacks	10	18	53	14	41	29	17	50
Correct lifting	14	24	70.5	10	29	41	14	41
b) Fitness								
Physical fitness	22	28	82	6	0	65	9	26
Flexibility	17	23	68	11	32	50	13	38
c) Ergonomics								
Ergonomically designed furniture	8	17	50	15	44	23.5	18	53
Ergonomically arranged furniture	8	18	53	13	38	23.5	17	50
d) Injury Prevention								
Safe surfaces	20	26	76	8	23.5	59	12	35
Safe practices at play	23	27	79	7	20.5	68	9	26
Wearing protective equipment	16	22	65	9	26	47	14	41
e) Curriculum								
A spinal health curriculum	6	12	35	18	53	18	18	53

## APPENDIX A

**TABLE A1.4 Spinal health topics included in the curriculum**

**8. Health topics covered in curriculum**

(“Which of the following general health topics are covered in your school’s educational programme?”)

**a. Structure of spine %**

	Yes	%
3 curves (cervical, thoracic, lumbar)	8	23.5
Discs	9	26
Joints	18	53
Ligaments	15	44
Muscles	22	65

**b. Functions of the Spine %**

	Yes	%
Support (of the body)	27	79
Movement	27	79
Protection of the nervous system	25	73.5

**c. How problems may develop %**

	Yes	%
Falls	20	59
Pranks (pulling chairs from underneath person)	26	76
Diving into shallow pools	32	94
Prolonged sitting (> 1 hour without stretch break)	7	20.5
Lack of adequate exercise	24	70.5
Poor flexibility (lack of regular stretching)	20	59
Poorly designed school furniture	5	15
Poorly arranged school furniture	5	15
Carrying heavy school bag	16	47
Incorrect use of backpacks	14	41
Poor posture	23	62

**d. How to look after your spine %**

	Yes	%
Avoid accidents	24	70.5
Don't play on slippery surfaces	25	73.5
Wear protective sporting gear	27	79
Adopt correct posture	20	56
Correct use of backpacks	12	35
Exercise regularly	32	94
Stretch before and after sport	32	94

**TABLE A1.5 General knowledge of teachers**

## APPENDIX A

### in relation to Spinal Health Promotion

#### a. Structure of spine %

	TOTAL Correct	%
Looking from the side, the spine is normally straight.	25	76
The spine is divided into cervical, thoracic, lumbar and pelvic regions.	19	56
The cervical spine curves forward like the lumbar spine whilst the thoracic spine curves backwards.	8	23.5
Discs are firm but flexible in structure.	21	62

#### b. Function of the spine %

	TOTAL Correct	%
The three main functions of the spine are to support the body, to allow movement and to protect the nervous system.	32	94
The discs and natural curves have a shock absorption role.	28	82
The spinal joints are like spaces between the vertebra which may restrict certain movements.	7	20.5
Ligaments are like muscles in their role in that they allow movement when they contract.	12	35

#### c. How problems may develop - posture %

	TOTAL Correct	%
The best way to sleep is on your tummy.	24	70
A soft versus a firm mattress is better for your spine.	31	91
Sitting places less strain on your spine than standing.	19	55
Weak abdominal muscles may predispose to low back pain.	28	82
Flexible hamstrings predispose children to back pain.	17	50
School furniture is suitable.	22	64

## APPENDIX A

### How to look after your spine

	TOTAL Correct	%
<u>Posture:</u>		
1. The use of backpacks versus carry bags may be more beneficial for spinal health.	30	88
2. Knees should be perfectly straight when picking up any load.	33	97
3. Sleeping on your side or back is not advisable.	21	67
4. A soft mattress is better for your back than a firm mattress.	31	91
5. Sleeping on your stomach is recommended for your spine.	21	67
TOTAL	136	80
<u>Fitness:</u>		
Warming up and cooling down stretches in sport are an important way to prevent injury to the spine and muscles.	33	97
Sitting for longer than 1 hour is associated with increased low back pressure/discomfort for many children	26	76
Toned abdominal are important for low back support	31	91
Flexible back muscles may relieve low back tension	32	94
TOTAL	122	90
<u>Ergonomics:</u>		
Arranging furniture so that it discourages students from twisting their backs may be helpful in preventing spinal problems.	5	15
Adjustable desktops may assist in promoting correct posture.	28	82



## APPENDIX A

**TABLE A1.6. Attitudes towards Spinal Health in schools**

	Very important		Important		Not very important		Unimportant		9	
	n	%	n	%	n	%	n	%	n	%
Heart health	17	50	17	50	0	0	0	0	0	0
Self esteem	32	94	2	6	0	0	0	0	0	0
Dental health	13	38	20	59	1	3	0	0	0	0
Spinal health promotion	9	26	21	62	4	12	0	0	0	0
Immunisation	15	44	17	50	2	6	0	0	0	0

**TABLE A 1.7 Locations for teaching Spinal Health Promotion**

	Strongly agree		Agree		Disagree		Strongly disagree		9	
	n	%	n	%	n	%	n	%	n	%
Primary schools	11	32	23	68	0	0	0	0	0	0
Secondary schools	16	47	18	53	0	0	0	0	0	0
Community Health Centres	16	47	17	50	1	3	0	0	0	0
Private Practices	16	47	16	47	1	3	0	0	1	3
Hospitals	18	53	14	41	1	3	0	0	1	3
Workplaces	23	68	11	32	0	0	0	0	0	0

## APPENDIX A

**TABLE A1.8 Learning Areas where Spinal Health Promotion is most applicable**

	Very Relevant		Relevant		Not very relevant		Irrelevant		9	
	n	%	n	%	n	%	n	%	n	%
Arts	1	3	9	26	12	35	5	15	7	20.5
English	0	0	14	41	12	35	2	6	6	18
Health Education	30	88	4	12	0	0	0	0	0	0
Language	0	0	6	18	12	35	8	23.5	8	23.5
Mathematics	1	3	5	15	18	53	3	9	7	20.5
Science	10	29	21	62	1	3	0	0	2	5.8
Studies of society and environment	1	3	19	56	9	26	0	0	5	15
Technology	8	23.5	14	41	6	18	1	3	5	15

**TABLE A1.9 Difficulties that may be encountered in implementing Spinal Health Promotion**

	Very frequently		Frequently		Not very frequently		Infrequently		9	
	n	%	n	%	n	%	n	%	n	%
Financial support	12	35	15	44	7	20.5	0	0	0	0
Competing priorities	24	70.5	9	26	1	3	0	0	0	0
Time for preparation of a new subject area	18	53	11	32	4	12	0	0	1	3
Lack of interest in topic	2	6	18	53	13	38	1	3	0	0
Lack of training	17	50	14	41	3	9	0	0	0	0
Knowledge of content areas	16	47	14	41	4	12	0	0	0	0

## APPENDIX A

**TABLE A1.10 Methods of implementing Spinal Health Promotion in schools**

	Very important		Important		Not very important		Unimportant		9	
In service training workshops	27	79	6	12	1	3	0	0	0	0
Trained health practitioners and/or presenters	24	70.5	8	23.5	2	5	0	0	0	0
Video package	22	65	12	35	0	0	0	0	0	0
Resource kit	24	70.5	9	26	1	3	0	0	0	0



## **Survey of Policies and Practices in Spinal Health**

### **Promotion (SHP)**

**A pilot study to review the  
*clarity and acceptability*  
of the questionnaire**

## APPENDIX B

### Instructions Page for Completing both Question Items and to rate *clarity* and *acceptability*

(Schools)

#### Review of *clarity* and *acceptability* of the Introduction to the Questionnaire

Please read the **Introduction** section of the survey set out below, and circle one number which indicates the:

- **CLARITY** (eg. is the information in the Introduction simple and unambiguous? Is the language appropriate?) and the
- **ACCEPTABILITY** (eg. is the information in the Introduction relevant to H&PE teachers, or the language offensive/inappropriate? Is the information too long?)

of each item.

If you circle 1, 2 or 3, please suggest how to improve the item.

#### Introduction

This survey comes with a self-addressed stamped envelope. Your co-operation in returning the completed questionnaire by Friday May 30th will be greatly appreciated.

It has been prepared for teachers who are responsible for co-ordinating and/or implementing the Health and Physical Education (H&PE) Curriculum in primary schools.

It is designed to answer the following three major questions:

- 1) What policies and practices currently exist in primary schools which address the spinal health of children?
- 2) What is the level of knowledge of H&PE teachers regarding spinal health?
- 3) What attitudes exist amongst H&PE teachers in relation to Spinal Health Promotion (SHP) in primary schools?

We will also be asking questions specific to individuals and to schools. Individual responses will be kept in strictest confidence. In any reporting of results no individual or school will be identified. Participation is voluntary.

Upon completion of this study, a report will be gladly forwarded to participants.

## APPENDIX B

We thank you for your participation in this survey. Your efforts will play an important part in the development of recommendations for health policies in schools and ultimately in the better health of children.

### *Clarity:*



If 1, 2 or 3, suggested revision: .....

.....

.....

### *Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

### Review of *clarity* and *acceptability* of the Introduction to the Questionnaire

Please read the **Introduction** section of the survey set out below and circle one number which indicates the:

- **CLARITY** (eg. is the information in the Introduction simple and unambiguous? Is the language appropriate?) and the
- **ACCEPTABILITY** (eg. is the information in the Introduction relevant to H&PE teachers, or the language offensive/inappropriate? Is the information too long?)

of each item.

If you circle 1, 2 or 3, please suggest how to improve the item.

#### Introduction

This survey comes with a self-addressed stamped envelope. Your co-operation in returning the completed questionnaire by Friday May 30th will be greatly appreciated.

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We will also be asking questions specific to individuals and to schools. Individual responses will be kept in strictest confidence. In any reporting of results no individual or school will be identified. Participation is voluntary.

Upon completion of this study, a report will be gladly forwarded to participants.

We thank you for your participation in this survey. Your efforts will play an important part in the development of recommendations for health policies in schools and ultimately in the better health of children.

#### Clarity:



If 1, 2 or 3, suggested revision: .....

.....

## APPENDIX B

### *Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....

.....

## Policies and Practices

Both the literature and our experience suggests that primary schools tend to vary in terms of their health policies and practices in general and their spinal health promotion policies/practices in particular. Spinal Health Promotion (SHP) encompasses a range of policies and practices. These may include aspects of posture (such as correct sitting and lifting practices), fitness and flexibility, Ergonomics (such as ergonomically designed furniture), injury prevention (including non-slip play surfaces) and a spinal health curriculum (addressing the structure/function of the spine and how to look after it).

If your school has practices which sufficiently cater for Spinal Health Promotion you might circle "Quite well". The following questions will provide us with more information about how these factors operate in your primary school.

### *Clarity:*



If 1, 2 or 3, suggested revision: .....

.....

.....

### *Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....



## APPENDIX B

### Review of *clarity* and *acceptability* of Questionnaire items

We would like you to do two things with the items:

1. Complete each of the items as directed
2. Answer the questions underneath each item by circling one number which indicates the:
  - **CLARITY** (eg. is the question simple and unambiguous? Is the language appropriate?); and the
  - **ACCEPTABILITY** (eg. is the question relevant to H&PE teachers, or the language offensive/inappropriate? Is the question too long?).

If you circle 1, 2 or 3, please suggest how to improve the item.

- |    |  |                |                 |                    |             |
|----|--|----------------|-----------------|--------------------|-------------|
| 1. | How well do you believe your school has catered for Spinal Health Promotion policies in your school? | Very well<br>1 | Quite well<br>2 | Not very well<br>3 | Poorly<br>4 |
|----|--|----------------|-----------------|--------------------|-------------|

**Clarity:**



If 1, 2 or 3, suggested revision: .....

.....

**Acceptability:**



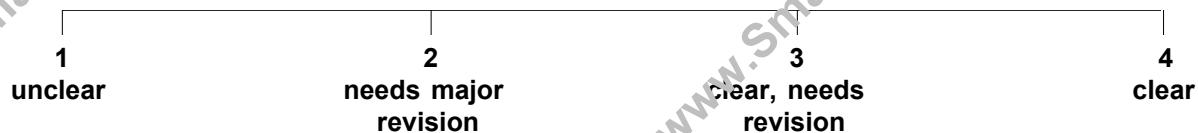
If 1, 2 or 3, suggested revision: .....

.....

## APPENDIX B

2. How well do you believe your school has catered for Spinal Health Promotion practices in your school?
- |           |            |               |        |
|-----------|------------|---------------|--------|
| Very well | Quite well | Not very well | Poorly |
| 1         | 2          | 3             | 4      |

**Clarity:**



If 1, 2 or 3, suggested revision: .....

.....

**Acceptability:**



If 1, 2 or 3, suggested revision: .....

.....

3. How well could you incorporate a spinal health programme into your curriculum?
- |           |            |               |            |
|-----------|------------|---------------|------------|
| Very well | Quite well | Not very well | Not at all |
| 1         | 2          | 3             | 4          |

**Clarity:**



If 1, 2 or 3, suggested revision: .....

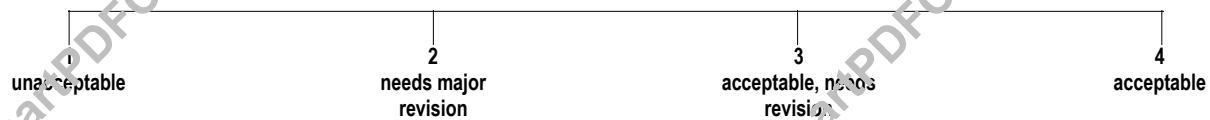
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## APPENDIX B

In relation to Question 3 (previous page):

*Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

4. For which of the following areas does your school have policies (such as written guidelines) and/or practices concerning spinal health?

Please circle the appropriate number.

	Policies				Practices			
	Yes	No	Don't know	Office use only	Yes	No	Don't know	Office use only
<u>Posture:</u>								
Correct posture	1	2	3	9	1	2	3	9
Use of backpacks	1	2	3	9	1	2	3	9
Correct use of backpacks	1	2	3	9	1	2	3	9
Correct lifting	1	2	3	9	1	2	3	9
<u>Fitness:</u>								
Physical fitness	1	2	3	9	1	2	3	9
Flexibility	1	2	3	9	1	2	3	9
<u>Ergonomics:</u>								
Ergonomically designed furniture	1	2	3	9	1	2	3	9
Ergonomically arranged furniture	1	2	3	9	1	2	3	9
<u>Injury Prevention:</u>								
Safe surfaces	1	2	3	9	1	2	3	9
Safe practices at play	1	2	3	9	1	2	3	9
Wearing protective equipment at play	1	2	3	9	1	2	3	9
<u>Curriculum:</u>								
A spinal health curriculum	1	2	3	9	1	2	3	9

List any other policies that exist in your school which may promote spinal health in children	Office use only	List any other practices that occur in your school which may promote spinal health in children	Office use only
---	-----------------	--	-----------------

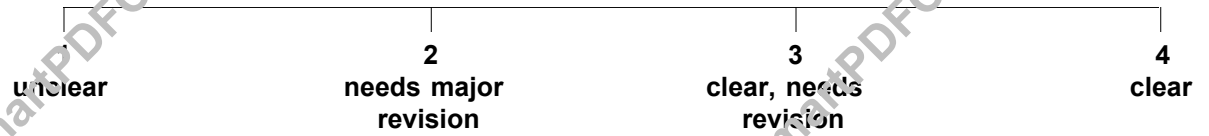
APPENDIX B

eg. no pushing or shoving.....	.....	eg. walking from home to school.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

## APPENDIX B

In relation to Question 4 (previous page):

*Clarity:*



If 1, 2 or 3, suggested revision: .....

.....

.....

*Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

5. In your opinion, how important are the following factors in deciding whether school-based curricula/programmes are implemented?

Please circle the appropriate number.

	Very important	Important	Not very important	Unimportant	Office Use
Popularity with teachers	1	2	3	4	9
Cost	1	2	3	4	9
H&PE teacher's opinion	1	2	3	4	9
Ease of teaching	1	2	3	4	9
Public health significance	1	2	3	4	9
Educational significance	1	2	3	4	9
Opinion of Principal	1	2	3	4	9

Other (please specify) .....

### Clarity:



If 1, 2 or 3, suggested revision: .....

.....

.....

### Acceptability:



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

6. Assuming that personnel and resources are available, in your opinion how important is it for your school to have written **policies/guidelines** in relation to the following areas of spinal health?

Please circle the appropriate number.

	Very important	Important	Not very important	Unimportant	Office Use
<u>Posture:</u>					
Correct posture	1	2	3	4	9
Use of Backpacks	1	2	3	4	9
Correct use of Backpacks	1	2	3	4	9
Correct lifting	1	2	3	4	9
<u>Fitness:</u>					
Physical Fitness	1	2	3	4	9
Flexibility	1	2	3	4	9
<u>Ergonomics:</u>					
Ergonomically designed furniture	1	2	3	4	9
Ergonomically arranged furniture	1	2	3	4	9
<u>Injury Prevention:</u>					
Safe surfaces	1	2	3	4	9
Safe practices at play	1	2	3	4	9
Wearing protective equipment at play	1	2	3	4	9
<u>Curriculum:</u>					
A Spinal Health Curriculum	1	2	3	4	9

**Clarity:**

1	2	3	4
unclear	needs major revision	clear, needs revision	clear

If 1, 2 or 3, suggested revision: .....

.....

.....



## APPENDIX B

In relation to Question 6 (previous page):

*Acceptability:*

1	2	3	4
unacceptable	needs major revision	acceptable, needs revision	acceptable

If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

7. Assuming that personnel and resources are available, in your opinion how important is it for your school to have **practices** in relation to the factors dealing with spinal health?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
<u>Posture:</u>					
Correct posture	1	2	3	4	9
Use of Backpacks	1	2	3	4	9
Correct use of Backpacks	1	2	3	4	9
Correct lifting	1	2	3	4	9
<u>Fitness:</u>					
Physical Fitness	1	2	3	4	9
Flexibility	1	2	3	4	9
<u>Ergonomics:</u>					
Ergonomically designed furniture	1	2	3	4	9
Ergonomically arranged furniture	1	2	3	4	9
<u>Injury Prevention:</u>					
Safe surfaces	1	2	3	4	9
Safe practices at play	1	2	3	4	9
Wearing protective equipment at play	1	2	3	4	9
<u>Curriculum:</u>					
A Spinal Health Curriculum	1	2	3	4	9

**Clarity:**



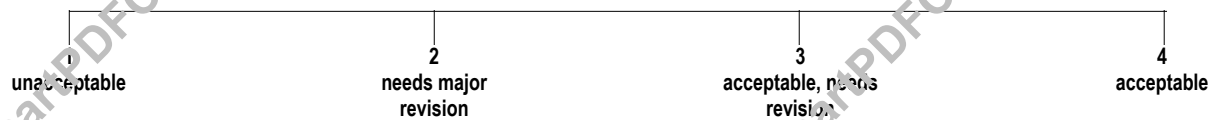
If 1, 2 or 3, suggested revision: .....

.....

## APPENDIX B

In relation to Question 7 (previous page):

*Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....

## APPENDIX B

8. Which of the following general health topics are covered in your school's educational programme?

Please circle the appropriate number.

	Yes	No	Unsure	Office Use
a. <u>Structure of the Spine :</u>				
3 curves (cervical, thoracic, lumbar)	1	2	3	9
Discs	1	2	3	9
Joints	1	2	3	9
Ligaments	1	2	3	9
Muscles	1	2	3	9
b. <u>Functions of the Spine :</u>				
Support (of the body)	1	2	3	9
Movement	1	2	3	9
Protection of the nervous system	1	2	3	9
c. <u>How Problems May Develop:</u>				
Falls	1	2	3	9
Pranks (eg. pulling chairs from underneath person)	1	2	3	9
Diving into shallow pools	1	2	3	9
Prolonged sitting (more than 1 hour without stretch break)	1	2	3	9
Lack of adequate exercise	1	2	3	9
Poor flexibility (lack of regular stretching)	1	2	3	9
Poorly designed school furniture	1	2	3	9
Poorly arranged school furniture	1	2	3	9
Carrying a heavy school bag	1	2	3	9
Incorrect use of backpacks (eg. too heavy, strapped over <u>one</u> shoulder)	1	2	3	9
Poor posture (when sitting, standing, sleeping, lifting)	1	2	3	9

## APPENDIX B

### Question 8 (continued):

Please circle the appropriate number.

	Yes	No	Unsure	Office Use
d. <u>How to Look After Your Spine:</u>				
Avoid accidents	1	2	3	9
Don't play on slippery surfaces	1	2	3	9
Wear protective sporting gear	1	2	3	9
Adopt correct posture (sitting, standing, sleeping, lifting)	1	2	3	9
Correct use of backpacks (strap over both shoulders, not too heavy)	1	2	3	9
Exercise regularly	1	2	3	9
Stretch before and after sport	1	2	3	9

### Clarity:



If 1, 2 or 3, suggested revision: .....

.....

.....

### Acceptability:



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

9. The following questions will provide us with an overall picture of your understanding of spinal health. Please read the questions and circle the appropriate number.

### (Example)

	Yes	No	Unsure	Office Use
eg. The spinal joints are spaces between the vertebrae that allow movement.	1	2	3	9

### a. Structure of the Spine

	Yes	No	Unsure	Office Use
i. Looking from the side, the spine is normally straight.		2	3	9
ii. The spine is divided into cervical, thoracic, lumbar and pelvic regions.	1	2	3	9
iii. The cervical spine curves forward like the lumbar spine whilst the thoracic spine curves backwards.	1	2	3	9
iv. Discs are firm but flexible in structure.	1	2	3	9

### b. Functions of the Spine

i. The three main functions of the spine are to support the body, to allow movement and to protect the nervous system.	1	2	3	9
ii. The discs and natural curves have a shock absorption role.	1	2	3	9
iii. The spinal joints are like spaces between the vertebra which may restrict certain movements.	1	2	3	9
iv. Ligaments are like muscles in the their role in that they allow movement when they contract.	1	2	3	9

### c. How Problems May Develop

i. The best way to sleep is on your tummy.	1	2	3	9
ii. A soft versus a firm mattress is better for your spine.	1	2	3	9
iii. Sitting places less strain on your spine than standing.	1	2	3	9
iv. Weak abdominal muscles may predispose to low back pain.	1	2	3	9
v. Flexible hamstrings predispose children to back pain.	1	2	3	9
vi. Standard school furniture is suitable for most spines.	1	2	3	9

## APPENDIX B

### Question 9 (continued):

#### d. How to Look After Your Spine

Circle the appropriate number.

Yes No Unsure Office Use

##### Posture :

- i. The use of backpacks versus school cases may be more beneficial for spinal health.
- ii. Knees should be perfectly straight when picking up any load.
- iii. Sleeping on your side or back is not advisable.
- iv. A soft mattress is better for your back than a firm mattress.
- v. Sleeping on your stomach is recommended for your spine.

1	2	3	9
1	2	3	9
1	2	3	9
1	2	3	9
1	2	3	9

##### Fitness :

- i. Warming up and cooling down stretches in sport are an important way to prevent injury to the spine and muscles.
- ii. Sitting for longer than 1 hour is associated with increased pressure in the lumbopelvic region.
- iii. Toned abdominals may support the low back.
- iv. Legs should be kept straight when doing sit-ups.

	2	3	9
1	2	3	9
1	2	3	9
1	2	3	9

##### Ergonomics :

- i. Moving school desks around at different angles is preferable to having them face the board in one position.
- ii. Adjustable desktops may assist in promoting correct posture.

1	2	3	9
1	2	3	9

#### Clarity:

1 unclear	2 needs major revision	3 clear, needs revision	4 clear
--------------	------------------------------	-------------------------------	------------

If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

In relation to Question 9 (previous pages):

*Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....

.....



## APPENDIX B

### Attitudes Towards Spinal Health Promotion in Schools

10. The following are identifiable areas of health promotion in schools

Please indicate the importance of implementing the following areas of health promotion in your school.

Please circle the appropriate number.

	Very important	Important	Not very important	Unimportant	Office Use
a. Heart health	1	2	3	4	9
b. Self esteem	1	2	3	4	9
c. Dental health	1	2	3	4	9
d. Spinal health promotion	1	2	3	4	9
e. Immunisation	1	2	3	4	9

f. Other (please specify)

.....  
.....

**Clarity:**



If 1, 2 or 3, suggested revision: .....

.....

**Acceptability:**



If 1, 2 or 3, suggested revision: .....

.....

## APPENDIX B

11. There are differing opinions as to the relevance of teaching Spinal Health Promotion in schools. Please rate if you agree that SHP should take place in the following locations by circling the appropriate number.

	Strongly agree	Agree	Disagree	Strongly disagree	Office Use
a. Primary schools	1	2	3	4	9
b. Secondary schools	1	2	3	4	9
c. Community Health Centres	1	2	3	4	9
d. Private practices	1	2	3	4	9
e. Hospitals	1	2	3	4	9
f. Workplaces	1	2	3	4	9
g. Other (please specify)	.....				
	.....				

### Clarity:



If 1, 2 or 3, suggested revision: .....

.....

.....

### Acceptability:



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

### 12. In which parts of the curriculum would Spinal Health Promotion fit best?

Please circle the appropriate number.

	Very relevant	Relevant	Not very relevant	Irrelevant	Office Use
a. Art	1	2	3	4	9
b. English	1	2	3	4	9
c. Health & Physical Education	1	2	3	4	9
d. Language (other than English)	1	2	3	4	9
e. Mathematics	1	2	3	4	9
f. Science	1	2	3	4	9
g. Studies of society and environment	1	2	3	4	9
h. Technology	1	2	3	4	9

#### Clarity:



If 1, 2 or 3, suggested revision: .....

.....

.....

#### Acceptability:



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

13. In your opinion, how frequently (if at all) might a teacher of Spinal Health Promotion experience the following difficulties in implementing a SHP curriculum?

Please circle the appropriate number.

	Very frequently	Frequently	Not very frequently	In-frequently	Office Use
a. Financial (for necessary teaching aids and equipment)	1	2	3	4	9
b. Competing priorities with other subjects	1	2	3	4	9
c. Time for preparation of a new subject area	1	2	3	4	9
d. Lack of interest in the topic	1	2	3	4	9
e. Lack of training	1	2	3	4	9
f. Knowledge of the content areas	1	2	3	4	9
g. Other (please specify)					

**Clarity:**

1	2	3	4
unclear	needs major revision	clear, needs revision	clear

If 1, 2 or 3, suggested revision: .....

.....

.....

**Acceptability:**

1	2	3	4
unacceptable	needs major revision	acceptable, needs revision	acceptable

If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

14. For each potential difficulty listed below, what, if any, suggestions do you have for overcoming each of them?

- a. Financial (for necessary teaching aids and equipment).....  
.....
- b. Competing priorities with other subjects.....  
.....
- c. Time for preparation of a new subject area.....  
.....
- d. Lack of interest in the topic.....  
.....
- e. Lack of training.....  
.....
- f. Knowledge of the content areas.....  
.....

### *Clarity:*



If 1, 2 or 3, suggested revision: .....

.....

.....

### *Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

15. If a school was considering implementing a Spinal Health Promotion programme, what approaches would you consider to be important in producing a successful programme?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
a. In-service training workshops	1	2	3	4	9
b. Trained health practitioners and/or presenters	1	2	3	4	9
c. Introductory video package covering the major areas of interest including: – Structure and function – How problems develop – How to look after your spine	1	2	3	4	9
d. A specialised resource kit similar to those prepared by (Heart Foundation, Anti Cancer Council)	1	2	3	4	9
e. Other (please specify)					

**Clarity:**



If 1, 2 or 3, suggested revision: .....

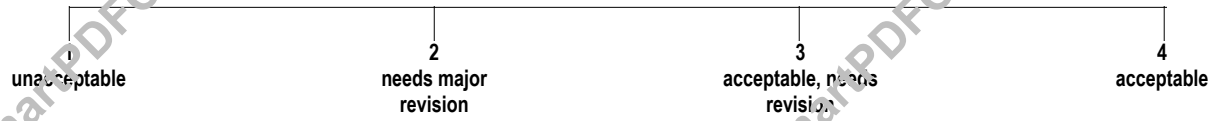
.....

.....

## APPENDIX B

In relation to Question 15 (previous page):

*Acceptability:*



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX B

16. Is the questionnaire clear overall?

*Clarity:*

1	2	3	4
unclear	needs major revision	clear, needs revision	clear

If 1, 2 or 3, suggested revision: .....

.....

.....

17. Is the questionnaire acceptable overall?

*Acceptability:*

1	2	3	4
unacceptable	needs major revision	acceptable, needs revision	acceptable

If 1, 2 or 3, suggested revision: .....

.....

.....

18. Any further comments?

.....

.....

.....

.....

*Thank you for your participation.*

*Could you please return this questionnaire in the enclosed reply paid envelope:*

Dein Vindigni  
12 David Street  
LALOR VIC 3075



## APPENDIX C

[Reproduced from cover letter to schools  
from Jeff Walkley PHD, Acting Head of Department,  
Department of Human Movement Science, RMIT University]

12 May, 1997

I would like to introduce the work of Dein Vindigni who is currently researching “**Teacher Knowledge and Attitudes towards Spinal Health Promotion in Primary Schools**” as part of a Masters in Medical Science Degree from the University of Newcastle.

As you will see from the attachments, the research project has the endorsement (in principle) of the Victorian Department of Education and from the Catholic Education Office.

Your school's participation in the programme would be greatly appreciated and act as an important step in developing a spinal health programme consistent with the P.E. & Health component of the Curriculum Standards Framework.

Establishing healthy habits in children is an important first step in encouraging a health-promoting lifestyle. The survey which follows aims to refine a questionnaire which will be used to develop appropriate materials and strategies in Spinal Health Promotion for primary schools.

The survey should take approximately 15 minutes to complete and a reply-paid envelope is attached for teachers' convenience.

I wholeheartedly encourage your involvement in this project and thank you for taking the time in assisting in this work.

Yours sincerely,

Jeff Walkley, PhD  
**Associate Professor**  
**Acting Head of Department**  
**Department of Human Movement Science**

**(RMIT University)**

## APPENDIX D

### **Discipline of Behavioural Science in Relation to Medicine**

For further information contact Dein Vindigni  
(Researcher) on:

Tel: (03) 9464-3822

Fax: (03) 9464-0919

12 David St, LALOR VIC 3075

or

Mr John Wiggers (Supervisor) on:

Tel: (049) 246 204

Fax: (049) 246 215

Dear Teacher,

I am a student in the Masters Medical Science (Health Promotion) course at the University of Newcastle and, as part of my studies, am conducting a research project in “The Prevalence of, and Teacher Knowledge and Attitudes Towards Spinal Health Promotion (**SH**P) in Primary Schools”.

Your school has been selected to participate in this project.

I would be very grateful if you would assist me in my research process by completing and reviewing the enclosed questionnaire which will take approximately 30 minutes of your time. All information collected will be confidential. Participation is entirely voluntary, and there will be no disadvantage to you if you decide not to complete and review the questionnaire.

The survey under review has been prepared for teachers who are responsible for co-ordinating and/or implementing the Health and Physical Education curriculum in Victorian schools.

It is designed to measure the following three major questions:

- 1) the policies and practices which currently exist in primary schools which address the spinal health of children
- 2) the level of knowledge of Health and Physical Education (H&PE) teachers in relation to spinal health promotion
- 3) the attitudes which exist amongst H&PE teachers towards spinal health promotion in primary schools.

## APPENDIX D

I would like you to:

- 1) complete the questionnaire which follows
  - 2) answer the questions **underneath** each item by circling one number which indicates the
    - **Clarity** (eg. are the messages simple and unambiguous? Is the language appropriate?);  
and the
    - **Acceptability** (eg. is the question relevant to H&PE teachers, or the language offensive/inappropriate? Is the question too long?)
- of each item.

So as to standardise the process of review, we have used a point likert scale. Also an opportunity to comment on ways to improve on any items. Could you please complete and review the questionnaire by **Friday 30th May** and return it in the enclosed reply paid envelope.

You need to complete **both** the questionnaire and items below each question.

Once completed, participants will gladly be forwarded a copy of the research paper.

Thank you again for your help. I look forward to reading your comments.

Dein Vindigni  
Researcher

## APPENDIX E

**[Reproduced from original Ethics Clearance letter received  
from the Catholic Education Office]**

24 March 1997

Dr D Vindigni  
12 David Street  
LALOR VIC 3075

Dear Dr Vindigni,

I am writing with regard to your letter of 19 March 1997 in which you referred to your pilot program involving the refinement of a questionnaire by people working in physical education and curriculum development - this research being required as part of a thesis to be undertaken for the degree of Master of Medical Science from the University of Newcastle.

To this end you have requested approval to contact curriculum developers, Physical Education teachers and co-ordinators and experts in the fields of musculoskeletal health promotion.

I am pleased to advise that your research proposal is approved in principle subject to the following standard conditions:

1. The decision as to whether or not your research can proceed in a school rests with the School Principal. For each school in which you wish to do the research, you must obtain approval directly from the School Principal.
2. You are requested to provide the Principal with an outline of your research proposal that is to include: objectives or research questions; the research methodology; copies of any survey instruments or questions that respondents will be asked; and the likely time that participation in the research project will demand. A copy of this letter of approval and, where applicable, a copy of the letter of approval from the relevant ethics committee, are also to be included.
3. No student is to participate in your research study unless s/he is willing to do so and permission is given by a parent/guardian. Sufficient information must be provided to enable a parent/guardian to make an informed decision. Permission to participate would generally be indicated by means of a consent form signed by a parent/guardian and returned to the school. You are requested to liaise with the School Principal to assist in the writing of a letter to parents/guardians regarding information about the research project.
4. You are requested to provide a list of schools which have agreed to participate in the research project to the Information Services Unit of this Office.

## APPENDIX E

5. Any substantive modifications to the research proposal, or additional research involving use of the data collected, will require a further research approval submission to this Office.
6. Data relating to individual teachers or schools is to remain confidential.
7. Since the school communities in which the research is undertaken have an interest in the research findings, you should discuss with the Principals of the participating schools ways in which the results of the study can be made available for the benefit of the school community.
8. At the conclusion of the study, a copy or summary of the research findings is to be forwarded to the Information Services Unit of the Catholic Education Office. Where the research involves a thesis, a copy of the thesis is also requested.

I wish you well with your research study. If you have any queries concerning this matter, please contact Mr Mark McCarthy of this Office.

With every best wish,

Yours sincerely,

**(Rev. T. M. Doyle)**  
**Director of Catholic Education**

## APPENDIX F

[Reproduced from original Ethics Clearance letter received  
from the Department of Education]

21 April 1997

Dr D Vindigni  
12 David Street  
LALOR, VIC. 3075

Dear Dr Vindigni,

Thank you for your letter of 24 March 1997, in which you request permission to conduct a research study in government schools entitled *The Prevalence of, and Teacher Knowledge and Attitudes Towards Spinal Health Promotion in Primary Schools*.

I am pleased to advise that your research protocol is approved in principle subject to the conditions detailed below:

1. You obtain approval for the research to be conducted in each school directly from the principal. Details of your research, copies of this letter of approval and the letter of approval from the relevant ethics committee are to be provided to the principal. The decision as to whether or not your research can proceed in a school rests with the principal.
2. As a matter of courtesy, a list of the schools which you intend to approach for your research should be provided to the General Manager (Schools) of the region(s) in which these schools are located. An outline of your research and a copy of this letter of approval should also be enclosed.
3. Any extensions to the research protocol, additional research involving use of the data collected, or publication of the data beyond that normally associated with academic studies will require a further research approval submission.
4. At the conclusion of your study, a copy or summary of the research findings should be forwarded to Mr Bruce Kiloh, Assistant General Manager, Program Support, Level 8, Rialto South Tower, GPO Box 4367, Melbourne 3001.

I wish you well with your research study. Should you have any further enquiries on this matter, please contact Dr Kevin Kee, School Community Support Branch, on 9628 4805.

Yours sincerely,

**Bob Maguire**  
Assistant General Manager  
School Community Support Branch

## **APPENDIX G**

### **Information About ACHPER**

The Australian Council for Health, Physical Education and Recreation (ACHPER) is a national professional association representing people who work in the areas of Health Education, Physical Education, Recreation, Sport, Dance, Community Fitness or Movement Science.

The Council, through a National Board, oversees projects and major initiatives.

The National Office is located in Adelaide and there are eight state or territory offices.

The Council enjoys an excellent relationship with governments and the corporate sector.

The Mission of the Council is to promote healthy lifestyles for all Australians and particularly to study and promote its areas of focus.

### **From the President**

ACHPER is both a national subject association and a professional association.

As a subject association ACHPER is vitally concerned with provision and quality of physical activity and health education in all education institutions from pre-primary through to the tertiary sector. ACHPER caters for the needs of both specialist and generalist teachers by constantly working to ensure top quality curriculum resources and regular professional development through workshops, seminars and State and National conferences.

As a professional association ACHPER addresses issues related to the professional growth of its members and ensuring that they are fully represented and recognised in Australia's rapidly developing industrial structures. ACHPER collaborates with a range of government and non-government agencies to improve the conditions in which its members work as professionals.

As an integrated national subject and professional association ACHPER is uniquely placed to facilitate interaction between professionals embraced by the seven Areas of Focus: health education, physical education, recreation, sport, dance, community fitness and movement science. For ACHPER 'the whole is greater than the sum of the parts' and it can say with pride that it is 'promoting healthy lifestyles for all Australians'.

**Dr Lynn Embrey**  
**National President**

## APPENDIX H

[Reproduced from original letter of endorsement  
from Jeff Walkley PHD, ACHPER Vice-President]

2 May, 1997

I would like to introduce the work of Dein Vindigni who is currently researching “**Teacher Knowledge and Attitudes towards Spinal Health Promotion in Primary Schools**” as part of a Masters in Medical Science Degree from the University of Newcastle.

Establishing health habits in children is an important first step in encouraging a health-promoting lifestyle. The survey which follows aims to refine a questionnaire which will be used to develop appropriate materials and strategies in Spinal Health promotion for primary schools. The results of the study will be gladly forwarded to you upon completion.

Your participation in the programme would be greatly appreciated and would act as an important step in developing a spinal health programme consistent with the Physical Education and Health objectives.

The survey should take approximately 30 minutes to complete and a reply-paid envelope is attached for your convenience. Dein will contact you shortly to clarify any questions you may have.

The research project has been approved by the Victorian Department of Education, the Catholic Education Office and the Ethics Committee of the University of Newcastle.

I wholeheartedly encourage your involvement in this project and thank you for taking the time in assisting in this work. Should you require further information regarding the survey, please contact Dein Vindigni on Tel: (03) 9464-3822 or Fax: (03) 9464-0919.

Yours sincerely,

**Jeff Walkley, PhD**  
**Associate Professor**  
**Acting Head of Department**  
**Department of Human Movement Science**



## APPENDIX I

### **Discipline of Behavioural Science in Relation to Medicine**

For further information contact Dein  
Vindigni (Researcher) on:

Tel: (03) 9464-3822  
Fax: (03) 9464-0919  
12 David St, LALOR VIC 3075

or

Mr John Wiggers (Supervisor) on:  
Tel: (049) 246 204  
Fax: (049) 246 215

Dear

I am a student in the Masters Medical Science (Health Promotion) course at the University of Newcastle and, as part of my studies, am conducting a research project in “The Prevalence of, and Teacher Knowledge and Attitudes Towards Spinal Health Promotion (**SH**P) in Primary Schools”.

After contacting colleagues in the sphere of curriculum development and Health and Physical Education, you were nominated as being amongst the most knowledgeable in this area.

I would be very grateful if you would assist me in my research process by reviewing the enclosed questionnaire which will take approximately 30 minutes of your time. All information collected will be confidential. Participation is entirely voluntary, and there will be no disadvantage to you if you decide not to complete the review.

The survey under review has been prepared for teachers who are responsible for co-ordinating and/or implementing the Health and Physical Education curriculum in Victorian schools.

It is designed to measure the following three major questions:

- 1) the policies and practices which currently exist in primary schools which address the spinal health of children
- 2) the level of knowledge of Health and Physical Education (H&PE) teachers in relation to spinal health promotion
- 3) the attitudes which exist amongst these teachers towards spinal health promotion in primary schools.

## APPENDIX I

As a first step in refining this survey, I would like you to:

- 1) answer the questions **underneath** each item by circling one number which indicates its:
  - **Clarity** (eg. are the questions simple and unambiguous? Is the language appropriate?);  
and the
  - **Acceptability** (eg. is the question relevant to H&PE teachers, or the language offensive/inappropriate? Is the question too long?)
- 2) you do not need to complete the questionnaire itself.

So as to standardise the process of review, we have used a likert scale. In addition I we have also provided you with an opportunity to comment on ways to improve on any items . Could you please complete the review of the questionnaire by **Friday 30th May** and return it in the enclosed reply paid envelope.

You do not need to complete the questionnaire items themselves, just the questions that relate to *clarity* and *acceptability*.

Once completed, participants will gladly be forwarded a copy of the research paper.

Thank you again for your help. I look forward to reading your comments.

Dein Vindigni  
Researcher

## APPENDIX J

### **Judges of accuracy and comprehensiveness**

1. Professor of Orthopaedics
2. Professor of Rheumatology
3. Specialist in Rehabilitation Medicine
4. Specialist in Chiropractic Paediatrics
5. Specialist in Osteopathic Paediatrics
6. Physiotherapist Researcher
7. Occupational Therapist
8. Professor of Human Movement Science
9. National Co-ordinator of Physical Education (ACHPER)
10. Physical Education Specialist



## **Survey of Policies and Practices in Spinal Health Promotion (SHP)**

## **Introduction**

This survey comes with a self-addressed stamped envelope. Your co-operation in returning the completed questionnaire by Friday 30th May will be greatly appreciated.

It has been prepared for teachers who are responsible for co-ordinating and/or implementing Health and Physical Education (H&PE) in primary schools.

It is designed to answer the following three major questions:

- 1) What policies and practices currently exist in primary schools which address the spinal health of children?
- 2) What is the level of knowledge of H&PE teachers regarding spinal health?
- 3) What attitudes exist amongst H&PE teachers in relation to Spinal Health Promotion in primary schools?

We will also be asking questions specific to individuals and to schools. Individual responses will be kept in strictest confidence. In any reporting of results no individual or school will be identified. Participation is voluntary.

Upon completion of this study, a report will be gladly forwarded to participants.

We thank you for your participation in this survey. Your efforts will play an important part in the development of recommendations for health policies in schools and ultimately in the better health of children.

## Spinal Health Promotion Policies and Practices

Both the literature and our experience suggests that primary schools tend to vary in terms of their health policies and practices in general and their spinal health promotion policies/practices in particular. Spinal Health Promotion (SHP) encompasses a range of policies and practices. These may include aspects of posture (such as correct sitting and lifting practices), fitness and flexibility, Ergonomics (such as ergonomically designed furniture), injury prevention (including non-slip play surfaces) and a spinal health curriculum (addressing the structure/function of the spine and how to look after it).

If your school has practices which sufficiently cater for Spinal Health Promotion you might circle "Quite well". The following questions will provide us with more information about how these factors operate in your primary school.

Please circle the appropriate number.

					Office Use Only
1.	How well do you believe your school has catered for Spinal Health Promotion policies in your school?	Very well	Quite well	Not very well	Poorly
		1	2	3	4
					9
2.	How well do you believe your school has catered for Spinal Health Promotion practices in your school?	Very well	Quite well	Not very well	Poorly
		1	2	3	4
					9
3.	How well could you incorporate a spinal health programme into your curriculum?	Very well	Quite well	Not very well	Not at all
		1	2	3	4
					9

## APPENDIX K

4. For which of the following areas does your school have policies (such as written guidelines) and/or practices concerning spinal health?

Please circle the appropriate number.

	Policies				Practices			
	Yes	No	Don't know	Office use only	Yes	No	Don't know	Office use only
<u>Posture:</u>								
Correct posture	1	2	3	9	1	2	3	9
Use of backpacks	1	2	3	9	1	2	3	9
Correct use of backpacks	1	2	3	9	1	2	3	9
Correct lifting	1	2	3	9	1	2	3	9
<u>Fitness:</u>								
Physical fitness	1	2	3	9	1	2	3	9
Flexibility	1	2	3	9	1	2	3	9
<u>Ergonomics:</u>								
Ergonomically designed furniture	1	2	3	9	1	2	3	9
Ergonomically arranged furniture	1	2	3	9	1	2	3	9
<u>Injury Prevention:</u>								
Safe surfaces	1	2	3	9	1	2	3	9
Safe practices at play	1	2	3	9	1	2	3	9
Wearing protective equipment at play	1	2	3	9	1	2	3	9
<u>Curriculum:</u>								
A spinal health curriculum	1	2	3	9	1	2	3	9

List any other policies that exist in your school which may promote spinal health in children	Office use only	List any other practices that occur in your school which may promote spinal health in children	Office use only
eg. no pushing or shoving.....	.....	eg. walking from home to school .....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

## APPENDIX K

5. In your opinion, how important are the following factors in deciding which programmes are implemented?

Please circle the appropriate number.

	Very important	Important	Not very important	Un-important	Office Use
Popularity with teachers	1	2	3	4	9
Cost	1	2	3	4	9
H&PE teacher's opinion	1	2	3	4	9
Ease of teaching	1	2	3	4	9
Public health significance	1	2	3	4	9
Educational significance	1	2	3	4	9
Opinion of Principal	1	2	3	4	9

Other (please specify) .....

6. Assuming that personnel and resources were available, in your opinion how important is it for your school to have written **policies/guidelines** in relation to the following areas of spinal health?

Please circle the appropriate number.

	Very important	Important	Not very important	Un-important	Office Use
<u>Posture:</u>					
Correct posture	1	2	3	4	9
Use of Backpacks	1	2	3	4	9
Correct use of Backpacks	1	2	3	4	9
Correct lifting	1	2	3	4	9
<u>Fitness:</u>					
Physical Fitness	1	2	3	4	9
Flexibility	1	2	3	4	9
<u>Ergonomics:</u>					
Ergonomically designed furniture	1	2	3	4	9
Ergonomically arranged furniture	1	2	3	4	9
<u>Injury Prevention:</u>					
Safe surfaces	1	2	3	4	9
Safe practices at play	1	2	3	4	9



APPENDIX K

Wearing protective equipment at play	1	2	3	4	9
<u>Curriculum:</u>					
A Spinal Health Curriculum	1	2	3	4	9

## APPENDIX K

7. Assuming that personnel and resources are available, in your opinion how important is it for your school to have **practices** in relation to the following areas of spinal health?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
<u>Posture:</u>					
Correct posture	1	2	3	4	9
Use of Backpacks	1	2	3	4	9
Correct use of Backpacks	1	2	3	4	9
Correct lifting	1	2	3	4	9
<u>Fitness:</u>					
Physical Fitness	1	2	3	4	9
Flexibility	1	2	3	4	9
<u>Ergonomics:</u>					
Ergonomically designed furniture	1	2	3	4	9
Ergonomically arranged furniture	1	2	3	4	9
<u>Injury Prevention:</u>					
Safe surfaces	1	2	3	4	9
Safe practices at play	1	2	3	4	9
Wearing protective equipment at play	1	2	3	4	9
<u>Curriculum:</u>					
A Spinal Health Curriculum	1	2	3	4	9

## APPENDIX K

8. Which of the following general health topics are covered in your school's educational programme?

Please circle the appropriate number.

	Yes	No	Unsure	Office Use
a. <u>Structure of the Spine</u> :				
3 curves (cervical, thoracic, lumbar)	1	2	3	9
Discs	1	2	3	9
Joints	1	2	3	9
Ligaments	1	2	3	9
Muscles	1	2	3	9
b. <u>Functions of the Spine</u> :				
Support (of the body)	1	2	3	9
Movement	1	2	3	9
Protection of the nervous system	1	2	3	9
c. <u>How Problems May Develop</u> :				
Falls	1	2	3	9
Pranks (eg. pulling chairs from underneath person)	1	2	3	9
Diving into shallow pools	1	2	3	9
Prolonged sitting (more than 1 hour without stretch break)	1	2	3	9
Lack of adequate exercise	1	2	3	9
Poor flexibility (lack of regular stretching)	1	2	3	9
Poorly designed school furniture	1	2	3	9
Poorly arranged school furniture	1	2	3	9
Carrying a heavy school bag	1	2	3	9
Incorrect use of backpacks (eg. too heavy, strapped over <u>one</u> shoulder)	1	2	3	9
Poor posture (when sitting, standing, sleeping, lifting)	1	2	3	9

## APPENDIX K

Question 8, continued

Please circle the appropriate number.

	Yes	No	Unsure	Office Use
d. <u>How to Look After Your Spine:</u>				
Avoid accidents	1	2	3	9
Don't play on slippery surfaces	1	2	3	9
Wear protective sporting gear	1	2	3	9
Adopt correct posture (sitting, standing, sleeping, lifting)	1	2	3	9
Correct use of backpacks (strap over both shoulders, not too heavy)	1	2	3	9
Exercise regularly	1	2	3	9
Stretch before and after sport	1	2	3	9

## APPENDIX K

9. The following questions will provide us with an overall picture of your understanding of spinal health. Please read the questions and circle the appropriate number.

### (Example)

eg. The spinal joints are spaces between the vertebrae that allow movement.

Yes	No	Unsure	Office Use
1	2	3	9

### a. Structure of the Spine

	Yes	No	Unsure	Office Use
i. Looking from the side, the spine is normally straight.	1	2	3	9
ii. The spine is divided into cervical, thoracic, lumbar and pelvic regions.	1	2	3	9
iii. The cervical spine curves forward like the lumbar spine whilst the thoracic spine curves backwards.	1	2	3	9
iv. Discs are firm but flexible in structure.	1	2	3	9

### b. Functions of the Spine

i. The three main functions of the spine are to support the body, to allow movement and to protect the nervous system.	1	2	3	9
ii. The discs and natural curves have a shock absorption role.	1	2	3	9
iii. The spinal joints are like spaces between the vertebra which may restrict certain movements.	1	2	3	9
iv. Ligaments are like muscles in the their role in that they allow movement when they contract.	1	2	3	9

### c. How Problems May Develop

i. The best way to sleep is on your tummy.	1	2	3	9
ii. A soft versus a firm mattress is better for your spine.	1	2	3	9
iii. Sitting places less strain on your spine than standing.	1	2	3	9
iv. Weak abdominal muscles may predispose to low back pain.	1	2	3	9
v. Flexible hamstrings predispose children to back pain.	1	2	3	9
vi. Standard school furniture is suitable for most spines.	1	2	3	9

## APPENDIX K

### d. How to Look After Your Spine

Circle the appropriate number.

	Yes	No	Unsure	Office Use
<u>Posture :</u>				
i. The use of backpacks versus school cases may be more beneficial for spinal health.	1	2	3	9
ii. Knees should be perfectly straight when picking up any load.	1	2	3	9
iii. Sleeping on your side or back is not advisable.	1	2	3	9
iv. A soft mattress is better for your back than a firm mattress.	1	2	3	9
v. Sleeping on your stomach is recommended for your spine.	1	2	3	9
<u>Fitness :</u>				
i. Warming up and cooling down stretches in sport are an important way to prevent injury to the spine and muscles.	1	2	3	9
ii. Sitting for longer than 1 hour is associated with increased pressure in the lumbo pelvic region.	1	2	3	9
iii. Toned abdominals may support the low back.	1	2	3	9
iv. Legs should be kept straight when doing sit-ups.	1	2	3	9
<u>Ergonomics :</u>				
i. Moving school desks around at different angles is preferable to having them face the board in one position.	1	2	3	9
ii. Adjustable desktops may assist in promoting correct posture.	1	2	3	9

## Attitudes Towards Spinal Health Promotion in Schools

10. The following are identifiable areas of health promotion in schools.

Please indicate the importance of implementing the following areas of health promotion in your school.

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
a. Heart health	1	2	3	4	9
b. Self esteem	1	2	3	4	9
c. Dental health	1	2	3	4	9
d. Spinal health promotion	1	2	3	4	9
e. Immunisation	1	2	3	4	9
f. Other (please specify) .....					
.....					

11. There are differing opinions as to the relevance of teaching Spinal Health Promotion in schools. Please rate if you agree that SHP should take place in the following locations by circling the appropriate number.

	Strongly agree	Agree	Disagree	Strongly disagree	Office Use
a. Primary schools	1	2	3	4	9
b. Secondary schools	1	2	3	4	9
c. Community Health Centres	1	2	3	4	9
d. Private practices	1	2	3	4	9
e. Hospitals	1	2	3	4	9
f. Workplaces	1	2	3	4	9
g. Other (please specify) .....					
.....					

## APPENDIX K

12. In which parts of the curriculum would Spinal Health Promotion fit best?

Please circle the appropriate number.

	Very relevant	Relevant	Not very relevant	Irrelevant	Office Use
a. Art	1	2	3	4	9
b. English	1	2	3	4	9
c. Health & Physical Education	1	2	3	4	9
d. Language (other than English)	1	2	3	4	9
e. Mathematics	1	2	3	4	9
f. Science	1	2	3	4	9
g. Studies of society and environment	1	2	3	4	9
h. Technology	1	2	3	4	9

13. In your opinion, how frequently (if at all) might a teacher of Spinal Health Promotion experience difficulties in implementing a SHP curriculum?

Please circle the appropriate number.

	Very frequently	Frequently	Not very frequently	In-frequently	Office Use
a. Financial (for necessary teaching aids and equipment)	1	2	3	4	9
b. Competing priorities with other subjects	1	2	3	4	9
c. Time for preparation of a new subject area	1	2	3	4	9
d. Lack of interest in the topic	1	2	3	4	9
e. Lack of training	1	2	3	4	9
f. Knowledge of the content areas	1	2	3	4	9
g. Other (please specify)	.....				
	.....				



## APPENDIX K

14. For each potential difficulty listed below what, if any, suggestions do you have for overcoming each of them?

a. Financial (for necessary teaching aids and equipment).....

.....  
.....

b. Competing priorities with other subjects.....

.....  
.....

c. Time for preparation of a new subject area.....

.....  
.....

d. Lack of interest in the topic.....

.....  
.....

e. Lack of training.....

.....  
.....

f. Knowledge of the content areas .....

.....  
.....

## APPENDIX K

15. If a school was considering implementing a Spinal Health Promotion programme, what approaches would you consider to be important in producing a successful programme?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
a. In-service training workshops	1	2	3	4	9
b. Trained health practitioners and/or presenters	1	2	3	4	9
c. Introductory video package covering the major areas of interest including:	1	2	3	4	9
– Structure and function					
– How problems develop					
– How to look after your spine					
d. A specialised resource kit similar to those prepared by (Heart Foundation, Anti Cancer Council)	1	2	3	4	9
e. Other (please specify)					

Any further comments ....

.....

.....

.....

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.....

## APPENDIX K

*Thank you for your cooperation*

*Could you please return this questionnaire in the  
enclosed reply paid envelope:*

**Dein Vindigni  
12 David Street  
LALOR VIC 3075**



## **Survey of Policies and Practices in Spinal Health**

### **Promotion (SHP)**

**A pilot study to review the  
*Accuracy and comprehensiveness*  
of the questionnaire**

## APPENDIX L

# Review of *accuracy* and *comprehensiveness* of Questionnaire Items

I would like you to review whether the questions asked are accurate and comprehensive.

Please read each item and circle one number which indicates the:

- **ACCURACY** (eg. is the item relevant in the promotion of spinal health?); and the
- **COMPREHENSIVENESS** (eg. are the Spinal Health Promotion policies and practices all of those that are important to include?)

**You do not need to answer the questions themselves, only the likert scales under each item.**

- For which of the following areas does your school have policies (such as written guidelines) and/or practices concerning spinal health?

Please circle the appropriate number.

	Policies				Practices			
	Yes	No	Don't know	Office use only	Yes	No	Don't know	Office use only
<u>Posture:</u>								
Correct posture	1	2	3	9	1	2	3	9
Use of backpacks	1	2	3	9	1	2	3	9
Correct use of backpacks	1	2	3	9	1	2	3	9
Correct lifting	1	2	3	9	1	2	3	9
<u>Fitness:</u>								
Physical fitness	1	2	3	9	1	2	3	9
Flexibility	1	2	3	9	1	2	3	9
<u>Ergonomics:</u>								
Ergonomically designed furniture	1	2	3	9	1	2	3	9
Ergonomically arranged furniture	1	2	3	9	1	2	3	9
<u>Injury Prevention:</u>								
Safe surfaces	1	2	3	9	1	2	3	9
Safe practices at play	1	2	3	9	1	2	3	9
Wearing protective equipment at play	1	2	3	9	1	2	3	9
<u>Curriculum:</u>								
A spinal health curriculum	1	2	3	9	1	2	3	9

## APPENDIX L

### Question 1, continued

List any other policies that exist in your school which may promote spinal health in children	Office use only	List any other practices that occur in your school which may promote spinal health in children	Office use only
eg. no pushing or shoving.....	.....	eg. walking from home to school.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

### *Accuracy:*

1	2	3	4
inaccurate	needs major revision	accurate, needs revision	accurate

If 1, 2 or 3, suggested revision: .....

.....

.....

### *Comprehensiveness:*

1	2	3	4
not comprehensive	needs major revision	comprehensive, needs revision	comprehensive

If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX L

2. How important are the following factors in deciding whether school-based curricula/programmes are implemented?

Please circle the appropriate number.

	Very important	Important	Not very important	Un-important	Office Use
Popularity with teachers	1	2	3	4	9
Cost	1	2	3	4	9
H&PE teacher's opinion	1	2	3	4	9
Ease of teaching	1	2	3	4	9
Public health significance	1	2	3	4	9
Educational significance	1	2	3	4	9
Opinion of Principal	1	2	3	4	9

Other (please specify) .....

### *Accuracy:*



If 1, 2 or 3, suggested revision: .....

.....

.....

### *Comprehensiveness:*



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX L

3. Assuming that personnel and resources are available, in your opinion how important is it for your school to have rules/practices in relation to the following areas of spinal health?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
<u>Posture:</u>					
Correct posture	1	2	3	4	9
Use of Backpacks	1	2	3	4	9
Correct use of Backpacks	1	2	3	4	9
Correct lifting	1	2	3	4	9
<u>Fitness:</u>					
Physical Fitness	1	2	3	4	9
Flexibility	1	2	3	4	9
<u>Ergonomics:</u>					
Ergonomically designed furniture	1	2	3	4	9
Ergonomically arranged furniture	1	2	3	4	9
<u>Injury Prevention:</u>					
Safe surfaces	1	2	3	4	9
Safe practices at play	1	2	3	4	9
Wearing protective equipment at play	1	2	3	4	9
<u>Curriculum:</u>					
A Spinal Health Curriculum	1	2	3	4	9

### *Accuracy:*



If 1, 2 or 3, suggested revision: .....

.....



## APPENDIX L

In relation to Question 3 (previous pages)

*Comprehensiveness:*



If 1, 2 or 3, suggested revision: .....

.....

## APPENDIX L

4. Which of the following general health topics are covered in your school's educational programme?

Please circle the appropriate number.

	Yes	No	Unsure	Office Use
a. <u>Structure of the Spine :</u>				
3 curves (cervical, thoracic, lumbar)	1	2	3	9
Discs	1	2	3	9
Joints	1	2	3	9
Ligaments	1	2	3	9
Muscles	1	2	3	9
b. <u>Functions of the Spine :</u>				
Support (of the body)	1	2	3	9
Movement	1	2	3	9
Protection of the nervous system	1	2	3	9
c. <u>How Problems May Develop:</u>				
Falls	1	2	3	9
Pranks (eg. pulling chairs from underneath person)	1	2	3	9
Diving into shallow pools	1	2	3	9
Prolonged sitting (more than 1 hour without stretch break)	1	2	3	9
Lack of adequate exercise	1	2	3	9
Poor flexibility (lack of regular stretching)	1	2	3	9
Poorly designed school furniture	1	2	3	9
Poorly arranged school furniture	1	2	3	9
Carrying a heavy school bag	1	2	3	9
Incorrect use of backpacks (eg. too heavy, strapped over <u>one</u> shoulder)	1	2	3	9
Poor posture (when sitting, standing, sleeping, lifting)	1	2	3	9

**Question 4, continued**

d. How to Look After Your Spine:

***Accuracy:***



1	2	3	4
not comprehensive	needs major revision	comprehensive, needs revision	comprehensive

If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX L

5. The following questions will provide us with an overall picture of your understanding of spinal health. Please read the questions and circle the appropriate number.

### (Example)

eg. The spinal joints are spaces between the vertebrae that allow movement.

Yes	No	Unsure	Office Use
1	2	3	9

### a. Structure of the Spine

	Yes	No	Unsure	Office Use
i. Looking from the side, the spine is normally straight.	1	2	3	9
ii. The spine is divided into cervical, thoracic, lumbar and pelvic regions.	1	2	3	9
iii. The cervical spine curves forward like the lumbar spine whilst the thoracic spine curves backwards.	1	2	3	9
iv. Discs are firm but flexible in structure.	1	2	3	9

### b. Functions of the Spine

i. The three main functions of the spine are to support the body, to allow movement and to protect the nervous system.	1	2	3	9
ii. The discs and natural curves have a shock absorption role.	1	2	3	9
iii. The spinal joints are like spaces between the vertebra which may restrict certain movements.	1	2	3	9
iv. Ligaments are like muscles in their role in that they allow movement when they contract.	1	2	3	9

## APPENDIX L

### c. How Problems May Develop

i. The best way to sleep is on your tummy.	1	2	3	9
ii. A soft versus a firm mattress is better for your spine.	1	2	3	9
iii. Sitting places less strain on your spine than standing.	1	2	3	9
iv. Weak abdominal muscles may predispose to low back pain.	1	2	3	9
v. Flexible hamstrings predispose children to back pain.	1	2	3	9
vi. Standard school furniture is suitable for most spines.	1	2	3	9

## APPENDIX L

### Question 5, continued

#### d. How to Look After Your Spine

Circle the appropriate number.

	Yes	No	Unsure	Office Use
<u>Posture :</u>				
i. The use of backpacks versus school cases may be more beneficial for spinal health.	1	2	3	9
ii. Knees should be perfectly straight when picking up any load.	1	2	3	9
iii. Sleeping on your side or back is not advisable.	1	2	3	9
iv. A soft mattress is better for your back than a firm mattress.	1	2	3	9
v. Sleeping on your stomach is recommended for your spine.	1	2	3	9
<u>Fitness :</u>				
i. Warming up and cooling down stretches in sport are an important way to prevent injury to the spine and muscles.	1	2	3	9
ii. Sitting for longer than 1 hour is associated with increased pressure in the lumbopelvic region.	1	2	3	9
iii. Toned abdominals may support the low back.	1	2	3	9
iv. Legs should be kept straight when doing sit-ups.	1	2	3	9
<u>Ergonomics :</u>				
i. Moving school desks around at different angles is preferable to having them face the board in one position.	1	2	3	9
ii. Adjustable desktops may assist in promoting correct posture.	1	2	3	9

## APPENDIX L

In relation to Question 5 (previous pages)

*Accuracy:*



If 1, 2 or 3, suggested revision: .....

.....

.....

*Comprehensiveness:*



If 1, 2 or 3, suggested revision: .....

.....

.....

## APPENDIX L

6. There are differing opinions as to the relevance of teaching Spinal Health Promotion in schools. Please rate if you agree SHP should take place in the following locations by circling the appropriate number.

	Strongly agree	Agree	Disagree	Strongly disagree	Office Use
a. Primary schools	1	2	3	4	9
b. Secondary schools	1	2	3	4	9
c. Community Health Centres	1	2	3	4	9
d. Private practices	1	2	3	4	9
e. Hospitals	1	2	3	4	9
f. Workplaces	1	2	3	4	9
g. Other (please specify)					

### *Accuracy:*



If 1, 2 or 3, suggested revision: .....

.....

.....

### *Comprehensiveness:*



If 1, 2 or 3, suggested revision: .....

.....

.....



## APPENDIX L

### 7. Any other comments?

.....

.....

.....

.....

.....

.....

.....

.....

*Thank you for your participation.*

*Could you please return this questionnaire in the enclosed reply paid envelope:*

**Dein Vindigni  
12 David Street  
LALOR VIC 3075**

## APPENDIX M

[Reproduced from original letter of endorsement  
from Jeff Walkley PHD, ACHPER Vice-President.]

2 May, 1997

I would like to introduce the work of Dein Vindigni who is currently researching "**Teacher Knowledge and Attitudes towards Spinal Health Promotion in Primary Schools**" as part of a Masters in Medical Science Degree from the University of Newcastle.

Establishing health habits in children is an important first step in encouraging a health-promoting lifestyle. The survey which follows aims to refine a questionnaire which will be used to develop appropriate materials and strategies in Spinal Health promotion for primary schools. The results of the study will be gladly forwarded to you upon completion.

Your participation in the programme would be greatly appreciated and would act as an important step in developing a spinal health programme consistent with the Physical Education and Health objectives.

The survey should take approximately 30 minutes to complete and a reply-paid envelope is attached for your convenience. Dein will contact you shortly to clarify any questions you may have.

The research project has been approved by the Victorian Department of Education, the Catholic Education Office and the Ethics Committee of the University of Newcastle.

I wholeheartedly encourage your involvement in this project and thank you for taking the time in assisting in this work. Should you require further information regarding the survey, please contact Dein Vindigni on Tel: (03) 9464-3822 or Fax: (03) 9464-0919.

Yours sincerely,

**Jeff Walkley, PhD**  
**Associate Professor**  
**Acting Head of Department**  
**Department of Human Movement Science**

## APPENDIX N

### **Discipline of Behavioural Science in Relation to Medicine**

For further information contact Dein  
Vindigni (Researcher) on:  
Tel: (03) 9464-3822  
Fax: (03) 9464-0919  
12 David St, LALOR VIC 3075

or

Mr John Wiggers (Supervisor) on:  
Tel: (049) 246 204  
Fax: (049) 246 215

Dear

I am a student in the Masters Medical Science (Health Promotion) course at the University of Newcastle and, as part of my studies, am conducting a research project in “The Prevalence of, and Teacher Knowledge and Attitudes Towards Spinal Health Promotion (**SHP**) in Primary Schools”.

After contacting colleagues in the sphere of spinal health you were nominated as being amongst the most knowledgeable in the field of spinal health promotion.

I would be very grateful if you would assist me in my research process by reviewing the enclosed questionnaire which will take approximately 15 minutes of your time. All information collected will be confidential. Participation is entirely voluntary, and there will be no disadvantage to you if you decide not to complete the review.

The survey under review has been prepared for teachers who are responsible for co-ordinating and/or implementing the Health and Physical Education curriculum in Victorian schools.

It is designed to measure the following three major questions:

- 1) the policies and practices which currently exist in primary schools which address the spinal health of children
- 2) the level of knowledge of Health and Physical Education (H&PE) teachers in relation to spinal health promotion
- 3) the attitudes which exist amongst H&PE teachers towards spinal health promotion in primary schools.

## APPENDIX N

As a first step in refining this survey, we need your expertise to review the items' *accuracy* (eg. is the item relevant in the promotion of spinal health?), and their *comprehensiveness* (eg. are the Spinal Health Promotion policies and practices all those which are important to include?)

So as to standardise the process of review, we have used a point Likert scale which allows you to rate the *accuracy* and *comprehensiveness* of each question. In addition we have also provided you with an opportunity to comment on ways to improve on any items. The original questionnaire (in its entirety) is attached as an appendix (on blue paper) to provide the context of the complete survey. Six questions that relate specifically to Spinal Health knowledge have been selected from the original questionnaire for you to comment upon. These appear separately on the green form with a rating scale and space for comments. Please return the green form to me by **Friday 30th May** in the enclosed reply paid envelope.

You do not need to complete the questionnaire items themselves, just the questions that relate to *accuracy* and *comprehensiveness*.

Once completed, participants will gladly be forwarded a copy of the research paper.

Thank you again for your help. I look forward to reading your comments.

Dein Vindigni  
Researcher

## APPENDIX O

### Application to Ethics Committee

#### University of Newcastle

(bold type beneath questions indicates response)

#### The Research Project

- a) Where is this research project to be conducted?

**Victorian Primary Schools**

- b) What is your relationship with this place of research?

**None**

#### Authority to Conduct Research

- 8 (a) Is the location in 7(a) above an **external agency** (eg. school, hospital, shop/shopping centre, gym, club, University Union, government agency)?

**YES / NO**

If no, proceed to Question 9.

If 'YES':

- (b) **Written** authority from a senior officer in the external agency must be attached before clearance can be given (eg. shopping centre manager, school principal).

**and**

- (c) **Written** authority to proceed may also be required from a supervising agency (eg. Hunter Area Health Service, Department of School Education) before clearance is given. ***Refer to Guidelines for more information.***

- (d) If written authority to proceed is not attached, have you made a formal application for ethical clearance to the external agency and/or other ethics committee for this project? (Give details)

**Yes, a formal application for Ethical Clearance has been made to 1) the Catholic Education Office (Victoria); and 2) the Directorate of State Primary Schools Victoria.**

## APPENDIX O

### Objectives and Methodology

- 9 (a) Explain (briefly and simply) the main objectives and/or hypothesis of your study.

**The objectives of the principal study are:**

- A) To investigate the prevalence of policies and practices in primary schools concerned with maintaining and improving spinal health in children.**
- B) To determine the knowledge and attitudes of teachers responsible for the personal development and health (PD&H) curriculum in primary schools towards spinal health promotion (SHP).**

**The objectives of the pilot study are:**

- A) To determine the acceptability of the study design, instruments and procedures to primary school teachers and curriculum designers.**
- B) To review the *accuracy, comprehensiveness* and acceptability of the measurement instrument by spinal health experts.**

- (b) Describe the methodology of the research project and exactly how it will be conducted.

**The principal study will involve a cross-sectional survey using self-administered confidential questionnaires which will be mailed to the teacher in charge of co-ordinating the personal development and health component of the school programme.**

**The pilot study will involve a process of refining the questionnaire according to a structured process of review of experts and pilot-testing.**

- i) A sample of 40 Catholic and State Primary Schools will be randomly selected from all such schools in the great Melbourne area. A reply-paid questionnaire will be forwarded for completion by the teacher responsible for the PD&H curriculum.**
- ii) The process of expert review is a well established means of obtaining constructive criticism for the pre-testing of instruments of measure. This involves contacting a given number of perceived ‘experts’ by the investigator, followed by these experts in turn nominating others with expertise, those experts most frequently nominated will then be listed in order of priority and then contacted by the investigator to review the survey instrument.**

10. Explain briefly the data analysis procedure

**For the principal study the proportion of primary schools that have policies/practices addressing specific aspects of SHP will be reported. The proportion of PD&H teachers with (80% or greater) knowledge relating to SHP will be reported. The proportion of PD&H teachers with a belief that**

**SHP should be implemented in primary schools will be reported according to percentage “very important” and “important” for each item.**

## APPENDIX O

For the pilot study, brief summary statistics will be calculated together with appraisal of comments and criticism concerning the clarity and acceptability *accuracy* of the questionnaire items study design and procedures.

- 11 (a) Determine the subject group you will use.

**Primary school teachers who have the role of co-ordinating the health and physical education curriculum.**

**Primary school curriculum development experts.**

**Spinal health specialists.**

- (b) Why have you chosen this group?

**These individuals have the practical and technical expertise to provide the feedback to ensure the study design, instruments and procedures are acceptable, accurate and comprehensive.**

- (c) How will you recruit your subjects? (Give clear steps in the process, eg. approach outside the supermarket, invite participation in the survey, hand out questionnaires, wait for completion and collect completed forms).

### **Phase 1:**

**Letters will initially be sent to “experts” chosen by the investigator asking them to nominate those who they perceive to be experts in the field. A convenience sample of health and physical education teachers will be asked to nominate at least five colleagues with expertise in their fields. Similarly, spinal health experts and curriculum developers will be asked to do the same.**

### **Phase 2:**

**The study protocol and instruments will be sent to experts in spinal health and curriculum development. The study questionnaires will be forwarded to primary teachers for completion and comment and protocols will be followed up by one and, if necessary, two reminder calls at one and two weeks.**

- (d) State the number of subjects to be recruited:

**Unknown number of “experts” in Phase 1.**

**Unknown number of “experts”; 30 PD&H teachers.**

- (e) What is your relationship with this subject group?

**There is no *direct* relationship with this subject group beyond an interest in the area of health promotion in primary schools.**

## **Testing/Measurement**

12. Will you be taking any physical, physiological or psychosocial measurement of subjects?

## APPENDIX O

Yes.

If 'YES':

- (a) Describe the measurements and any risk, pain or discomfort involved.

**Self-reported items contained in self-completed questionnaires. There is no risk involved.**

- (b) What training do you have in these measurements, and what supervision will you received?

**The questionnaire was developed during the completion of the subject "Health Promotion Research Protocol (MED665)" in 1996. Continued development of the questionnaire will be under the direction of my supervisor.**

13. Are you using Information Forms? **YES**

Are you using Consent Forms? **NO, however consent is implied by receiving questionnaires.**

Are you using Questionnaires? **YES**

Are you conducting Interviews? **NO**

Are you using audio/video tapes? **NO**

(Forms and Interview schedules must be attached - see *Guidelines*)

### **Ethical Issues**

- 14 (a) Identify risks of psychosocial harm, embarrassment, fear, anxiety or other emotional distress for subjects in this project:

**Given the confidential nature of the questionnaire, and the fact that the individual responses will not be made available to the school or to any other person, the risk of harm is considered to be negligible - moreover, the ? will be thus further providing anonymity.**

- (b) What steps will you take to minimise these risks?

**Written assurances that the questionnaire be answered on a voluntary basis and that all information remains confidential.**

**The process of following up of non-responses by telephone will be carried out professionally and respectfully.**



## APPENDIX O

15. What steps are you taking to protect confidentiality of the subjects?

**Individual responses will not be divulged to any person or organisation outside the investigating team.**

**Only aggregate results will be reported.**

**Identification lists and questionnaire responses will be stored separately.**

16. What procedure will you use to provide feedback, if appropriate, to subjects?

**On completion of this study, a report will be forwarded to participants.**

17. Identify possible ethical or legal issues raised by your project.

**All data will be stored securely in a locked cupboard at the investigator's office.**

**The references of individual teachers will not be made available to their schools or Department of Education.**

## APPENDIX P

### [Reproduction of letter of Permission for Ethical Clearance from University of Newcastle]

#### APPLICATION FOR ETHICS CLEARANCE

Name:	Dein Vindigni
Course and subject:	Master of Medical Science (Health Promotion) Minor thesis
Subject co-ordinator:	John Wiggers
Title of Project:	The prevalence of, and teacher knowledge and attitude towards, spinal health promotion in primary schools (pilot study)

---

#### General comments

This is a well-prepared and thought out application but unfortunately, at the time of submission for ethical consideration, did not include Authority to conduct Research (Section 8b), nor were copies of information sheets (invitation to participate) and questionnaires (Section 13) provided. Accordingly, the committee deferred further consideration until such information was provided. The necessary authorisation and documentation was received by the Chair (16/4/97) and considered to be satisfactory. Consequently, approval is provided for the pilot study. For the principal study to proceed the committee will need to see and approve the self administered confidential questionnaire that will be developed from the pilot study instruments.

#### Decision

Approval, pilot study

A/Prof. R.D. Barry - Chair

## APPENDIX Q

### [Reproduction of letter to Regional Directors, notifying of the project]

Dr Dein Vindigni  
12 David Street  
MALOR VIC 3075

Telephone: (03) 9464-3822  
Facsimile: (03) 9464-0919

Dear

I am a student in the Masters Medical Science (Health Promotion) course at the University of Newcastle and, as part of my studies, am conducting a research project into "The Prevalence of, and Teacher Knowledge and Attitudes Towards Spinal Health Promotion in Primary Schools".

The project has the approval of Education Victoria (Office of Schools), The Catholic Education Office (Victoria), and the Ethics Committee of The University of Newcastle.

Mr Bob Maguire has asked that a list of the schools which I intend to approach for the research be provided to the General Manager of Schools of the Regions (Appendix 1). Also an outline of the research and a copy of the Education Victoria "Letter of Approval" (Appendix 2).

The research project entails the review of a questionnaire which assesses P.E. teachers' knowledge and attitudes towards Spinal Health Promotion in primary schools. Participation is entirely voluntary, and there is no disadvantage to individuals or schools if they decide not to complete the questionnaire.

The survey under review is designed to measure the following three questions:

- 1) The policies and practices which currently exist in primary schools which address the spinal health of children.
- 2) The level of knowledge of health and physical education teachers in relation to Spinal Health Promotion (SHP).
- 3) The attitudes which exist amongst these teachers towards SHP in primary schools

Once completed, participants will be gladly forwarded a copy of the research paper.

Yours faithfully,

Dr Dein Vindigni

16 May, 1997



**Survey of Policies and Practices  
in Spinal Health Promotion (SHP)**

# Introduction

This survey comes with a self-addressed stamped envelope. Your co-operation in returning the completed questionnaire by Friday May 30th will be greatly appreciated.

It has been prepared for teachers who are responsible for co-ordinating and/or implementing the Health and Physical Education (H&PE) Curriculum at middle to upper primary level, in primary schools.

It is designed to answer the following three major questions:

- 1) What policies and practices currently exist in primary schools which address the spinal health of children?
- 2) What is the level of knowledge of H&PE teachers regarding spinal health?
- 3) What attitudes exist amongst H&PE teachers in relation to Spinal Health Promotion (**SHP**) in primary schools?

Your school's participation in the programme will act as an important step in developing a spinal health programme consistent with the P.E. and Health component of the Curriculum Standards Framework. Establishing healthy habits in children is an important first step in encouraging a health promoting lifestyle. The survey which follows will be used to develop appropriate materials and strategies in spinal health promotion for primary schools.

We will also be asking questions specific to individuals and to schools. Individual responses will be kept in strictest confidence. In any reporting of results no individual or school will be identified. Participation is voluntary.

Upon completion of this study, a report will be gladly forwarded to participants.

We thank you for your participation in this survey. Your efforts will play an important part in the development of recommendations for health policies in schools and ultimately in the better health of children.

## Policies and Practices

Both the literature and our experience suggests that primary schools tend to vary in terms of their health policies and practices in general and their spinal health promotion policies/practices in particular. Spinal Health Promotion (SHP) encompasses a range of policies and practices. These may include aspects of:

- posture (such as correct sitting and lifting practices);
- fitness and flexibility;
- ergonomics (such as school desks designed to suit children of various ages and body types);
- injury prevention (including non-slip play surfaces);
- and a spinal health programme (addressing the structure/function of the spine and how to look after it).

The following questions will provide us with more information about how these factors operate in your primary school.

1. For which of the following areas does your school have **policies** (such as written procedures) and/or **practices** concerning spinal health?  
Please circle the appropriate number.

### a. Policies

	Yes	No	Don't know	Office use only
<u>Posture:</u>				
Correct posture (eg. when lifting, sitting)	1	2	3	9
Use of backpacks	1	2	3	9
Correct use of backpacks	1	2	3	9
<u>Physical Status:</u>				
Physical fitness	1	2	3	9
Flexibility	1	2	3	9
<u>Ergonomics:</u>				
Correct sized furniture for various age groups and/or body types	1	2	3	9
Ergonomically arranged furniture (eg. school desks arranged so that prolonged twisting of the head or back is avoided)	1	2	3	9
<u>Injury Prevention:</u>				
Safe play surfaces	1	2	3	9
Safe practices at play (eg. no bullying)	1	2	3	9
Wearing protective equipment during sport (such as knee pads and helmets in cricket)	1	2	3	9
<u>Curriculum:</u>				
A spinal health component to the Health and Physical Education curriculum	1	2	3	9

**1. a. Policies (cont'd)**

List any other policies that exist in your school which may promote spinal health in children. A policy is usually written, for example, policy on Assertive Discipline in which bullying is not allowed.	Office use only
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

**b. Practices**

	Yes	No	Don't know	Office use only
<u>Posture:</u>				
Correct posture (eg. when lifting, sitting)	1	2	3	9
Use of backpacks	1	2	3	9
Correct use of backpacks	1	2	3	9
<u>Physical Status:</u>				
Physical fitness	1	2	3	9
Flexibility	1	2	3	9
<u>Ergonomics:</u>				
Correct sized furniture for various age groups and/or body types	1	2	3	9
Ergonomically arranged furniture (eg. school desks arranged so that prolonged twisting of the head or back is avoided)	1	2	3	9
<u>Injury Prevention:</u>				
Safe play surfaces	1	2	3	9
Safe practices at play (eg. no bullying)	1	2	3	9
Wearing protective equipment during sport (such as knee pads and helmets in cricket)	1	2	3	9
<u>Curriculum:</u>				
A spinal health component to the Health and Physical Education curriculum	1	2	3	9

1. b. Practices (cont'd)

<p>List any other practices that occur in your school which may promote physical health in children. A practice is a behaviour which is usually not a written policy, for example, most students seem to use backpacks instead of carry bags.</p>	<p>Office use only</p>
<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>



2. In your opinion how important is it for your school to have written **policies/guidelines** in relation to the following areas of spinal health?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
<u>Posture:</u>					
Correct posture (eg. when sitting, lifting)	1	2	3	4	9
Use of backpacks	1	2	3	4	9
Correct use of backpacks	1	2	3	4	9
<u>Physical Status:</u>					
Physical fitness	1	2	3	4	9
Flexibility	1	2	3	4	9
<u>Ergonomics:</u>					
Correct sized furniture for various age groups and/or body types	1	2	3	4	9
Ergonomically arranged furniture (eg. school desks arranged so that prolonged twisting of the head or back is avoided)	1	2	3	4	9
<u>Injury Prevention:</u>					
Safe play surfaces	1	2	3	4	9
Safe practices at play (eg. no bullying)	1	2	3	4	9
Wearing protective equipment during sport (such as knee pads and helmets in cricket)	1	2	3	4	9
<u>Curriculum:</u>					
A spinal health component to the Health and Physical Education curriculum	1	2	3	4	9

3. In your opinion how important is it for your school to have **practices** in relation to the following areas of spinal health?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
<u>Posture:</u>					
Correct posture (eg. when sitting, lifting)	1	2	3	4	9
Use of backpacks	1	2	3	4	9
Correct use of backpacks	1	2	3	4	9
<u>Physical Status:</u>					
Physical fitness	1	2	3	4	9
Flexibility	1	2	3	4	9
<u>Ergonomics:</u>					
Correct sized furniture for various age groups and/or body types	1	2	3	4	9
Ergonomically arranged furniture (eg. school desks arranged so that prolonged twisting of the head or back is avoided).	1	2	3	4	9
<u>Injury Prevention:</u>					
Safe play surfaces	1	2	3	4	9
Safe practices at play (eg. no bullying)	1	2	3	4	9
Wearing protective equipment during sport (such as knee pads and helmets in cricket)	1	2	3	4	9
<u>Curriculum:</u>					
A spinal health component to the Health and Physical Education curriculum.	1	2	3	4	9

4. How well do you believe your school has catered for Spinal Health Promotion **policies**?
- | Very well | Quite well | Not very well | Poorly |
|-----------|------------|---------------|--------|
| 1         | 2          | 3             | 4      |

eg: Written procedures/guidelines.

- Correct posture (when sitting, lifting)
- Physical education (fitness, flexibility)
- Ergonomics (school desks designed to suit various age groups and body types)
- Injury prevention (safe play surfaces, safe practices at play, protective sporting equipment)
- Spinal health education (structure and function of the spine and how to look after it)

5. How well do you believe your school has catered for Spinal Health Promotion **practices**?
- | Very well | Quite well | Not very well | Poorly |
|-----------|------------|---------------|--------|
| 1         | 2          | 3             | 4      |

eg: Observed behaviours or traditions that involve:

- Correct posture (when sitting, lifting)
- Physical education (fitness, flexibility)
- Ergonomics (school desks designed to suit various age groups and body types)
- Injury prevention (safe play surfaces, safe practices at play, protective sporting equipment)
- Spinal health education (structure and function of the spine and how to look after it).

6. How well could you incorporate a spinal health programme into your health & P.E. curriculum?
- | Very well | Quite well | Not very well | Not at all |
|-----------|------------|---------------|------------|
| 1         | 2          | 3             | 4          |

eg: a kit which explains the structure and function of the spine, how problems may develop and how to look after your spine.

7. In your opinion, how important are the following in deciding whether a school-based programme will be implemented?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
Cost	1	2	3	4	9
Public health significance	1	2	3	4	9
Relevance to Curriculum Standards Framework	1	2	3	4	9
Ease of teaching (eg. due to teacher knowledge or teaching resources)	1	2	3	4	9
Support of H&PE teacher	1	2	3	4	9
Support of Principal	1	2	3	4	9
Support of School Council	1	2	3	4	9
Other (please specify and rate)	1	2	3	4	9
.....					
.....					
.....					
.....					

8. Which of the following health topics are, in your opinion, covered in sufficient depth in your school's educational programme?

Please circle the appropriate number.

	Yes	No	Unsure	Office Use
a. <u>Structure of the spine</u> :				
3 curves (cervical, thoracic, lumbar)	1	2	3	9
Discs	1	2	3	9
Joints	1	2	3	9
Ligaments	1	2	3	9
Muscles	1	2	3	9
b. <u>Functions of the spine</u> :				
Support (of the body)	1	2	3	9
Movement	1	2	3	9
Protection of the nervous system	1	2	3	9
c. <u>How problems may develop</u> :				
Falls	1	2	3	9
Pranks (eg. pulling chairs from underneath person)	1	2	3	9
Diving into shallow pools	1	2	3	9
Prolonged sitting (more than 1 hour without stretch break)	1	2	3	9
Lack of adequate exercise (to strengthen abdominal muscles)	1	2	3	9
Poor flexibility (lack of regular stretching to hamstring and low back muscles)	1	2	3	9
Poorly designed school furniture	1	2	3	9
Poorly arranged school furniture	1	2	3	9
Carrying a heavy school bag	1	2	3	9
Incorrect use of backpacks (eg. too heavy, strapped over <u>one</u> shoulder)	1	2	3	9
Poor posture (when sitting, standing, sleeping, lifting)	1	2	3	9

**Question 8 (continued).**

Please circle the appropriate number.

	Yes	No	Unsure	Office Use
d. <u>How to look after your spine:</u>				
Avoid accidents	1	2	3	9
Adopt safe practices in the pool/ playground	1	2	3	9
Avoid slippery surfaces	1	2	3	9
Wear protective sporting gear	1	2	3	9
Adopt correct posture (sitting, standing, sleeping, lifting)	1	2	3	9
Correct use of backpacks (strap over both shoulders, not too heavy)	1	2	3	9
Exercise the abdominal muscles regularly	1	2	3	9
Stretch hamstring and low back muscles before and after sport	1	2	3	9

9. The following questions will provide us with an overall picture of your understanding of spinal health. Please read the questions and circle the appropriate number.

eg. The spinal joints are spaces between the vertebrae which allow certain movements but may restrict others.

Yes	No	Unsure	Office Use
1	2	3	9

	Yes	No	Unsure	Office Use
i. Looking from the side, the spine is normally straight.	1	2	3	9
ii. The spine is divided into cervical, thoracic, lumbar and pelvic regions.	1	2	3	9
iii. From the side, the cervical spine curves forward like the lumbar spine whilst the thoracic spine curves backwards.	1	2	3	9
iv. Intervertebral discs are firm but flexible in structure.	1	2	3	9

i.	The three main functions of the spine are to support the body, to allow movement and to protect part of the nervous system (spinal cord).	1	2	3	9
ii.	The discs and natural curves of the spine have a shock absorption role.	1	2	3	9
iii.	The spinal joints are like spaces between the vertebra which allow certain movements but may restrict other movements.	1	2	3	9
iv.	Ligaments are like muscles in their role, in that they allow movement when they contract.	1	2	3	9

i.	The best way to sleep is on your stomach.	1	2	3	9
ii.	A soft instead of a firm mattress is better for your spine.	1	2	3	9
iii.	Sitting rather than standing places less strain on your spine.	1	2	3	9
iv.	Weak abdominal muscles may predispose you to low back pain.	1	2	3	9
v.	Flexible hamstrings predispose children to back pain.	1	2	3	9
vi.	Standard school desks are suitable for most spines.	1	2	3	9

**Question 9 (continued).**

**d. How to Look After Your Spine**

Circle the appropriate number.

Posture :

	Yes	No	Unsure	Office Use
i. The use of backpacks may be more beneficial than school cases for spinal health.	1	2	3	9
ii. Knees should be perfectly straight when picking up any load.	1	2	3	9
iii. Sleeping on your side or back is advisable.	1	2	3	9
iv. Sleeping on your stomach is recommended for your spine.	1	2	3	9

Fitness :

i. Stretching before and after physical activity is an important way to prevent injury to the spine and muscles.	1	2	3	9
ii. Sitting for longer than 1 hour is associated with increased pressure in the low back region.	1	2	3	9
iii. Toned abdominal muscles may support the low back.	1	2	3	9
iv. Legs should be kept straight when doing sit-ups.	1	2	3	9

Ergonomics :

i. When facing the front of the classroom it is preferable that school desks be placed in such a way as to avoid children having to turn their heads and body for prolonged periods (eg. in a semi-circle).	1	2	3	9
ii. Moving school desks around at different angles is preferable to having them face the board in one position.	1	2	3	9
iii. Adjustable desktops may assist in promoting correct posture by adapting to one's height whilst in the sitting position.	1	2	3	9



## Attitudes Towards Spinal Health Promotion in Schools

10. The following are identifiable areas of health promotion in schools.

Please indicate the importance of implementing the following areas of health promotion in your school.

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
a. Physical education	1	2	3	4	9
b. Dental health	1	2	3	4	9
c. Spinal health promotion	1	2	3	4	9
d. Immunisation	1	2	3	4	9
e. Healthy diet	1	2	3	4	9
f. Drug education	1	2	3	4	9
g. Safety (road/water)	1	2	3	4	9
h. Human relationships	1	2	3	4	9
d. Other (please specify and rate)	1	2	3	4	9

.....

.....

.....

11. In your opinion, in which of the following locations should spinal health promotion take place?

	Strongly agree	Agree	Disagree	Unsure	Office Use
a. Primary schools	1	2	3	4	9
b. Secondary schools	1	2	3	4	9
c. Community Health Centres	1	2	3	4	9
d. Private health practices	1	2	3	4	9
e. Hospitals	1	2	3	4	9
f. Workplaces	1	2	3	4	9
g. Fitness/health centres	1	2	3	4	9
h. Other (please specify and rate)	1	2	3	4	9

.....

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12. In which parts of the curriculum could spinal health promotion be incorporated?

Please circle the appropriate number.

	Very relevant	Relevant	Not very relevant	Irrelevant	Office Use
a. Arts	1	2	3	4	9
b. English	1	2	3	4	9
c. Health & Physical Education	1	2	3	4	9
d. Languages (other than English)	1	2	3	4	9
e. Mathematics	1	2	3	4	9
f. Science	1	2	3	4	9
g. Studies of society and environment	1	2	3	4	9
h. Technology	1	2	3	4	9

13. In your opinion, how frequently (if at all) might a teacher experience the following difficulties in implementing a SHP programme?

Please circle the appropriate number.

	Very frequently	Frequently	Not very frequently	In- frequently	Office Use
a. Financial (for necessary teaching aids and equipment)	1	2	3	4	9
b. Competing priorities with other subjects	1	2	3	4	9
c. Time for preparation	1	2	3	4	9
d. Lack of interest in the topic	1	2	3	4	9
e. Lack of training	1	2	3	4	9
f. Knowledge of the content areas	1	2	3	4	9

g. Other (please specify)

.....

.....

14. For each potential difficulty listed below, what, if any, suggestions do you have for overcoming each of them?

a. Financial (for necessary teaching aids and equipment).....

.....

.....

b. Competing priorities with other subjects .....

.....

.....

c. Time for preparation .....

.....

.....

d. Lack of interest in the topic .....

.....

.....

e. Lack of training.....

.....

.....

f. Knowledge of the content areas.....

.....

.....

15. If a school was considering implementing a spinal health promotion programme, what approaches would you consider to be important in producing a successful programme?

Please circle the appropriate number.

	Very important	Important	Not very important	Un- important	Office Use
a. In-service training workshops	1	2	3	4	9
b. Trained health practitioners and/or personnel to present the relevant topics in school	1	2	3	4	9
c. Introductory video package covering the major issues	1	2	3	4	9
d. A specialised resource kit similar to those prepared by (Heart Foundation, Anti Cancer Council)	1	2	3	4	9
e. Production of a manual which identifies where the spinal health programme can be successfully integrated into the Curriculum Standards Framework.	1	2	3	4	9
f. Other (please rate and specify)	1	2	3	4	9

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*Thank you for your participation.*

*Could you please return this questionnaire in the enclosed reply paid envelope:*

**Dein Vindigni  
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LALOR VIC 3075**