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# The sensitivity of the draw and write technique

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## Keywords

Children, Evaluation, Perception, Health, Education, Schools

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## Abstract

This paper presents comparative data from two evaluations which employed the draw and write technique to collect data from primary school pupils (ages eight to ten years). Pupils from health promoting schools and schools with conventional health education classes were significantly more likely to draw pictures across a range of categories than pupils who had received no health education, but these varied significantly by the type of intervention. Pupils from health promoting schools drew more pictures illustrating relationships, play, rest and work, while those who had been exposed to traditional health education were more likely to draw pictures showing individual lifestyle behaviours. This implies that the draw and write technique is sensitive to differences in approach to health education within schools. A number of gender differences emerged which also supported this interpretation. This research also suggests that this technique is sensitive to the influence of school based health initiatives and is a useful tool for assessing such developments.

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## Introduction

### Draw and write

The draw and write activity was developed by the Noreen Wetton and the HEA Primary Schools Project Team based at the Health Education Unit of the University of Southampton during their preliminary research into the health views and perceptions of primary school children (Williams *et al.*, 1989a, b). Since then, and given the relative paucity of off the shelf measures, qualitative or quantitative, that are available or considered appropriate for primary school children, the draw and write technique has become increasingly popular as a method of collecting health related data from this age group (Bendelow and Oakley, 1993; Barnett *et al.*, 1994; Hendry, 1995; Pridmore, 1996; Hughes *et al.*, 1996; Rademaker *et al.*, 1996; Pridmore and Landsdown, 1997; Porcellato *et al.*, 1999; McWhirter *et al.*, 2000). More recently there have emerged calls for a reappraisal of the usefulness of this technique, based around some interpretive, contextual and ethical considerations (e.g. Backett-Milburn and McKie, 1999). They argue that the data collected are open to wide scale misinterpretation, that children will produce drawings reflective of the dominant discourse in their cultures, that the context of data collection may influence the product and that the very technique may err on the side of the conventional in terms of the data it elicits from children. The other consideration may be that children are producing data that they perceive will be acceptable to the adults requesting the drawings (usually the teachers), and rather than providing researchers with any unique insight into the lives or perspectives of the individual children may merely be reproducing the dominant perspectives within their cultural setting. Therefore, the methodological and interpretative difficulties associated with the draw and write technique deserve further attention.

The development of the health promoting school concept and its specific application in Ireland should be viewed within the context of other developments in Irish school health education and promotion. For many years the

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impetus behind post-primary school health education came from individual school parents and teachers who saw the need to help pupils deal with what were considered to be new pressures facing adolescents. These focused on the topical issues of substance use, relationships and growth and development, and were in some cases supported by the Health Education Bureau, the Department of Health and the Department of Education. During this time, primary schools were expected to cover relevant topics under the physical education directives of the new curriculum (1970). At national level, both the Departments of Education and Health became increasingly interested in youth and school health education and supported the development of a considerable number of educational packages designed for use in these settings (e.g. Drink Awareness for Youth in 1989, Aids Education Programme in 1990, Action for Life in 1992, and the Substance Abuse Prevention Programme in 1993). A number of regional health boards have been involved in training teachers in new classroom methods required as well as in developing their own programmes with teacher packs, class plans and other resource materials. A more detailed chronology of this evolution can be found in Nic Gabhainn and Kelleher (1995). More recently the National Council for Curriculum and Assessment and the Department of Education have been discussing the potential role of what is now called social and personal health education (SPHE) and there are major pushes at local and national level for its inclusion on the curriculum of all schools. Informing this possible expansion has been the national health strategy in 1994 and the white paper on education in 1995.

### **The NWHB programme for schools**

The health education programme for primary schools of the North Western Health Board (NWHB) was first introduced to infant classes in 1990. Its objective is to provide health education to primary school pupils (aged 4–12) throughout the NWHB region of the Republic of Ireland. Consisting of pupils' workbooks, teachers' manuals, in-service teacher training and ongoing consultancy for schools, this programme was in effect an extension to younger groups of the earlier

lifeskills programme for post-primary schools, which had been introduced in 1981 (McLoone and McAuley, 1985; Nic Gabhainn and Kelleher, 1995, 2000).

Curricular materials have been designed by staff of the NWHB between 1989 and 1993 and were intended to be integrated into the school day. The materials have been designed around three broad themes: "Taking Care of Myself", comprising hygiene, food and nutrition, drugs, safety and growth and development; "Myself and Others", comprising self-esteem and relationships; and "Me and My World" comprising leisure and the environment. Specific content in each of these areas is presented by class group and each topic comprises both suggested classroom activities and cross-curricular links. Together the materials are intended to form a spiral curriculum suitable for pupils throughout their primary school careers.

Specialised teacher training is made available during the summer and on winter evenings throughout the school year. These courses cover the content of the materials and appropriate methodologies for teaching health education to primary school pupils. They also cover specific issues such as ensuring school level support for health education, the development of school policy on health issues and communication with parents. During the early stages of the programme, staff from the NWHB visited schools that were going to employ the materials in order to meet principals and teachers at least once during each term. During these visits they advise on all aspects of implementation including methodologies and liaising with community and parents groups. The schools programme of the NWHB is widely acknowledged as the most comprehensive and well resourced in the country.

### **The Irish network of health promoting schools**

The Irish health promoting school initiative began in Autumn 1992, when discussions were undertaken with relevant bodies, seminars were organised and the pilot schools invited to join the project. This development coincided with the decision by CE, EC and WHO to establish the ENHPS to encourage innovation and to disseminate good practice in health education and promotion. The Irish

network is supported by a steering committee which represents the Department of Education, the Department of Health and the Marino Institute of Education. The support offered to the schools includes in-service meetings for parents, principals and co-ordinators of the member schools, summer schools for teachers, school visits, specialist in-service workshops and the provision of resource materials (Lahiff, 1995, 2000). The ten pilot schools (five primary and five post-primary) attended the first induction workshop in May 1993 and committed themselves to a three year pilot programme. The specific supportive activities undertaken by the national co-ordinators and individual school reports are detailed in the INHPS annual reports (Morrow, 1994; Lahiff, 1995, 1996). The health promoting school concept is a philosophy of whole-school development. Each school is conceived of as a unique social organisation addressing its own needs. Developments in the pilot schools reflect these differences. Each school identified its priorities using the framework of the social and health curriculum, school social and physical environment and links with home and community. Thus the overall approach is flexible and adapted to the specific situations of the individual schools.

## Methodology

### Participants

The data reported here are drawn from two separate evaluation studies and from three groups of pupils. The NWHB group contains pupils drawn from schools who first adopted the health education programme for primary schools during the first two years of implementation (1990-1992), and these are labelled HED+. All pupils in 3rd and 4th class in these six schools were selected for inclusion. The comparison group comprises 3rd and 4th class pupils across five schools within the NWHB who had never received any health education at the time of data collection, and these are labelled HED-. The HPS group consists of 3rd and 4th class pupils attending the five primary pilot health promoting schools.

### Measurement

All schools were invited to complete a short questionnaire entitled the "Questionnaire for Health Promotion in Schools" (QHPS). The

QHPS was originally developed by Nic Gabhainn and Kelleher (1995) for use in the evaluation of the lifeskills programmes of the North Western Health Board. It contains three separate sections. The first section asks of the perceived performance of the school on 12 health promoting dimensions (HPS), the second elicits whether the school has formulated policy or is engaged in activity that would be recommended by the health promoting school concept (Policy). The third asks about organisational and structural aspects of the school.

Constructs employed in the first (HPS) and the second (Policy) sub-scales have been taken directly from the introduction to the teachers' manuals on the NWHB health education programme for schools and *The Healthy School* from Young and Williams (1989). The concepts assessed in the QHPS are also very similar to those outlined by Lahiff (1996) as key features of a health promoting school. The structural section asks about school size, number of pupils and number of teachers, proportion of rural and urban pupils, proportion of male and female pupils, the predominant language and religion in the school, whether teachers had received training in health education and the level of commitment to the health education programme (on a ten point scale from low to high). All three sections of the QHPS appeared acceptable to the schools and none reported difficulties in completion. Both sub-scales were analysed for internal reliability and all items in the HPS scale were included in the calculation of these co-efficients. Originally reported alpha co-efficients for all the NWHB primary schools were as follows: HPS scale 0.87, Policy scale 0.59 (Nic Gabhainn and Kelleher, 1995).

The draw and write procedures were employed with pupils in classrooms. This consisted of teachers asking pupils to draw pictures of all the things they do to "make me healthy" and "keep me healthy". These drawings were then coded according to a number of predetermined categories. In this case those used by Williams *et al.* (1989a) were adopted and will be discussed further below. It was comparatively straightforward for teachers to conduct, as it is a familiar classroom activity. The pupils were relatively free from constraint concerning what they draw and how they labelled their drawings and so it allowed an open ended, more

qualitative examination of their health knowledge and behaviours.

The draw and write pack, given to all primary schools consisted of:

- a covering letter to the principal describing the activity and asking them to elicit the help of the appropriate class teachers;
- more detailed letters to the class teachers explaining the purpose of the evaluation and requesting their assistance;
- a full description of the draw and write activity for the class teachers;
- a set of instructions for the activity, including permitted prompts and reminders, taken from Williams *et al.* (1989a);
- sheets of A3 paper for drawing on, each of which also had a small box, for entering the pupil's age, gender, class (3rd or 4th) and the name of the school; and
- information sheets on the class to be completed by the teachers asking about absentees and the amount of health education given to the class, and freepost envelopes for returning drawings and information sheets to the research team.

The full text of all letters and instructions can be found in Nic Gabhainn and Kelleher (1995).

### Procedure

Schools in the NWHB were approached initially by letter with a request to participate. All those who responded positively (92.5 per cent) were then sent the appropriate materials as detailed above. In each school, both HED+ and HED-, the materials were distributed to individual 3rd and 4th class teachers by school principals, who conducted the data collection within classrooms and posted returns. All five primary schools who were participants in the Irish network of health promoting schools were visited by the research team where various issues related to the review and evaluation of the Irish network were being investigated. Subsequently, the schools were requested to participate in the draw and write activity and comprised the HPS group.

### Analysis

In the NWHB, health education received was recorded according to that reported by the current class teacher, or the teacher who completed the class report form. From this, two main comparison groups were

constructed: pupils who had never been exposed to the health education programme of the NWHB, known hereafter as HED, and pupils who had been exposed during every year of their primary education thus far, known as HED+. Pupils from schools which were members of the Irish network of health promoting schools are labelled HPS.

A single researcher categorised each written description of a drawing from each pupil as to whether it reflected any of 14 separate health sustaining activities, whether it reflected a negative health message or whether it was simply an "inappropriate" response to the activity. Thus there were 16 categories, all of which stemmed from the original research employing this technique (Williams *et al.*, 1989a). A number of different dependent variables were used in all subsequent analyses reflecting different perspectives on this categorisation process.

The individual written descriptions of the drawings were categorised into any of the individual categories, which were as follows:

- exercise;
- going to the doctor;
- food (eating and drinking);
- fresh air/outdoors;
- safety;
- hygiene;
- taking medication;
- negative health messages;
- playing;
- relationships with others;
- having/taking a rest;
- sleeping/going to bed early;
- dental care;
- temperature (keeping warm/cold enough);
- working/studying;
- nil or not appropriate.

In addition the total number of drawings submitted by each child and the total number of categories represented by each child not counting the negative, nil or not appropriate responses (positive categories) were included as dependent variables.

## Results

### Response rates

From the NWHB schools, data were returned from 179 pupils who had never been exposed to the health education programme of the NWHB,  $n = 87$  (3rd class)  $n = 92$  (4th class), known hereafter as HED-, as well as 187 pupils

who had been exposed during every year of their primary education thus far,  $n = 97$  (3rd class) and  $n = 90$  (4th class) known as HED+. This reflected 70 per cent of the schools who were requested to participate. In the HPS group, data were collected from 99 3rd class and 92 4th class pupils (total  $n = 191$ ), and these are labelled below as HPS, reflecting all pilot health promoting primary schools.

### Structural and socio-demographic characteristics

Schools in the three groups were compared on a series of school related structural factors (Table I). No significant differences emerged between them on number of pupils in the schools, number of teachers in the schools, proportion of pupils from rural backgrounds or the gender breakdown of pupils. Neither were any differences identified on agreement with the health promoting school concepts. However, *post-hoc t-scheffes* indicate that schools from the health promoting schools network reported significantly more health promoting school policies than the HED+ or the HED- schools.

At an individual level, there were no significant differences between the three types of schools in relation to the age or gender of pupils in the samples. The mean age ranges from 9.31 years to 9.58 years with standard deviations between 0.72–0.91. Pupils from all three groups were approximately 50 per cent female.

### Group differences

Table II presents, by group, the percentages of pupils returning drawings classified into the 16 main categories along with the mean number (standard deviation) of drawings submitted and the mean number (standard deviation) of categories covered by those drawings. The two intervention groups, HED+ and HPS, both

differ significantly from the comparison group across a number of the dependent variables, and these are signified in columns 3 and 4 of Table II. Significant differences are also found between the two intervention groups and these are found in the 5th column.

### Gender differences

It should also be noted that gender differences emerged within groups. Within the HED+ group, boys were significantly more likely (47.7 per cent) than girls (24.6 per cent) to draw pictures related to dental health ( $p < 0.01$ ), while in the HED- group, boys were significantly less likely (12.5 per cent) than girls (26 per cent) to draw such pictures ( $p < 0.05$ ), indicating a clear gender by programme interaction. Also within the HED- group, boys were less likely ( $p < 0.001$ ) to draw pictures which were categorised as food related (boys 73.1 per cent; girls 96.1 per cent), or to draw sleep related pictures (boys 4.8 per cent; girls 18.2 per cent),  $p < 0.01$ . Gender differences emerged for the same categories within the HPS group. HPS girls were significantly more likely ( $p < 0.001$ ) to draw pictures related to food (82.1 per cent) as compared to HPS boys (59.4 per cent), and were more likely ( $p < 0.05$ ) to draw sleep related drawings (26.3 per cent) compared to boys in the same schools (14.6 per cent). Also within the HPS group, girls were more likely to draw safety related pictures (22.1 per cent) compared to HPS boys (7.3 per cent),  $p < 0.01$ . As Table III shows, in both the HPS group and the HED- group, girls were more likely to draw more pictures overall and to cover more positive categories.

### Discussion

These data were not collected a priori to test the sensitivity of the methodological technique,

**Table I** The means and standard deviations of various school characteristics by group

Characteristic/school type	HED +		HED –		HPS	
	Mean	SD	Mean	SD	Mean	SD
No. of pupils	232.67	200.51	222.00	121.35	258.20	194.86
No. of teachers	9.67	8.07	8.40	4.67	11.20	10.64
Proportion from rural backgrounds	66.67	45.02	47.60	35.76	65.60	44.24
Percentage male	49.17	11.58	51.60	35.39	52.20	3.49
Agreement with HPS statements	45.00	9.25	41.80	5.50	37.80	5.76
Number of HPS policies*	7.33	1.75	6.00	1.75	13.80	2.17
Commitment to health education	7.80	2.77	4.00	2.16	7.67	1.37

Note: \* $p < 0.001$

Table II Percentages of pupils submitting drawings across categories by group

Category	HED+	HED –	HPS	HPS/HED+
Food	90.7*	82.6	70.7	***
Exercise	86.8	85.9	72.8**	*
Dental care	30.2**	18.5	35.6***	NS
Safety	43.4***	15.8	14.7	***
Sleep	28.0***	10.3	20.4**	NS
Relationships	1.1	0	27.2***	***
Play	6.6	4.9	25.1***	***
Doctor	1.6	1.6	2.1	NS
Fresh Air	10.4	9.2	13.1	NS
Hygiene	2.2	1.1	46.6***	***
Medication	1.1	1.1	10.5**	***
Negative	15.4	14.1	22.0*	NS
Rest	2.7	2.2	7.9**	*
Temperature	1.6	1.6	2.6	NS
Work	6.0	3.8	15.2**	**
Nil	31.3**	17.9	27.2**	NS
Mean number of drawings submitted (sd)	6.68 (3.52)**	5.98 (3.16)	8.30 (6.32)***	**
Mean number of positive categories covered (sd) <sup>a</sup>	3.28 (1.60)**	2.53 (1.39)	3.86 (2.39)***	*
N	187	179	191	N/A

Notes: <sup>a</sup>Number of positive categories covered means that the categories of negative, nil and not appropriate were removed for the purposes of this set of analyses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . These indicate where significant differences are found between groups

Table III Means and standard deviations of number of drawings received per child and categories covered by group and gender

Group Gender	HPS				HED –			
	Boys		Girls		Boys		Girls	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Number of drawings per child	3.73	2.15*	4.54	2.72	2.33	1.25**	3.26	1.50
Number of positive categories per child	3.43	2.06*	4.30	2.63	2.18	1.24**	3.04	1.45

Notes: \* $p < 0.05$ ; \*\* $p < 0.001$ . These indicate where boys drew significantly fewer pictures and covered significantly fewer categories than girls

and this paper presents data collected during two separate evaluation studies (Nic Gabhainn and Kelleher, 1995, 1998). Nevertheless, the comparability of the data sets is notable. Although it was not possible to randomly assign schools to conditions or to construct a control group, the characteristics of the schools and pupils in the three groups are very similar. The only measured difference between the groups is the higher level of perceived positive attitudes to health promoting school dimensions which was found among the health promoting primary schools. In itself, this could be interpreted as validating the appropriateness of the school classification, rather than being seen as a source of non-equivalence between groups.

The differences between the two intervention groups (HED+, HPS) and the comparison group (HED-) separately suggest the benefits associated with each intervention and indicate that either intervention conferred an advantage over none. Those who were exposed to traditional health education were more likely to draw and write about pictures categorised as food, safety, dental care and sleep, as well as drawing and writing more individual pictures/words and covering more positive categories with those pictures and words (i.e. those that were not negative, nil nor inappropriate). These are the standard lifestyle issues associated with traditional health education in general as well as the specific materials of the NWHB health

education programme for primary schools. Pupils in the health promoting primary schools submitted more pictures/words in many categories than the comparison pupils. These comprised dental care, sleep, relationships, play, hygiene, medication, rest and work. These pupils also submitted more overall and covered more categories. Pupils from health promoting primary schools were less likely to draw and write about pictures related to exercise. While there is some overlap between these two patterns, in relation to dental care and sleep, the categories of relationships, play, rest and work are clearly associated with the principles of the health promoting school and the way the concept has been operationalised in Ireland. The focus in Ireland has not been on the introduction of a health education curriculum, rather on a modelling of health sustaining activities involving the fostering of good relationships and a more holistic perspective on factors influencing health of pupils, teachers, parents and the community in its widest sense. The increased number of submissions which were categorised as hygiene is not necessarily an anomaly, as drawings depicting a cleaning-up of the physical environment would have been coded into this category and thus is likely to account for this difference. More tenuously, the increased number of drawings and writings which were negative, reflecting a negative health message, such as do not smoke or do not drink, which were found among the health promoting schools group may also reflect the lack of emphasis on the health education curriculum, but in any case is a finding which deserves further investigation. The same argument could explain the increased number of submissions related to medication, which may reflect a residual emphasis on the biomedical model of health.

The gender specific analyses indicate where, in the comparison group, girls are more likely to draw and write more pictures and thus cover more categories (or indeed vice versa), they also appear to be more aware of certain issues, such as sleep, dental health and food as related to health. A number of these differences are also found in the HPS group, suggesting that these gender differences are not influenced by the health promoting school intervention. This is perhaps not surprising, given that these are key lifestyle issues which would not

necessarily be addressed in the context of a health promoting school, and indeed they mirror gender differences identified in the original research with this technique (Williams *et al.*, 1989a). That the gender differences found in the comparison group are not found in the NWHB intervention group (and even the reversal of order found for dental health) suggest that the more traditional approach to health education may influence such gender differences in relation to these lifestyle issues among children. It should be noted that this pattern of programme by gender interaction is very similar to that found with the post-primary NWHB children (Nic Gabhainn and Kelleher, 2000), and is a key issue to be considered by programme planners, particularly in relation to single gender classrooms and male health education teachers.

While Backett-Milburn and McKie (1999) suggest that it is likely that children will produce drawings representing the dominant discourses surrounding them, in this case, such activity would not be considered a disadvantage. While the data presented here should not be taken as a benchmark against which to assess Irish children or to compare them with their British or European counterparts, it is the very context in which they have been produced which is of interest. These data illustrate that the technique is indeed sensitive to those differences in culture at the school level. That there are relative differences across children of the same gender within the same classrooms and children who have been exposed to different interventions is in itself of interest. It would be expected that these differing interventions would be reinforced by teachers (albeit while using the same language and classroom props to collect the data) and indeed the adoption and subsequent regurgitation of these during the data collection process could be interpreted as some evidence of success with the potential to influence perceived social norms even if actual behaviour change remains more elusive. In the context of criticisms of this technique, it is relevant to bear in mind that the current approach borrows directly from that of Williams *et al.* (1989a) and acknowledges the potential for misinterpretation of the data collected. In this case, therefore, no attempt has been made to interpret the drawings produced, beyond the

written word provided by the pupils themselves, and the social context has, as far as possible, been kept static for all children involved.

In conclusion, the draw and write technique has been useful in the context of data collection, it involves a familiar classroom task, has a high level of acceptability as reflected in the response rates and is relatively easy to code. While care must be taken to avoid over-interpretation of the drawings, the data presented here illustrate how the technique can be sensitive even when employing relatively crude categories and coding based on the written language provided by the pupils. This confirms other successful deployments of the technique in Ireland (e.g. NNSC, 2001) and in the UK (e.g. McWhirter *et al.*, 2000). These data also reflect the differences in approach taken in the two types of initiative. That this is the case despite some wide variation in classroom activity within groups is important, as neither of the evaluations from which this data were taken were either randomised control trials or focused on efficacy. In particular, the increased numbers of pupils drawing pictures related to relationships and play confirms the approach of the health promoting school project. That the data collected using this technique are sensitive to such differences is perhaps confirmation of some of the criticisms of Backett-Milburn and McKie (1999), however it is this very sensitivity that renders it important for evaluation research.

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