

Factors that influence the
regular consumption of water
in the Irish Primary School
setting

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I. Executive Summary:

Background

Although the school is primarily a vehicle for education, it has long been acknowledged as the perfect setting for the promotion of health messages and healthful practices (American Dietetic Association, 2003). Whilst teachers in schools are seen to be in the ideal position to impart and encourage this health information, knowledge and behaviour (Graham *et al.*, 2000).

Water has been described as the most quantitatively important nutrient, though there seems to be little consensus world-wide regarding the amount optimum for health (Manz *et al.*, 2002). Much work has been carried out to promote healthy food and nutrition policies in the school setting, but it seems that little work or promotion has been undertaken in the field of water promotion as part of these policies.

With the benefits of water consumption to health and learning being clear (Kleiner, 1999), it would seem important to identify the factors that affect whether its consumption is allowed and promoted in the school setting. This project set out to determine these factors and to ascertain what changes may be necessary to achieve best water consumption in this setting.

Aims and objectives

Aim:

To explore the attitude of primary school teachers to water use in the primary school setting and to ascertain their level of knowledge with regard to adequate hydration and its effects on the child.

Objectives:

- To determine, through in-depth interview, the teachers' feelings on allowing water to be consumed in the school setting, especially in the class situation.
- To ascertain teachers' knowledge regarding fluid, in terms of hydration, health and learning.
- To determine what teachers identify as being the barriers to children's water use during the school day.
- To identify the determinants, if any, of water use through the school day.

- To recommend ways in which to use the results of the study and how to disseminate these to local and national, school and nutrition policy makers.

Methods

This was a qualitative, cross sectional study involving the use of semi-structured interviews. It was based in the primary school setting of the Midland Health Board region in the Midlands of Ireland. The study population included twelve primary school teachers of different grades, who taught different classes, and were from different school backgrounds. Confidentiality was discussed and consent was obtained from all participants. All semi-structured interviews were recorded and then transcribed with common themes developed.

Results

Twelve teachers were interviewed, two male and ten females. Three were from urban schools and nine from a rural setting. Ten were from mixed schools, one from an all boys and one from an all girls' school. There were five principals, four staff grade, two new graduates and one learning support teacher. There was even class representation. The findings are as follows:

Teachers' awareness of drinks in school:

- ◆ 10 report children taking fizzy, energy, dilutable, juice drinks, & juices.
- ◆ 2 said the National School Milk Scheme is available.
- ◆ 7 felt most children brought in just one carton of drink a day.
- ◆ 2 didn't know if water in school was safe to drink.
- ◆ 4 felt water wasn't appropriate to drink from school taps.
- ◆ 7 reported that students couldn't drink in the yard at lunchtime.
- ◆ 4 stated that children were allowed drink during class time.
- ◆ 1 allowed bottles of water on the desk.
- ◆ 1 allowed water bottles to be taken from the bag.
- ◆ 2 had a water station in the classroom.
- ◆ 2 drank during class time.
- ◆ 6 said that they did not drink water during class time.

Teachers' opinions on fluid and health:

- ◆ 7 felt that water was one of the best drinks for health.
- ◆ 5 reported fruit juice to be one of the best drinks for health.
- ◆ 2 thought that milk was one of the best drinks for health.
- ◆ 7 did not know recommendations for daily fluid intake.
- ◆ 4 thought that sugar in drinks leads to hyperactivity, overweight, dental problems.
- ◆ 7 said signs of dehydration were lack of concentration, irritability, dry mouth & throat, hotness and lack of energy.

Teachers' perceived barriers to, and promoters of, water consumption:

- ◆ 2 felt there would be no barriers to allowing water consumption in the classroom.
- ◆ Perceived barriers to water use: disruption (6); age of child (6); mess & spillage (5); increased trips to toilet (5); parental resistance (3); extra work (2); and type of fluid (2).
- ◆ Promotion amongst peers: reusable bottle cheaper than cartons; use of water stations; water in designated area on desk; toilet tag idea; older student incentive scheme; sports' cap bottle use; work pack on water.

Discussion

From this study it would seem that the lack of knowledge amongst this group might be influencing their practice in relation to their own water use and to that of the children in their classrooms. Those teachers in the study who allowed children to drink water in the class already knew of the benefits of water, and drank water themselves during class time.

Teachers felt that one of the most important ways to advertise water, and the benefits of its use amongst their peers, would be to highlight the difference its' use during class time could make to concentration levels and mental performance of children being taught.

Conclusions

In conclusion it would seem, from this qualitative research, that there are two main factors influencing consumption of water in the Irish Primary school setting: the lack of knowledge and awareness amongst primary school teachers regarding the role that water plays in health and learning; and the perception of primary school teachers that there are a number of barriers to water introduction in the classroom setting.

Recommendations and plan for the future

- ◆ Education campaign amongst teachers on the importance of water.
- ◆ Education campaign for teachers on the potential problems associated with other drink consumption in school, such as obesity, dental erosion, fractures and osteoporosis.
- ◆ Promotion of fluid as being an important part of school nutrition policies.
- ◆ Promoting the need to use the whole school approach to nutrition policy development, as the role of parents and children in a successful policy is vital.
- ◆ Highlighting of findings to dietetic and other health professionals.
- ◆ Further study regarding water safety and availability in the school setting.
- ◆ More study into the lack of milk consumption in the primary school setting.
- ◆ Production of curriculum based water activity pack for teacher use in classroom.

II. Background

Introduction

Although the school is primarily a vehicle for education, it has long been acknowledged as the perfect setting for the promotion of health messages and healthful practices (American Dietetic Association, 2003). Whilst teachers who teach in these schools, are seen by parents and health professionals to be in the ideal position to impart health information and knowledge, and to encourage healthful practices (Graham et. al., 2000).

In many countries much work in promoting and evaluating healthy food and nutrition initiatives in the school setting has been carried out (Contento *et al.*, 2002), whilst the promotion of fluid intake seems to be a relatively new concept (ERIC, 2003).

In Ireland, two national studies have looked at the intake of certain foods amongst older children and adolescents (Department of Health and Children, 1999b; Department of Health and Children, 2003), however, little comprehensive data is available on the food and fluid intakes of young Irish children.

Health professionals have facilitated some Irish schools to formulate nutrition and healthy eating policies (Clancy and Johnston, 2003) using the whole school approach to policy development. However, to date, fluid consumption and promotion as part of nutrition policy does not seem to be seen as important by Irish schools and this phenomenon has not been studied in the literature.

Role of fluid in health

Many studies have shown that fluid is important to both children and adults and that it seems to affect the body in many different ways, both in the short and long term.

Water has been described as an essential nutrient required for life (Kleiner, 1999), as it is needed in amounts that are greater than the body's ability to produce it. Whilst adults require approximately 1 ml of fluid per kcal energy expenditure per day, for infants and children the average water recommendation is 1.5ml/kcal energy expenditure/day (Kleiner, 1999).

Although it seems that thirst is viewed by many as one of the first signs of dehydration, studies have shown that the threshold for the induction of thirst is such that the thirst mechanism is not actually triggered until a person is already dehydrated, i.e. loss of 0.8-2% body weight (Sansevero, 1997; Sagawa *et al.*, 1992), and that urine colour seems to be a

good indicator of hydration status in the athletic and industrial setting (Armstrong *et al.*, 1994).

Studies have been carried out into the effects of fluid consumption on health and well being. Mild dehydration has been defined as a 1% to 2% loss of body weight, which is caused by fluid loss (Kleiner, 1999). Symptoms of mild dehydration include thirst, headache, concentrated urine, poorer concentration levels, lethargy, irritability and diminished mental and physical performance (Kleiner, 1999).

Chronic dehydration has been linked to a number of disease states. Almond (1993) noted constipation to be associated with long-term dehydration; and continence problems including constipation, daytime wetting and bed wetting have been shown to be alleviated by structured training programmes that include regular access to fluid and toilet facilities (Rogers, 1996).

A number of studies have noted a direct correlation between the amount of fluid that is consumed and the incidence of certain urinary tract cancers, such as bladder, prostate and kidney cancer (Bitterman *et al.*, 1991; Michaud *et al.*, 1999). The incidence of urinary tract stones has also been linked to water intake, with studies showing that increased water intakes led to larger urinary volumes and less risk of stone recurrence (Borghetti *et al.*, 1996; Embon *et al.*, 1990).

Obesity is a growing health problem in the Western world, with childhood obesity in the primary school setting growing at speed (Rudolf *et al.*, 2001).

Levine (1996) looked at the role of fluid intake in childhood obesity and disease, and recommended that replacing soft drinks with water or milk could help enormously the health of children and decrease their likelihood of developing obesity.

It has been reported that flavour of available beverage significantly affects the magnitude of rehydration in children (Meyer *et al.*, 1994) with water being taken less frequently by most young children (Meyer *et al.*, 1994; Petter *et al.*, 1995).

An increase in the consumption of soft drinks and juices by children in recent times, has been linked with an increase in calorie intake (Harnack *et al.*, 1999; Ludwig *et al.*, 2001; Petter *et al.*, 1995; Cullen, *et al.*, 2002). It was reported by Petter *et al.* (1995), that 72.5% of pre-school children and 50% of school children never drank plain water, with the majority drinking squash instead, and that 15% of the pre-school group consumed just under 15% of their total daily energy requirement from drinks.

The type and amount of fluid that children consume affects their dental health. The intake of large amounts of sugary drinks such as squashes, fizzy drinks, fruit juices and juice drinks on a regular basis by children has been linked to dental caries (Marshall *et al.*, 2003; Dental

Health Foundation Ireland, 2004; Levy *et al.*, 2003) whilst the acidity of these drinks is said to cause dental erosion (Department of Health & Children, 1999a; Dental Health Foundation Ireland, 2004).

Reduction in the consumption of milk and milk products by children and adolescents is being linked to an increase in the rate of fractures in the short term and the onset of osteoporosis in later life (Wyshak, 2000; Goulding *et al.*, 2004).

Role of fluid in learning

Little work has been carried out into the effect of dehydration on cognitive ability, but it seems that hydration status affects mental performance to some degree. Rogers *et al.* (2001) saw an increase in alertness with increasing hydration, whilst Gopinathan *et al.* (1988) has demonstrated a significant ($p < 0.001$) reduction in short term memory, arithmetic ability, and visuomotor tracking at just 2% dehydration.

Teacher perspective on nutrition matters

Research in the past has noted that nutrition education in schools is effective at increasing children's knowledge and awareness of the link between diet and health (Pérez-Rodrigo and Aranceta, 2001). It has also been shown that teachers who are the pivotal persons to allow health education to take place, and who promote healthy practices, are under huge time constraints to prepare for and participate in health promotion (Pérez-Escamilla *et al.*, 2002). The source of health information for teachers is also important. A study of teachers in the US showed that 82% of taught nutrition using magazines or newspapers, whilst only 34% used school curriculum (Pérez-Escamilla *et al.*, 2002), a finding also seen in a study of teachers carried out by Pratt & Walberg (1988).

The Social Learning Theory (Tones, 2001) is a health education theory which outlines the importance of gaining an in-depth understanding of a groups' perceived benefits and barriers to a health behaviour before one can attempt to create an effective approach to educating and changing that behaviour. Pérez-Rodrigo and Aranceta (2001), demonstrated this by noting that identification of teachers' attitudes and perception of nutrition, including their motivation, is an important part of any programme development.

Children's and parent's perspectives

In 2000, Robinson reported that four-fifths of children believed that adults had a fairly high degree of control over their snacks.

The most important benefit of healthy eating reported by children was the enhancement of cognitive function and physical performance (O'Dea, 2003), whereas one of the major barriers reported was lack of parental and school support and modelling. O'Dea concluded that children and adolescents are looking to their parents and teachers 'to encourage, support and enable them to be involved in more healthful behaviours'. If this is the case then it is interesting to note that May and Waterhouse (2003) found that children reported that they were confused as to the effect that different drinks had on teeth.

Studies have shown that parental attitude on nutrition issues may lead to consumption of food and fluid by their children that may not necessarily be the best for health, for example Petter *et al.* (1995) found that the majority of parents were happy with their children drinking squashes. In a recent study Hart *et al.* (2003) demonstrated through qualitative investigation that parents have a short-term health focus, therefore the authors recommend a move from the traditional diet disease messages to a more real approach. For example, the promotion of school performance or dental health to parents would have larger influence on parent behaviour than the discussion of more long-term health effects such as heart disease or cancer.

Conclusion

From the literature it seems that fluid, as a part of healthy eating, could be regarded as being important to children both in terms of their overall health and their learning capabilities. Children perceive physical health and cognitive performance as benefits of following healthy eating advice, and perceive that barriers to undertaking healthful practices are lack of parent or teacher support. Teachers are those in the best position to promote healthful activities during school time, but they like other groups will only promote healthful activities based on their perception of the barriers and benefits of this activity.

From a pilot project carried out in the primary schools of the Midlands of Ireland it was noted that consumption of water by pupils was low, whilst the consumption of squashes, fruit drinks and juices was high (Clancy & Johnston, 2002). It was felt that lack of teacher knowledge regarding hydration coupled with perceived barriers to water intake, may be having an effect on water consumption in the school setting. Therefore it was decided to test

this hypothesis, with a view to using the information gained to inform a water promotion campaign in Irish primary schools in the future.

III. Aims and objectives

Aim

To explore the attitude of primary school teachers to water use in the primary school setting and to ascertain their level of knowledge with regard to adequate hydration and its effects on the child.

Objectives

- To determine, through in-depth interview, the feelings of teachers on the subject of allowing water to be consumed in the school setting, especially in the class situation.
- To ascertain through interview, teachers' knowledge regarding fluid, in terms of hydration, health and learning.
- To determine what teachers identify as being the barriers to children's water use during the school day.
- To identify the determinants, if any, of water use through the school day.
- To recommend ways in which to use the results of the study and how to disseminate these to local and national, school and nutrition policy makers.

IV. Methods

Study description

This study was qualitative in design, cross sectional in nature and involved the use of semi-structured interviews. The study was based in the primary school setting in the Midlands region of Ireland. The study population included primary school teachers who held various positions and grades in the primary school setting, and who taught children within the seven to twelve year age group, known locally as first to sixth class.

Selection of study population

To be eligible to take part in this study a subject had to be a primary school teacher and had to teach either, 1st, 2nd, 3rd, 4th, 5th or 6th class pupils in the primary school setting. Teachers who had taken part in any previous intervention with the Community Dietitian, or who had taken part in the Social Personal and Health Education (SPHE) Nutrition Summer Schools, co-ordinated by the Midland Schools' Health Project, in the last three years, were also excluded.

As the target population was a large one it was important to take a sample of this population. For the purposes of this study teachers were chosen from the following categories: each county in the Midland Health Board region (Westmeath, Longford, Laois and Offaly); an urban and rural setting; mixed and single sex schools; 1st- 6th class teachers; male and females; principal grade and ordinary grade.

Study procedures

In order to enrol teachers, unless teachers were interviewed outside the school environment, principals were contacted in target schools to discuss the project proposal with them and to obtain permission to meet with either themselves or members of their staff regarding the study.

Consent forms were created and used with all potential candidates (see appendix I). A semi-structured interview was carried out with a teacher as a pilot before proceeding with the final twelve interviews.

Sample size

In order to obtain a cross-sectional view of the research topic it was important to obtain an adequate sample size.

Qualitative studies are not generally statistically projectable to the population under assessment, as the recruitment of candidates is never completely representative. Therefore, as qualitative research was being used for this project, only a small sample size was needed. It was decided for the purposes of this study to take a sample group of twelve teachers using the sampling criteria given above.

Data management

This study involved undertaking semi-structured interviews and the use of analysis to obtain common themes and issues.

Semi-structured interviews were carried out on a one-to-one basis. Each candidate was given a consent form regarding the interview and project to read (appendix I) and if they were happy with the information they were then asked to sign it. At all times the issue of confidentiality and anonymity was stressed.

Each interview was recorded using an Olympus Pearlcorde S700 Microcassette recorder (Olympus Optical Co. Ltd., China), and transcribed verbatim using an Olympus Pearlcorde DT 1000 Microcassette Dictator/ Transcriber (Olympus Optical Co. Ltd., Japan), ensuring that no names or identifiable characteristics were noted. All transcriptions were then analysed for common themes. All microcassette recordings of interviews were destroyed after analysis had taken place.

Timetable

To help the project to stay focused and within a timeframe a Gantt Chart (see appendix IV) was formulated and used to plan the workload for the time period of the study.

V. Results

Profile of subjects

Twelve teachers agreed to, and took part in this qualitative study; of these teachers ten were female and two were male. A semi-structured interview took place with each participant. The teachers came from a variety of teaching backgrounds; three taught at urban schools and nine were based in rural schools; whilst one teacher taught in an all boys school, one in an all girls school and ten in mixed sex schools. At least one teacher taught in each of the four Midland counties; Longford, Westmeath, Laois and Offaly. Different grades of teacher were also in evidence, with five principals, four ordinary grade teachers, two new graduates and one learning support teacher taking part. Finally there was a good class spread of teachers with an even distribution of teachers teaching classes first to sixth (ages seven to twelve).

Fluid issues in the school setting

To obtain an overview of teachers' views, perceptions and practice with regard to fluid, teachers were asked questions on: type and number of drinks their pupils were drinking; accessibility to water; location of fluid consumption; and their own drinking habits in school.

- **Types of fluid in the school setting:**

Teachers were asked what fluid they felt was being consumed in the school setting. Teachers, in general, did not seem too sure about the actual drinks that were being consumed. Ten teachers' felt that the children in their school were taking fizzy drinks, juices, juice drinks, energy drinks and dilutable drinks. When questioned further, it seemed that there was confusion about the difference between juice drinks and juices, with teachers being unable to determine the difference between them. Two teachers reported that fizzy drinks were not allowed in their school at all as there was a healthy eating policy in place. However, one of these teachers reported lack of adherence to the policy, noting that some children still brought in fizzy drinks, and that those that didn't were bringing juice drinks, juices, and dilutable drinks in lieu of fizzy drinks. Half of the teachers' sample mentioned that some children brought in water, but they also noted that the children with water were in the minority.

Of the twelve teachers interviewed, only two reported that the National School Milk Scheme, a scheme available to all schools that enables schools to buy milk at a subsidised rate for pupils, was implemented in their schools. Most teachers felt that the reasons for this were: the lack of refrigeration facilities; spillage; sour milk; inaccessibility and parental perception of its' expense.

- **Number of drinks consumed:**

When asked how many drinks they felt the children actually drink whilst in school; seven teachers felt that most children, most of the time, brought in just one carton of drink a day; three thought that students always brought in two cartons a day; and two felt that children in their schools brought in bottles of fluid instead of, or as well as, cartons.

- **Water availability and safety:**

Various scenarios became apparent when teachers were asked about the availability of water for pupils to drink.

It appeared that two teachers did not know whether the water in the school was safe to drink, whilst four felt that the water in the school was not appropriate or safe for the children to consume.

The rest of the teachers' (six) reported availability of water for the students: Two said that there was a tap in the staffroom and that pupils had to ask for a drink if they wanted some; two reported taps in the staffroom and in the yard; one said there was a fountain in the yard and in the bathroom; and one said there was a tap in their classroom that could be used for drinking water.

- **Teachers drinking habits:**

When teachers were asked did they ever drink during class time, two reported drinking some water during classtime on a regular basis, two drank water occasionally, and one drank 'an odd cup of coffee'. Six said that they did not drink during class time.

Six teachers referred to break-time drinks, and of those who mentioned them, three reported drinking tea, one person drank milk, one took coffee and one herbal tea. Out of twelve teachers who were asked about their drinking habits in school, only four mentioned thirst, with all of these stating that they did not usually get thirsty during the school day.

- **Location of fluid intake in school:**

Teachers were asked where the students were allowed to consume their drinks. Seven teachers reported that students had to drink in the classroom before going out to the yard and that they were able to then save their drink and have the rest of it on their return to the classroom. Four teachers stated that children were allowed drink during class time; with one allowing bottles of water on the desk; one allowing water bottles to be taken from the bag; and two having a water station in the classroom.

Fluid Knowledge of teachers

Teachers were asked, through the semi-structured interview, questions to determine their knowledge on the issue of fluid and its' effects on the body, most particularly health and learning.

- **Type of fluid and its effect:**

Teachers were asked whether they had any opinion as to which drinks were the best or worst for health. The majority of teachers (seven), felt that water was one of the best drinks for health, whilst five felt it was fruit juice, two thought it was milk, two felt it to be Ribena and one thought both Miwadi and 7UP were the best drinks.

Eight teachers felt that fizzy drinks were worst for health, four had no opinion, and two felt that fruit drinks were not good.

- **Amounts of fluid:**

Teachers were then asked about the recommendations for fluid intake. The opinion of teachers varied on this topic. In the case of adult recommendations, teachers' answers ranged from three to six or seven pints per day, with two teachers admitting they had no idea regarding the recommendations for fluid.

Fewer teachers made any answer as to the recommendations for children with the answers given again differing greatly and ranging from 750ml to 4 pints. Five teachers admitted that they did not know the fluid recommendations for children.

- **Effect of fluids on health & learning:**

When asked had they heard of any different effects that fluid has on the body the following responses were given.

Four teachers mentioned the sugar content of fluids and that they thought sugar caused hyperactivity, weight increase, and was bad for teeth.

Three teachers felt that cola was linked to hyperactivity in children, whilst two teachers thought colourants caused this condition, and one teacher thought that colourants instead caused lack of focus and loss of concentration.

One teacher felt that water intake helped with weight loss, and two felt that water helped to flush toxins from the body.

Teachers were then asked whether they knew anything about dehydration. Eight teachers discussed the issue of dehydration, and of these three were unsure as to what the symptoms might be, whilst five felt the symptoms included lack of concentration (2); irritability (1); dry throat & mouth (2); hotness (2); lack of energy (3). One teacher mentioned that rehydration would help with improving concentration levels.

Barriers to water consumption

Teachers were asked did they feel there were any barriers to allowing children to consume water during class time.

When teachers were asked what their opinion was on the consumption of water in the classroom, just two teachers felt there would be no barriers, whilst the majority of teachers (ten) saw at least one possible barrier. These barriers discussed by the teachers are outlined as follows:

Six teachers felt that disruption would be a potential barrier to allowing water during class time. Five teachers felt that the mess and spillage that would ensue would prevent them introducing water into this setting.

Two teachers felt that the type of fluid was an important consideration and that a rule would have to be introduced to ensure that only water was allowed during class time.

Six teachers noted that age would be a barrier, with younger pupils being less able to manage water during class and being more likely to spill fluids. However teachers differed in their opinion as to what they classified as being too young to manage: two felt that children from senior infants to first class would be able to manage; one felt that a good 1st and 2nd class could manage it; one thought that second class upwards could manage; whilst one felt that

only 4th, 5th and 6th class would be old enough. One teacher felt that a water station might work better with the younger ages, and one felt it would work best with all ages.

Many teachers (5) felt that introducing water to the classroom would lead to increased trips to the toilet, whereas five felt that it would have no bearing on toilet visits, and two had no opinion.

Three felt that parents would play a big role in any classroom water introduction programme and this could prove to be a barrier, as parents might not want to give their children water only, preferring perhaps to give other drinks instead.

Determinants of water consumption

When asked for their opinions on water in the classroom, it became apparent that teachers' felt that there were several determinants for classroom water use.

Two teachers felt that knowing the benefits water consumption during classtime had on the cognitive ability of the child, led them to allow water use during classtime.

Two teachers said that water use would be more applicable in the summer when weather was warmer. One teacher felt that water would be needed, and should be encouraged more, after Physical Education (PE).

Two teachers said that if each child had their own water bottle and it was filled before school, or at the beginning of the school day, and kept on the desk during classtime, they seemed to consume more water.

Two teachers noted that if a class teacher liked water and drank it during class, or if other students drank water during classtime, then more children seemed to drink water.

Three teachers thought that if a system was put in place to decrease the chances of spillage and mess they would be more likely to allow water in the classroom.

Three teachers felt that if there was ground rules set up, they would be more likely to allow water and for it to be consumed without disruption.

Ideas for water in the classroom

Ideas were put forward by some teachers for the promotion of classroom water use amongst their peers. It was felt that if these ideas were highlighted to other teachers that perhaps more teachers would try allowing water into the classroom. The following ideas were thought to be useful:

- ◆ Promotion of the effects of fluid, especially water consumption on health, and most importantly from a teacher's point of view, its effect on concentration levels.
- ◆ Having a water scheme decreased the 5-minute stops that occur when children keep asking the teacher can they go for a drink.
- ◆ The use of water in reusable bottles would be cheaper for parents and schools' waste management than cartons of juice or juice-drink, and would also be more environmentally friendly.
- ◆ Advocating the use of ground rules to lessen disruption and spillage.
- ◆ Use of a toilet tag system decreased the risk of increased trips to the toilet; tag system whereby a child could only ask to visit the toilet when there was a tag in a box beside the classroom door. When the tag was not in the box, no one was allowed ask to go to the toilet.
- ◆ Three teachers felt that having a special place for a water bottle, together with sports cap use, would lead to decreased spillage i.e. space marked on desk, or holder on leg of table
- ◆ Two teachers mentioned that having a water station worked with classes, but it was felt by one of these that this method would only work with a small class size
- ◆ Use of water bottles on desks with older classes could be seen as an incentive scheme for younger pupils, so harnessing a peer approach to educating and empowering the children to consume water.
- ◆ One teacher mentioned that the production of a pack on water that was based on the current curriculum template and that was teacher friendly with lots of lesson plans and project ideas would make the idea more attractive to teachers.

VI. Discussion

Introduction

This study seems to be the first in the literature to assess factors that may influence the consumption of water in the primary school setting, with few, if any studies being in evidence concerning the attitudes and knowledge of primary school teachers towards water use in the classroom setting. The qualitative research approach used in this study served to determine the views and opinions of teachers that would have been difficult to obtain through quantitative analysis.

Teacher knowledge and awareness

From this research the reported intake of fluids, and especially water, by both the teachers themselves and by their classes seems to be inadequate. The possible reasons for this are outlined below:

From the results there seems to be a lack of knowledge and awareness amongst teachers of the role that water plays in the health and well being of children and themselves.

- **Recommended amounts:**

The majority of teachers did not seem to know the actual amount of fluid that is needed by children and adults, with volumes quoted ranging largely.

‘.....do I know, no I don’t know, no I don’t really know, but I suppose I’d guess they should have, what’s it for an adult is it a litre?’

This lack of knowledge may be an underlying reason for the inadequate school fluid intake the majority of teachers reported both for themselves and for their classes.

The reporting by teachers that they rarely drink water, and that the majority of pupils consume just one carton of juice or juice drink in the school day is a worrying one, and one that may well reflect this lack of teacher knowledge on fluid recommendations. Neumark-Sztainer *et al.* (1999) noted that adolescents model their habits on adult behaviour, and the situation they are in. It could be said, therefore, that if a teacher does not drink water, and does not put a value on the importance of water or promote its intake, it will be much more

difficult for children in the classroom to develop healthy fluid habits, or to consume adequate fluid.

Sansevero (1997) noted that by the time thirst was apparent, the body had already lost 0.8 – 2 percent of its weight through dehydration. Teachers did not seem to know this and were not aware that a person does not have to be thirsty to be dehydrated. As they noted that they rarely felt thirst themselves and that the children very rarely complained of thirst, it could hypothetically lead to the scenario that teachers would not deem it necessary to allow access to regular water as they would feel it was not important or necessary.

Another reason for their low water intake may be due to the fear of disruption mentioned as a barrier to water introduction in the classroom. As teachers were not aware of the benefits of water they may have felt that restricting the amount they and their class drank, may help cut down on potential disruption, such as trips to the toilet, for themselves and members of their class.

Water availability in the schools seems to be dubious, with teachers unsure as to water safety. This lack of knowledge together with lack of water in many classrooms, preventing easy access by pupils, may also be having a major influence on water intake.

‘...I know that most of the classrooms have sinks, I don’t know if they can drink the water out of it though. I don’t know, I haven’t asked and I don’t know now...’

- **Dehydration health and learning:**

There seemed to be an overall lack of awareness amongst the sample with regard to the importance of hydration and the effects of short and long-term dehydration. Some teachers were able to mention at least one symptom of mild dehydration,

‘...em, probably, eh, dryness of the throat and just that they’re very hot, getting hot and probably lethargic, I’m not sure exactly, that’s what I’d just think...’

However, none noted the fact that concentrated urine is probably the best early sign of dehydration (Armstrong *et al.*, 1994)

No one raised any of the problems associated with chronic dehydration either, such as constipation or day time wetting (Haines *et al.*, 2000, Almad, 1993) or any of the possible associated long term disease states such as urinary tract cancers (Bitterman *et al.*, 1991; Michaud *et al.*, 1999) or urinary tract stones (Borghi *et al.*, 1996; Embon *et al.*, 1990).

The link between dehydration and learning (Gopinathan *et al.* 1988; Roger *et al.*, 2001), was not alluded to by the majority of teachers, in fact many did not seem to be aware of the link. This lack of awareness could also be a reason why drinking water is not allowed or encouraged in class by many teachers.

- **Different fluids and potential diseases:**

In this study teachers noted that there was a high intake of fizzy drinks, juices and juice drinks with a low intake of milk and water.

The sugar and calorie content of many drinks on the market today is high, for example juices, juice drinks, squashes and energy drinks. However, there seems to be a lack of awareness among the general population that this is the case, with many people mistakenly believing that fizzy drinks are the only drinks that should be avoided in an attempt to decrease the calorie and sugar content of a child's diet.

The sample in this study was no exception, with teachers commenting on the sugar content of fizzy drinks.

‘...well, we don't encourage em coke and fizzy drinks, and they don't bring them, as a rule they don't bring them. And I think that's coming from parents as well, I think the penny has dropped with them, teethwise or sugar, the amount of sugar that's in them ‘

A good example of the lack of knowledge and the consequent deleterious practice was demonstrated by the report that the two schools who had nutrition policies only did not allow fizzy drinks in an attempt to benefit health.

Very few teachers reported water use by children in the school, with the exception of those teachers who allowed water in the classroom. Lack of water as a choice has also been noted elsewhere, with children as young as two years of age avoiding water, this being thought to be due to conditioning of taste for sweetness (Petter *et al.*, 1995).

In recent times the issue of childhood obesity has gained much media attention and many studies have noted a large increase in the number of overweight and obese children (Rudolf *et al.*, 2001).

Studies have linked the passive overconsumption of sugar-laden drinks to growing obesity levels amongst this age group (Ludwig *et al.*, 2001; Harnack *et al.*, 1999), with the hypothesis that the body does not compensate its energy intake as easily for sugar in a liquid form as it would for sugar containing foods (DiMeglio and Mattes, 2000; DeCastro, 1993).

As childhood obesity is now seen as a predictor for adult obesity (Whitaker *et al.*, 1997), teachers need to know of this possible link between drinks and obesity, to enable them to facilitate school policy that will promote the healthiest drinks for children in their schools. The reported lack of milk consumption amongst the school children of these teachers reflects the current literature where it is reported that the consumption of juices, fizzy drinks and squashes is replacing that of milk (Lytle *et al.*, 2000). However, the concomitant worry of the increased risk of osteoporosis and childhood fractures (Wyshak, 2000; Goulding *et al.*, 2004) in the population as time goes on, was not reflected amongst this teacher group. The need for children to consume adequate calcium is vital (Goulding *et al.*, 2004), and as it is a drink that will not affect dental health (Department of Health and Children 1999a) its use in the school setting should be advocated and encouraged.

A small number of teachers in this study mentioned the link between sugar in drinks and dental health. Nothing, however, was mentioned about the erosive effect that some drinks, for example juices, juice drinks and squashes were having on teeth, nor the need to consume these at mealtimes to lessen their effect (Department of Health and Children 1999a; Dental Health Foundation Ireland, 2004).

This lack of awareness again, may be having an influence on the type of drinks that children are consuming in school, as juice drinks, squashes and juices are routinely being taken by children in the school setting with and without food (Clancy and Johnston, 2003).

Barriers and promotion

Determining barriers to fluid intake in the classroom setting has not been studied before, and the use of the qualitative research method of the semi-structured interview made it possible to obtain a good insight into teachers views and feelings on this subject. Perhaps the use of focus groups might have gained even more information, however due to the geographical spread and difficulty in obtaining subjects this option was impossible to carry out.

It was interesting to note that the majority of teachers (ten) saw barriers to allowing water in the classroom. Teachers who felt that there would be barriers to allowing water during classtime were those who did not allow water on desks in the classroom.

In contrast those who did allow water, had plenty of ideas to overcome the perceived barriers, such as having a specific area on the desk for water, having sports' caps on the bottles, and having a tag system for the toilet.

Parental views on fluid choice was seen by some teachers as being a barrier, with some teachers reporting that some parents did not want to be told what their children should be drinking in school. The harnessing of parental involvement in school food and nutrition policy is imperative for its success. Encouraging teachers to use the whole school approach to nutrition policy development whilst emphasising the short-term benefits of water on health and learning to parents (Hart *et al.*, 2003) would lead to a more successful implementation of any initiative to promote nutrition and hydration.

It seems, from this research, that the most important issue for teachers is whether some thing will affect the learning of the child in the classroom. When asked, those teachers surveyed noted that if it was promoted amongst their peers that access to fluid in the classroom enhances concentration, mental performance and decreases lethargy, teachers would be more likely to try fluid programmes in their classrooms, and many of the potential barriers would be overcome. Graham *et al.* (2000) noted from work with teachers that although they were interested in nutrition, it was not a high priority for them in terms of their professional development. For this reason it would seem that whatever means is used to promote water use amongst this group and their classes must be creative.

VII. Conclusion

It seems that the type and amount of fluid taken by teachers and pupils during the school day will affect their ability to work and their short and long-term health.

Lack of fluid through the day can lead to short term dehydration with many symptoms such as fatigue, loss of concentration and headache; dehydration over a chronic period can lead to more serious problems such as constipation, and increased risk of urinary tract diseases.

Many studies have shown the deleterious effect on health of the over consumption of certain drink types. The widespread consumption of sugar containing drinks such as fizzy drinks, juice drinks and juices has been linked to obesity; dental health problems; and a downturn in the consumption of milk, which has been linked to increased risk of fractures and osteoporosis.

Water intake in the Irish primary school setting seems to be low, and as its consumption is preferred for prevention of disease and for promotion of health and learning, its use in the classroom must be investigated, acknowledged and advocated.

It seems, from this qualitative research, that there are two main factors influencing the consumption of water in the Irish Primary school setting: the lack of knowledge and awareness amongst primary school teachers regarding the role water plays in health and learning; and the perception of primary school teachers that there are a number of barriers to fluid introduction in the classroom setting.

From this study it would seem that the lack of knowledge amongst this group might be influencing their practice in relation to their own water use, and to that of the children in their classrooms. Those teachers in the study who allowed children to drink water in the class already knew of the benefits of water, and drank water themselves during class time.

Teachers felt that one of the most important ways to advertise water and the benefits of its use amongst their peers would be to highlight the difference its' use during class time could make to concentration levels and mental performance of children.

In conclusion it would seem that the formulation of a water promotion campaign would be very useful for teachers and pupils in this setting. Highlighting the study findings and producing an easy to use curriculum based water activity pack for pupil education, which outlines the benefits of water, and the possible problems associated with the over consumption of other drinks, would help the promotion process.

VIII. Recommendations and plan for the future

From this study it has become apparent that there is a lack of knowledge and awareness, amongst teaching staff, with regard to the role that water plays in health and learning, and that this lack of knowledge may be negatively influencing teachers' practice in the classroom. The following are the recommendations to come from this study:

- ◆ Education campaign amongst teachers on the importance of water during class time on concentration levels and mental performance and benefits of introduction over possible perceived barriers.
- ◆ Education campaign for teachers with regard to the potential problems associated with other drink consumption in school such as the increased risk of obesity and dental caries with the intake of sugar rich drinks, and the potential risk of increased fractures and osteoporosis with decreased milk intake.
- ◆ Necessity to look at the fluid as part of school nutrition policies as this seems for the most part being ignored and excluded from policies at the moment, with the exception of the 'ban' on fizzy drinks.
- ◆ Promoting the need to use the whole school approach to nutrition policy development, as the role of parents and children in a successful policy is vital.
- ◆ Highlighting the importance of educating children regarding fluid intake and the signs and symptoms of dehydration.
- ◆ Highlighting of findings to dietetic and other health professional colleagues to promote need for countrywide campaign to change attitudes and practice.
- ◆ Further study regarding water safety and availability in the school setting
- ◆ Further study into the issue of lack of milk consumption in the primary school setting; audit refrigeration facilities and parental attitude to milk usage in the school setting.
- ◆ Production of curriculum based water activity pack for teacher use with their classes.

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- ◆

XI. Appendices

Appendix I Consent form

Community Nutrition Research Project 2003

- ◆ I have had the process of today's in-depth interview explained to me, and I understand this process.

- ◆ I understand that we will be discussing hydration in the school setting and that the session will be recorded on audiotape, for the purposes of transcription and to enable analysis.

- ◆ It has been explained to me that the information obtained through this interview will be collated with that from other interviews, and the information will be written up and submitted for conference presentation and for publication. I agree to have the interview taped and the information being used for the purposes of research and publication.

- ◆ **I understand that all information discussed during the interview will be treated with the utmost confidence by the researcher, and that all audiotapes will be destroyed on completion of the research project. I also understand that all details of the interview will remain anonymous at all times.**

- **I understand and agree to all the above details and I consent to take part in today's discussion**

Signed: _____

Print name: _____

Appendix II Sample questions used during in-depth interviews

- ◆ What I want to discuss with you today is the issue of fluid intake. Fluid can take many different forms.
- ◆ Perhaps you could tell me the different types of drinks that children are drinking in the school these days.
 - ◆ How many drinks do they consume?
- ◆ Where do the children consume the fluids?
 - ◆ Is there drinking water available in the school? Where?
- ◆ In your opinion which fluids are the best and which fluids are the worst?
 - ◆ Why would you consider them bad/ good?
- ◆ Have you heard anything about the affects different fluids have on the body?
- ◆ Do you know how much fluid we should all be drinking everyday?
 - ◆ Is it any different for children?
 - ◆ Do any circumstances indicate that we might need more water?
- ◆ Do you know what the first signs of dehydration are?
 - ◆ Would you know whether some drinks would be more dehydrating than others?
 - ◆ Have you heard whether dehydration affects learning?
- ◆ What is your opinion on the consumption of fluids in the classroom?
 - ◆ **Why would you feel it would be important** to allow/ not allow fluid to be consumed in the classroom.
- ◆ Do you consume fluid in the classroom?
- ◆ What would be your opinion on the introduction of water breaks for teachers and pupils?

Appendix III Sample semi-structured interviews

Sample Interview I:

C alrighty so what I'm looking at is fluid and hydration in children, and maybe just as a starting point really, have you noticed what the children are drinking these days?

X my children, they would drink I suppose twice a day really is, is em the maximum number of times they'd have a drink, little lunch and big lunch em...mostly fruit juices, I think, we encourage them not to bring em fizzy drinks like coke, or fanta, so its normally em small cartons of fruit juice, I've one child who brings milk, only the one, and he would regularly bring a number of drinks, it would be a problem getting him to drink all that he brings in.

C oh right, a number of drinks of milk or ..

X milk and juice, they seem to send in quite a number of drinks with him, he might have two cartons of milk, or maybe a juice with it as well, you know, but mainly juices, cartons, small cartons of juices, Ribena I think I've seen

C would there be other sorta juice drinks like ribena things like Capri sun, or fruit shoot or sunny D

X yes, yeah, in fact I think I've seen one child nearly brings in a pack and there's a fruit juice in with it, it's a kind've a they're commercial lunches, little crackers and burgers and I think there's a drink included in that

C interesting, and tell me do you, you said one of them drinks, brings a few drinks in, would the others bring more than one, or would the others just.

X they might bring two, but normally one, normally one yeah, and they would drink them as a rule, they're you know, they're in the beginning when they come in in

junior infants they tend to drink a little and leave it up and forget about it, but we train them into taking their time and drinking, drinking it in total.

C would they have their drinks in the classroom before they go out to play?

X they would yeah, they would, we don't we take about five ten minutes for lunch because em, they just don't tend to eat all their lunch or drink their drinks if they're left on their own, particularly the smaller ones, now by first class they'd sit down and get on with it, but em particularly junior infants it takes a bit of training in the beginning, taking out their lunch, taking out their sandwiches, and even watching them with the food, they'll go for the sweets first, ceapari, here, as gaelige first, and their drink

C it's interesting now, I would never have thought of that

X yeah, it takes, it does take a bit of organisation, in baby infants just to train them into, even eating habits, you know, a lot of them now, would eat their sandwiches, but would eat in around and leave the crusts, but with a bit of encouragement they all stop it after a while, you know, then there's a lot of hurry to get out as well, rushing or whatever.

C ok, emmm, and do you have any opinions around which would be the best fluids or the worst fluids

X well, we don't encourage em coke and fizzy drinks, and they don't bring them, as a rule they don't bring them. And I think that's coming from parents as well, I think the penny has dropped with them, teethwise or sugar, the amount of sugar that's in them. Emm haven't seen any children bringing water, but I know with older children, now my own daughter she's in secondary school and she tends to bring water to school because its, I think it's hip at the minute to bring water anyway, so but not, not down at this level, yet I don't know about Liam's em, but I mean it, it might be a good thing to push the water with them. The water here is ok, but the water in my classroom I think, is not em drinkable, yeah, so I don't let them, they never drink outside, ...

- C but they can get a drink from here (staffroom)
- X they can yeah if they were thirsty, if there was a child thirsty, send somebody out, the cups are there
- C and have you em, sortof around the health, the health effects of any kind of drinks on....
- X Ribena I would have heard, I suppose I would have seen em a television programme, in depth programme as to the benefit of Ribena or the way it would have been advertised, and it was, it came across as being quite negative really, you know it was sold as a 'health' drink for children and sugar free, very questionable
- C as to what, the amount in it actually...
- X yeah, yeah
- C and have you heard any other, sort of effects
- X teeth, I suppose you know, smaller children suckin bottles, I've seen it, I've seen children with the front teeth, baby teeth gone, because of em, I would have assumed because of bottle, you know the bottle at night and the juice in the bottle, but then again I suppose when people don't realise, but I think they would be more aware now, than maybe ten years ago or whatever, the effects of the sugar.
- C yeah coz it's a big effect really, the sugar has on the teeth.
- X yes, especially I suppose with younger children, I suppose nutritionally as well em cokes and whatever, the amount of sugar that's in them, like if children tend to take them down every time they want a drink it's bound to tell on weight, you know. Again it's habit, you know it's amazing what you can train them into do. They'd be good here now, parents would be good, you know they'd. We had a dentist in, she wasn't a dentist, I think she was a dental, I don't know, nurse or whatever, in one day, and em it was amazing the effect that her talk had on the children, you know with

food, and drink and whatever, and I think they all made an effort and they'd bring the odd sweet or whatever, but we don't encourage them they would all have their sandwiches, one child now brings sometimes brings a the pre-packed sandwiches but it would be because of pressure at home, because I mean mummy and daddy are working and would have split up recently and whatever you know, you could see the rushing, but the effort is still made

C yeah, yeah better than sweets or bars or whatever,

X yes, yes

C ok, ok, do you have any ideas around the, sorta, recommendations, or the amounts of fluid we should be having everyday?

X I suppose I would be aware that we should be drinking more than we're drinking at the minute, I find it myself I don't drink enough water, make an effort but then find it difficult to, I don't know how many, what, ...em for a child I don't know what the intake would be, would it be a pint and a half, two pints.

C It's actually a litre and a half

X is it a litre and a half?

C for a child, and two litres for adults.

X that's supposed to be taken a good bit with tea and coffee, then again the effects of tea and coffee, but em I find it difficult enough myself to drink up the water

C ok, ok, would you ever drink, sortof during class time, or anything, would you ever be thirsty?

X no, no, and it's something that we're encouraged to do because of our voices as well, to have a glass of water, probably don't do it because we don't take time to, just always seem to be rushing

- C time is a big factor then
- X it would be and probably that would be the reason why you don't put a glass of water, you know on my, on my table em, even a bottle of water again it's habit, you know just haven't done it, but would be aware, I would have often heard people recommending it, from the point of view of voice now in particular, you know 'cause we can do, we're using it constantly.
- C and where would you have heard that from, would it be from courses or?
- X A course yeah, yeah it would have been a course, emm somewhere along the line, it would have been yeah. Would have been aware of one or two people would've had serious trouble with their throat and suppose would be aware that I don't have a problem with my voice, thank god, but I mean, there would be a number of children, my sister actually, she had voice training and she was, she had a problem with her throat, and it, and a friend, a very good friend in xxxxxxxx, it had transpired that she was actually using her breathing was all wrong, and the way she was using her voice was, was wrong, and probably, she didn't know, she didn't realise that until she began to have problems with her throat, but it had been, you know, she had been always using her voice improperly or whatever, and she did go for a number of em, sessions with , I don't know, a speech therapist to get her breathing right, or whatever
- C and would she have been told to drink water,
- X I'm sure he would have been, yeah,
- C ok, ok, that's interesting, emm, ok, emm just around sortof the whole aspect of dehydration do you have any ideas around the signs and symptoms of dehydration?
- X em I suppose the only time that I'd be aware of it, maybe in the summer when em, when we're out playing, that would be the one time when we would check whether anybody would want a drink, or whatever, and em especially with the smaller children, who are doing a bit of running around, they can get very flushed or, em and you would watch it with the sun, you know with some of them wouldn't be that great,

apart from that no, like it doesn't really arise in that they, they have their drinks twice a day, but it wouldn't be something that I would be totally aware of, to spot the signs of, or be aware of them, em I suppose in the summer we'd be more conscious of whether they were thirsty or not

C and you feel after sport would be

X yeas, one tends that we'd watch them

C ok, em what would be your opinion around maybe having drinks in the classroom say bottles of water on the desk, or

X emm..... It would be hassle if it wasn't set up properly, I mean if there was some mechanism where a bottle could be, you know the old ink wells, if there was something, that they could place their bottle in and it, and it didn't interfere with their work, now with the little ones, if you have a bottle that's moveable you're going to have accidents, and they're going to be in the way, but if they were fixed to something I wouldn't see a problem, actually I have a daughter who went to school in xxxxxxxx and there was one particular teacher that she loved, she's since retired, and I remember one day she was at home, we had met her in town, and we were chatting about xxxxx, she called her xxxxx, and the one thing she came up with straight away was, xxxxxxx used to take out our drinks any time we were thirsty, and we could work away, and do our work, but to xxxxxxx, she thought this was the best this was the best thing ever,

C that's interesting it stuck with her, and would you feel that, sortof age of the child would be a barrier to having the drinks on the table then?

X emm, I could see with maybe the junior infants, by senior infant level they're, they're self sufficient, or em

C that early?

X yeah there's a huge difference between when they come in, because everything is done for them at home, and in the classroom you know it's a slow process but they do begin to, to take out books, put away books, and whatever, and it's amazing what they can do, you know in the short length, in the short length of time, but it takes training, so I'd say by the end of Junior infants, but definitely not when they come in, but by the senior infant level, I'd say, particularly by first, by first

C do you have first class yourself,

X yes

C you do, right, right

X and there's a huge difference, first, second, you know they're em, much more dependable and they take things in their stride, whereas, and they don't fiddle as much, you know they're more mature

C It's gas, isn't it you know you've no idea

X there's a huge difference between I'm only teaching infants in the last two years, never thought that I would teach infants, I would always have taught the higher end of the school, but em, even by the end of junior infants, it's amazing how much they have learned, just by being in school and doing things on their own, or even a child who's sent, you at just four, sometimes we take them in here during the year when they've just arrived at four, you know that six months, before four and a half, there's a huge difference, maturity, it depends on the child as well, you know but eh, first class definitely would be able to manage it.

C right, that's interesting now, ok, em just in terms of em, have you heard anything around em the effect that water or fluid would have on concentration levels and workability

X no, I wouldn't really

- C no you haven't heard anything at all
- X no, I wouldn't have, I would have considered, I suppose we do consider the fact that a child mightn't have eaten, have had breakfast, or mightn't be able to concentrate but really I suppose fluid wouldn't have, for me, considered it, I wouldn't anyway.
- C It's just it's really an area that, as you say it's been forgotten really and you know the studies now are showing that, that em fluid is, is important, and if a child is lacking in fluid their concentration is affected and they're less likely to be able to learn as well as somebody that is ok in terms of fluid
- X it's something I wouldn't have considered
- C that's grand and would you say that there's a link, maybe between sort of the amount of fluid they drink and the amount of trips they go to the loo, or anything like that
- X eh, I suppose if they're drinking huge amounts of liquid, they could but you know I wouldn't have em, that child now that drinks quite a lot I wouldn't have noticed that he's particularly going to the toilet more often than, than another child, then again we'd have them trained into going at lunchtime or at little lunch as much as possible so they'd go in and out there, but the toilet is in the classroom so there's not that much, they' just pop out whenever they want to, but it wouldn't really haveyou wouldn't have that many children that go out that often anyway you know , so I wouldn't have linked it with fluid.
- C that's been very helpful.....

Sample interview II:

C: ok, mmm The whole area I am looking at is fluid intake with children and teachers and really what I want to do is find out what kind of drinks the children are drinking, have you any idea in the school at the moment.

X: Yes. It would be a lot, fizzy orange would be the main one and then you'd have a few who would drink orange juice or apple juice, emmm, that's basically it. There would be very little milk. Water sometimes, but usually fizzy things or juices.

C: alright and the juices are they say the squeeze, or the pure fruit juices, or are there some juice drinks coming in.

X: No there would be, I don't know what they are, they're little cartons of drink, now they would not be pure juice at all, they'd be the fruit drinks.

C: They would be the fruit drinks.

X: Yeh, more or less, oh yeah, sorry.

C: Some people find that there is more of those coming in than the...

X: oh yeah there would be very little of the fruit squeeze or Capri sun. That used to be a popular one, but it seems to be gone now, very little of that.

C: right, ok, ok, and you say very few take milk in either.

X: Yeh, in this now there are only 10 in this room and one boy who brings milk an odd day. He is the only one.

C: ok, right, right, and is there a milk scheme in the school.

- X: No there isn't.
- C: ok, that's grand, emmm and eh where do the children have the drinks? Do they have them inside the classroom or out?
- X: Yeah, yeah. They eat their lunch in the classroom first, before we go out to play, because otherwise they go out in the yard and they forget to eat or drink or whatever. Sometimes they will bring a drink out with them, but usually just drink before they go out and then when they come in they can get another drink if they're thirsty, yeah.
- C: and do you find they would have one drink or would they have two or three drinks with them.
- X: Most would probably have one drink, and then if they get thirsty or they have no drink left, they'll ask for water. Emm may have one or two with a few drinks, two drinks maybe.
- C: Ok, ok, and em you say some of them ask for water. Is there water available in the school?
- X: There is yeh, yeh. We have a bottle of water in the fridge usually, anyway.
- C: ok, do you have that from the school itself, or does somebody bring it in?
- X: Emm, no, usually, usually we try to bring in some and keep it in the fridge. If that runs out we will drink some water that's here, but usually we try and keep a few bottles in the fridge.
- C: Just for an emergency.
- X: Yes, just in case.

- C: ok, that's grand, em, that's grand, just in terms of fluid and health, do you think fluids are important for health.
- X: Oh yeh.
- C: Have you heard any of the benefits of fluids in terms of health.
- X: Well not health as such, but I'm actually just trying to lose weight at the moment and I started drinking water and it maybe working for me anyway. Health wise I'm not exactly sure what the benefits are, but...
- C: ok, ok, em and which would you, just in terms of health, is there any, have you any opinion as to which would be the best ones for health. You mentioned water there is good.
- X: yeh, water, I suppose any pure juices, orange juice or. I would be inclined to stay away from the fizzy drinks if at all possible, but then I suppose parents are just buying what's handy for the children, in the end so.
- C: You say fizzy drinks. Have you any ideas around the fizzy drinks, why they may not be particularly good?
- X: I think they are full of sugar, well that's my own opinion, I'm sure they probably are.
- C: O.K. that's grand, em certainly a lot of them are very full of sugar.
- X: And flavourings, colourings, and that sort of stuff.
- C: ok, do you know how much we should all be drinking a day, in terms of say glasses or cups?
- X: I think it's 3 pints of water. At least that is what I am trying anyway. I think, I wouldn't be sure.

- C: and would you say that it's more or less for children.
- X: oh, probably less, I'd say. Just a guess, I'd say less.
- C: ok, ok, and would you see, em, you'd reckon that the ones in the class are probably only getting maybe they'd have just a carton with them.
- X: Yeh, yeh,. A carton or a small bottle, would be what they'd have.
- C: alright, what would your opinion be on allowing children to have drinks during class time?
- X: Emm, yeh, if they want a drink they can have a drink, but usually what happens is if one child asks for a drink, then the other 8 or 9 or whatever, suddenly all decide they want a drink. You could waste 5 minutes getting out the drinks and taking them, putting them back and all the rest, but yeh, if someone is hungry or thirsty enough I let them have a drink. It doesn't bother me really.
- C: Do you find does it happen at all. Do they ever say they are thirsty?
- X: It would, yeh, it would, it would a good bit, yea. Like at least every day you'd have, you'd have one or two who would look for a drink at different times.
- C: Would they get it out of their bag at that stage.
- X: Yeh, yeh, yeh.
- C: ok, emm, how about yourself, do you have a drink at all, sorta during class, or anything like that.
- X: No I tend not to.
- C: You would not every feel thirsty or anything like that.

X: No not really, not really. Em, No we have tea, well tea or water at 11 and then break again at half twelve. Having said that, a few days that I did have a bottle of water with me, I would, I would take a drink out of it now and then, but I would never feel very thirsty.

C: ok, ok, that's grand. Emm, and one of the, sort of the ideas that em, seems to be played around with in the UK, is the introduction of what we would call fluid breaks, so that the children would stop, maybe between lessons or whatever, and have a drink. What would be your opinion on that?

X:eh Yeh, I suppose.....Yeh they would all get a chance, I suppose, to have a drink and it would cut out the 5 minute stops for drinks, you know if someone's thirsty they'll look for a drink and then 5 minutes later someone else wants a drink so at least they'd all be having their drinks together and it would give them a chance, encourage them probably to drink more. The only thing is then, like if they are still bringing in fizzy drinks they're just drinking more and more of those, so whether that's doin' them any good, is the other side of it..

C: But say for instance if it was water, if you had a water break.

X: Oh yeh, yeh..

C: What classes do you teach?

X: I have junior, senior, first and second.

C: Oh right. A good spread.

X: A good spread yeh, but our numbers are small.

C: How many do you have in the class.

X: I have 10 in this room and 11 in the other, so 21 altogether.

C: A nice number.

X: Well it is small. It is fine when they are all in, but if you have 2 or 3 missing, it is a long day, it can be.

C: O.K. Well that is more or less it.

