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# Parents and Children Learning Together A Study of the Effectiveness of Parental Involvement on Children's Problem Solving Skills

Pamela Sharpe

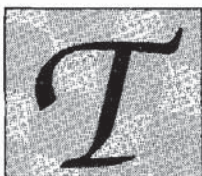
## Abstract

This study developed from the findings of a previous set of studies into parental involvement in pre-school education. Amongst some interesting results, significant were parents concerns, and uncertainties about their roles in facilitating the learning experiences of their children in the home environment.

Additionally, the findings revealed that when parents do spend time with their children, reading stories and playing board games were popular past-times. Research elsewhere reveals that the kinds of pre-school activities most effective in the development of thinking skills, involve construction, drawing and board games. Thus, an aim of this study, is to investigate the extent to which parents' understanding of the competencies involved in these activities, affects their involvement in them at home and the progress of their children in school.

This paper presents the findings of a pilot study of the role of the tutor in problem solving. It is an attempt to identify the kinds of knowledge and information about children that tutors, and subsequently parents, would need to have to be effective, and the kinds of activities which elicit developmentally appropriate strategies in children when presented with problem solving tasks. The results show that if parents are to be effective as collaborators in their children's learning, an understanding of qualitative differences in children, the kinds of activities and experiences provided, and methods of presentation, are vital factors for success.

**Descriptors :** Problem solving, tutors, parents, young children.



## Introduction

The study stems in part from two earlier studies into parental involvement in pre-school education. Amongst some interesting findings were parents concerns and uncertainties about their roles in facilitating the learning experiences of their children when not in school. Other findings involved teachers' perceptions of the parents' roles and these revealed that

parents were not welcome in school and should instead provide a supportive and complementary home environment with appropriate experiences.

This paper describes the preliminary attempts to sensitize parents to current views on appropriate learning environments for young children, in particular, the strategies they use to make sense of their experiences. A home programme comprising activities to stimulate thinking and problem solving is provided and the parents' role as tutors focusses on an interactive process.



Here the tutor sets the challenge and together they resolve the mystery, the tutor giving structure and direction to the experience. It is anticipated that if parents understand the basis for this approach to tutoring, their support and encouragement will relieve the potentially damaging pressure to "succeed at all costs", a current dilemma for parents of children in Singapore.

### **Preliminary Investigations**

Parents concerns about availability and quality of pre-school education continue to be expressed in the meritocratic climate of Singapore. It was revealed in the first study, (Sharpe 1989), that a traditional approach to learning by direct instruction, rote learning, homework and regular assessments, was the preferred norm. This study, was largely concerned with assessing parents' needs and expectations of pre-schools and their teachers. A survey of parents' needs and expectations, appeared to support Tizard's findings, (Tizard et al, 1981), that parents are ignorant of educational aims, practices, and priorities, largely because teachers are insufficiently sensitive and explicit when communicating information to parents. The Singapore study concluded that improved cooperation between parents and teachers was necessary, and attention to a process of listening, negotiating, and compromise, through parental involvement in pre-schools seemed desirable, (Little and Smith, 1971).

It was also envisaged, that claims for other benefits from a parental involvement programme would be appealing to parents. Smith's claim for a positive predictive relationship between involvement and academic performance, (Smith 1980), and Radin's claim for maintenance of improvements, (Radin 1972), augured well for the aspirations of parents in Singapore. Smith's concept of "Partnership" involvement, (op. cit.), was adopted, and an investigation into its precise nature was the concern of the follow up study, (Sharpe 1990).

A group of 60 parents were asked questions about 5 types of "Partnership" involvement, revealed by Epstein (in Brandt 1989). These

involved: obligations of parents as parents; obligations of schools in communication; parents as volunteers; learning at home; parents involved in school policy making. An analysis of the responses showed a positive desire for volunteering to help in school, but they did not want to attend workshops for this purpose (Table 1). Responses to questions about assistance in helping their children at home indicated that parents' preferred a type of "Partnership" involvement. When the responses of teachers to questions about the 5 types of involvement were analysed, a higher percentage of teachers than parents felt that workshops on home based learning would be desirable. Teachers felt also, that there was more tuition, 'in the form of cramming of school work by hired tutors, than parents claimed (Table 2). When these findings were analysed in terms of age, joint income, and educational level, although most parents wanted help to help their children, the least well educated, regardless of income, requested workshops to help them help their children. A finding from a related study supported the prescription for workshops for the least well educated parents. Here 50 sets of parents in one Childcare Centre were asked how they spent their time with their children. The higher educated parents spent the most time, and board games, and reading stories were the most popular activities. Thus whilst the preference for home programmes, especially for the least well educated parents, is clear, their content and effectiveness would need to be researched if sufficient numbers of those parents, both needing and requiring such programmes, are to be convinced of their usefulness.

Elsewhere successful home programmes have relied much on the schools' initiation, and have been largely for "at risk" or "disadvantaged" families. (Cameron 1985, Griffith's and Hamilton 1984, Powell 1988, Jowett et al 1991). Much of their content has focussed on reading programmes, and imparting appropriate attitudes, conduct, use and understanding of language, and their relationship to school achievement. Such programmes it is claimed, elicit a protective and secure learning environment rather than improve reading skills per se (Hannon 1987).



Clearly such merits may well be conducive to the needs of parents and their young children in Singapore. Nevertheless, their usefulness especially in terms of their relationship to school achievement would have to be demonstrated. Additionally the content would need to be appropriate and not comprise mere rehearsal of school work, which may well contradict the school's efforts. A major aim of the current research into parental involvement in school is to devise a suitable programme which may satisfy the needs of the majority of parents and maximise the potential of their children. Small beginnings can lead to ...

### Strategies for Practice

Jowett et al (1991) have documented some useful parameters worthy of further investigation. Their findings from a study of various kinds of parental involvement activities in a range of schools in Britain, are illuminating in several respects. For the purposes of this research those concerning home programmes are considered in relation to their usefulness for parents, teachers, and children in Singapore.

The parents involved in Jowett's study, (*op. cit.*), were eager to be involved in school activities which could be continued at home, however, unlike the Singapore parents (albeit of younger children), these parents were able to attend workshops in school time and become acquainted with the types of school-based activities which involved their children. The parents of children in one primary school commented positively. In particular, comments about their understanding of what their children were capable of and how children learn and the many ways to teach them, were cited. These workshops apparently led to parents' requests to continue certain activities at home, at times convenient to them and not just the usual homework. These suggestions were supported by all but one of the sets of parents reported, this particular group being parents of very young children, who felt that such experiences would only add to the already long school day. Jowett

reports that other concerns centred on pressure on parents to complete activities and the fears of failing at tasks in front of other parents.

Thus, some pointers from Jowett's research for the Singapore study would be the usefulness of workshops to sensitize parents to how and what children learn at different ages and stages, and secondly, provision of related activities to be carried out at home. Although such proposals were expressed by parents in the Singapore study reported earlier, alternative arrangements for the provision and content of the workshops and home programmes, would have to be considered. It would be necessary to involve parents in workshops which take place in centres external to schools and school hours, and provide supportive information and education for parents as part of the regular parent programmes. This would be vital in order to avoid exposing parents as "uninformed", and, to avoid pressurizing them into believing that this was the only way for their children to succeed in school. It is just this kind of pressure that this study seeks to avoid, given parents' expectations of schools reported earlier.

Another cautionary note expressed by Powell et al, (1988), is timely. He suggests that it would be wiser to match programmes to parents and their differing ideals of parenthood. Furthermore, Goode, (1987), warns of the dangers of teachers and researchers patronising parents. He suggests that their practices rather than their personalities should be considered. He proposes that the kinds of questions parents pose, how they organize activities for their children, and how they appraise themselves, are practices more worthy of investigation. Applying these suggestions, for example, to an analysis of the Singapore parents' responses to questions about what they want from pre-school, (Sharpe 1990), it is clear that parents want to be informed about their children's progress and many felt that they were not well informed currently. Furthermore parents do not want to visit school regularly to discuss progress. (Table 3).

Thus a specific type of home programme has been prepared which attempts to satisfy the needs of parents in Singapore.



## Planning the Home Programme

Any teaching programme designed for young children would need to take account of their developmental needs, the resources available, and the competence of the teacher/tutor. Additionally, as with school programmes, there needs to be a commitment on the part of the teacher/tutor to the success of the programme, and, a willingness to be flexible about outcomes and an ability to modify provision and expectations. The previous study (Sharpe 1990), reported the need to familiarize parents with knowledge about qualitative differences in the development of children's thinking and problem solving strategies. To convince them that learning and development take place in a materials rich environment with opportunities for self initiated activity, and, the importance of play in problem solving and creativity (Bruner 1972). The importance of structured play for intellectual development, revealed by Bruner, and reported in Sylva et al, (1980), would therefore need to be stressed in the type of home programme planned. The goal directed behaviour reported by Sylva et al (op. cit.), implicit in building, drawing, and board games is related to goal directed activity in school attainment, and such a finding might well persuade parents of the benefits of these types of experiences. Furthermore, an adult's role in motivating children to think, express views and explain actions is crucial in play and is most likely to occur when the adult is a facilitator (Sylva et al op. cit.).

Thus an approach to introducing parents to the merits of problem solving and the importance of explaining and describing activities was selected as the basis of the home programme. What then do parents need to know about problem solving?

## Information on Problem Solving

Wood (1988), reviews the research proposing the collaborative role of adults in supporting children's learning. Challenging activities which tap the child's existing repertoire of skills and knowledge, which may be provided are more

likely to be effective in new learning, he concludes. To enable effective collaboration, a noteworthy tactic is to provide tutoring in problem solving, (Wood et al, 1976), with the idea of the "expert" passing skills and knowledge to another. This "scaffolding", (Wood, op.cit.), involves such activities as questioning, correcting errors, showing approval, coaxing, and providing supportive experiences which children grow to interpret, extend, and understand. Other research, (Schweinhart et al, 1986), points to the advantages of programmes for young children which stress relationships with responsive adults who encourage competence and decision making, such as the "High Scope" programme, and the positive long term results over other programmes. For this research it is envisaged that if collaborative efforts between parent and child are encouraged, this will form a sound basis for a home programme.

## A Place to Begin

To date, the planning and preparation of the programme has centred on teaching a group of adults to observe and record the behaviour and problem solving strategies of young children as objectively as possible. The purpose is to investigate whether, given the opportunity, the group is able to develop realistic developmental expectations, observe individual differences, and note temperaments, interests, and attention spans. In this regard, Saljo and Wyndhamn's study (1990), on the problem solving competencies of 12/13 year olds, suggests that success appears to depend on the amount of interest and enthusiasm students bring to the tasks and the relevance to real life situations. It is anticipated then, that before parents are exposed to the programme, an analysis of the effects of tutoring by adults other than parents, will reveal the kinds of problems and issues to note. This is in order to pre-empt any difficulties which may confront parents, and which may diffuse any enthusiasm, interest and commitment, or pressurize or expose. Such effects, which Jowett, (ibid.), noted might be detrimental to any home programme.



A group of 21 post graduate diploma in education students, with little or no experience of young children, or knowledge of child development, have been undergoing a course, designed to develop their understanding of children's problem solving strategies. After some training in observing children, using running records of happenings in "event sampling" and "time sampling" and the use of anecdotal records and case history information, students were introduced to aspects of developmental explanations for problem solving. They were encouraged to try out baseline activities to test conservation, understanding of relational, comparative, and differentiated words and phrases, understanding of position and direction, time and cause and effect, through questioning, discussion, posing further obstacles and rephrasing questions. Next, students were encouraged to provide problem solving activities and experiences, which comprised board games and puzzles, construction activities, collage, listening to stories involving challenging situations, treasure hunts/trails, and every day activities where challenges are identified.

Students were asked to chose two children for their study, and identify their similarities and differences at the beginning, and to monitor these during the observations and interactions. In addition to recording observations they were asked to collect information for the purpose of completing a checklist, or progress chart, and record information from baseline tests and observations. Records of problem solving and related activities were kept as were detailed accounts of the childrens' responses to these. Where possible, students were asked to compare the two children using both common and differentiating variables, so that any changes which may occur in the children may be explained, or accounted for.

### **Some Relevant Observations from the Case Studies**

As the students wrote up their case study reports, they were asked to complete a questionnaire, designed to evaluate their views on their

understanding of children, the appropriateness of their observations, the appropriateness of their activities, and, whether they felt competent in interacting with children. A summary of their comments is shown in Figure 1.

An in-depth quantitative analysis of the case studies, in order to draw some relevant prescriptions for practice, is not possible. Rather, an analysis of the students' detailed observations does reveal some interesting findings. Having each observed their two children, and, collected baseline information on the way in which they manage problems, students were asked to prepare tasks in order to elicit changes in the children's behaviour. In order to improve their understanding of the qualitative differences in children's thinking, students were expected to compare the performances of their two children by noting a differentiating variable, such as age, sex of the children, home background, preferred language spoken, position in the family, the types of tasks chosen for intervention, or whether the mother was involved in the tutoring. The majority, 11 students, chose age, 7 chose preferred language, 4 chose to vary the tasks, and 2 students each chose the other options. A summary of their observations about the children's behaviour noted during the intervention experiences, (Figure 2), reveals that their earlier misconceptions about children, may have changed.

It is clear from Figure 2, that the students have a better understanding of young children and, under which kinds of circumstances they may be guided to problem-solve effectively. The students' observations about their tutoring role (Figure 3), clearly show their concerns about the kinds of assistance which children need at different stages in their development; the kinds of questions which elicit the appropriate responses; the importance of hands-on activity and opportunities for decision making; the effectiveness of presenting tasks in small steps, and guiding rather than using tasks as obstacles to be overcome; praise and appropriate feedback is also noted; the encouragement of guesswork is "out", and explanations are "in".

Thus for future teachers, such observations and beliefs about children might positively affect



their competencies in the classroom. What in particular, though, has emanated from the case studies which could be useful to parents?

A number of parameters warrant further investigation. In particular, the kinds of questions most effective in assisting problem solving situations when posed to children of different ages; the kinds of challenging and problem solving experiences most likely to sustain interest and enthusiasm with children of different ages and which appear to elicit new understanding in different children; the characteristics of tutors and children who appear to interact with positive results.

As was noted earlier, school attainment is related to play which is goal directed, and, when the adult is a facilitator motivating children to think, express themselves, and explain their actions during play (Sylva et al, 1980). Additionally, the adult as tutor is an effective collaborator in children's learning when she provides challenging activities which tap existing skills, and support the child by providing feedback and opportunities for decision making during problem solving activities, (Wood et al, 1976). Thus if the collaborative efforts of the students as tutors to their children, using challenging play and problem solving activities, proves to be successful, then such tasks and experiences may work for parents as collaborators in their children's learning. In this regard the students were asked to complete their case studies by providing prescriptions for other adults who may engage in similar strategies

with young children, and at the same time to indicate which kinds of activities proved successful with which children. Their combined responses are summarized in Figures 4 and 5.

The tasks most often provided by the students appear to be planned for 4 to 6 year olds. The reason being, that the majority of children were aged between 4 and 6 years: 11, four year olds, six, 5 year olds, and eleven, 6 year olds. Seven children were between 1 and 3 years, and seven children were aged between 7 and 11 years. The older children were involved in activities to complement their schoolwork, as well as leisure activities such as puppetry, cooking, designing personal space and effects, eg: designing bedrooms, estimating measurements of areas where space is restricted. Talks and discussions centred around the children expressing concerns about friendships and school work.

The prescriptions summarized in Figure 5, reveal the students' feelings about managing individual children, and could be offered as advice to parents as the majority of students proposed. However, other considerations, which were naturally less evident from the case studies, are the consistent supportive everyday experiences of the home environment. It will be useful to consider the relevance of using the "home" as a learning environment in Singapore where natural family activities are related to learning experiences more explicitly. Just how families do in fact utilize home experiences as learning experiences, may be the next line of investigation.

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## APPENDIX

Figure 1: Summary of students' responses to questions about course on tutoring problem solving

### Chose course

- to learn how to observe
- to relate better to children - so long since childhood
- to know how to choose relevant activities
- to understand how children think

### Improved understanding

- now know what to look for
- theory becomes meaningful
- need much more time yet

### Of observing

- concrete materials needed - easily distracted
- ask appropriate questions in natural situations
- must be objective - avoid personal perceptions of childhood

### Of differences

- think differently at different age
- one or two months in age difference and they are so different in their thinking
- different backgrounds make a difference

### Of activities provided

- not yet - too frightened to interact
- need to continually think up and rephrase questions
- to capture attention - these must be meaningful
- you can do lots with simple things if you think about it

### What else do you need?

- more practice observing
- more practice talking and asking questions
- more guidance and structure
- more opportunities to discuss and check I'm doing the right thing
- how to help the slower ones

Figure 2: Key observations about children's behaviour

- Before intervention 4 students reported that children were afraid to answer questions for fear of being wrong.
- Very young children gave personal preferences when they were uncertain.
- Some children, especially the younger ones, rush into tasks without thinking first. Older children observe first.
- If children are not ready (developmentally) for a task, no amount of tutoring will change their responses.
- Interactions with age related peers have a positive effect on children's ability to solve a task or respond to related questions.
- Children will only interact when they trust an adult.



Figure 3: Key observations about tutor's intervention

- Problem solving improves when children are interested, given clues and told what to look for.
- When tasks are broken down into small steps, problem solving becomes easier.
- Positive clues confirm beliefs about cause and effect, and encouragement helps generalization of processes involved to related activities. Give explanations rather than expect them to guess.
- Children make discoveries when involved in hands-on activities and when given opportunities to make decisions.
- Children can learn to think when given guidance, and when they can relate to previous experiences.
- Structured questioning is effective for problem solving: prediction, judgemental, explanation, and check questions.
- When language and previous experience are limited, peer tutoring is effective. Additionally, children are less likely to disagree with and give their views to an adult.
- Adults can change children's misperceptions with appropriate structured guidance.

Figure 4: Tasks used most frequently

- Classification Tasks - known objects, known picture illustrations, geometric forms, planar shapes, varying tasks according to colour, shape, size, common properties, length, volume, texture, orientation, number.
- Seriation Tasks - beads on rods, patterns with various materials, tessellations, arranging materials in order, jigsaws, sequencing with beads, matching.
- Questioning techniques during a variety of activities including problem solving and play with or without objects, involving prediction, judgement, explanation, and justification. Also to elicit use and understanding of descriptive terms: more, less. Differentiated terms: tall, small, fat, thin. Co-ordinated descriptions: shorter than, longer but. Giving verbal and gestural clues.
- Tasks involving understanding of equivalence, transformations, generalizations, eg "Is there as much water in my cup as your bowl?" "Who will have the most if I give you two more?"
- Listening to stories and answering questions, or relating events, or making judgements and predictions.
- Role play activities involving a variety of objects, toys and dolls.
- Construction tasks involving copying shapes, creating structures, estimating quantity.
- Visual tracking, discrimination, hide and seek, listening to (and ) identifying sounds. Imitation invention and using imagination through play with and without toys.

Figure 5: Prescriptions for others

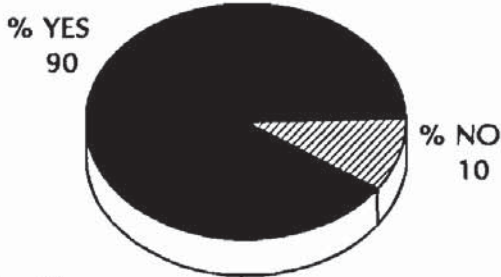
- It is important to consider the personalities of young children and not to expect them to be alike, and capable of the same kinds of behaviours.
- Adults should guide and correct and share and not dominate.
- Involve children in interesting and challenging activities where they can make, break and justify decisions alone.
- Understand that it is normal for children not to have interests like adults, and that it is normal for them not to solve problems because they don't understand.
- Be realistic. Don't expect results if they are not ready. Be clear and consistent with clues and information. Set realistic goals. Give positive feedback. Use verbal and gestural prompts. Keep tasks to manageable levels.
- Help by pointing out critical features of a situation.



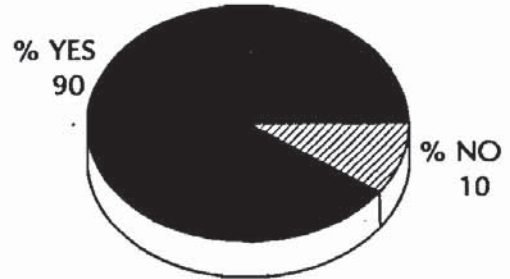
Table 1: Results of 60 sets of parents' responses to questions about parents as volunteers expressed in percentages.

**Type 3 Parents as volunteers**

**Need more opportunities?**



**Would you volunteer?**



N = 60

**Workshops for volunteers?**

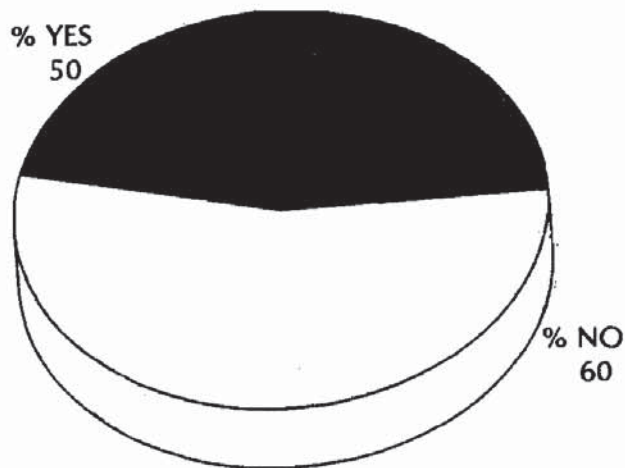
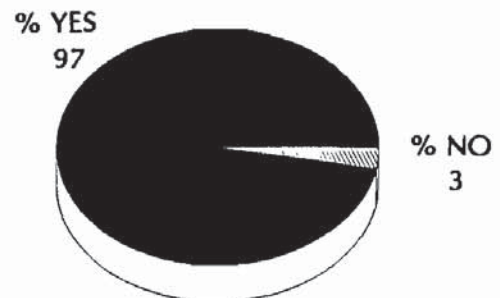
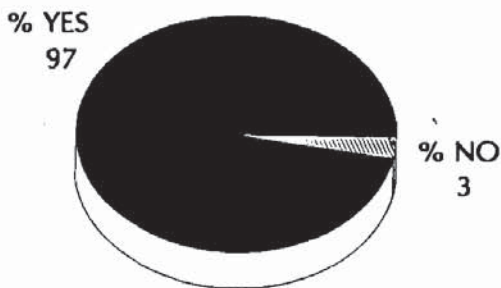


Table 2: Results of 60 sets of parents' responses to questions about helping their children at home expressed in percentages

**Type 4 Learning at home**



**Help to help learning?**

**Parent workshops to help you help your child?**

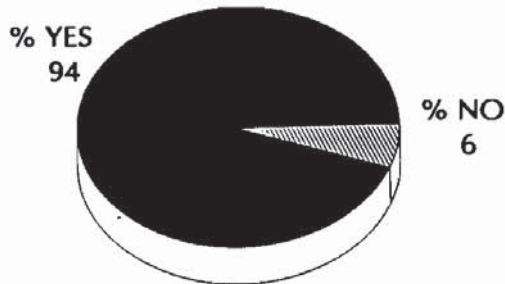
N = 60



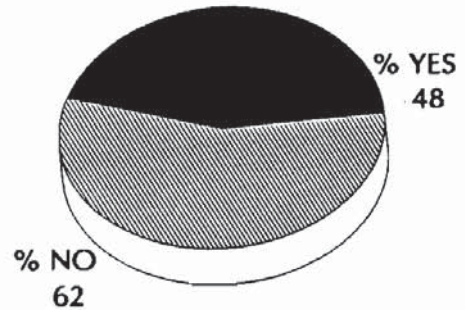
Table 3: Results of 60 sets of parents' responses to questions about the obligation of the school expressed in percentages

Type 2 Basic obligation of school

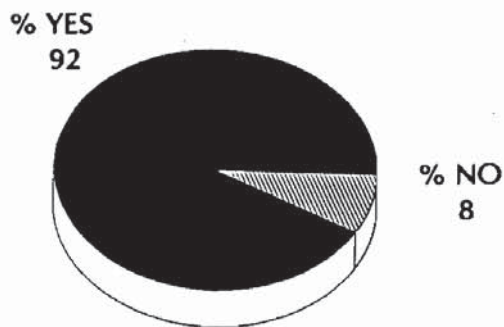
Information on progress?



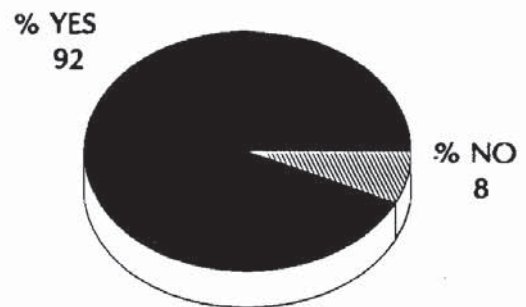
Well informed currently?



Need to discuss progress?

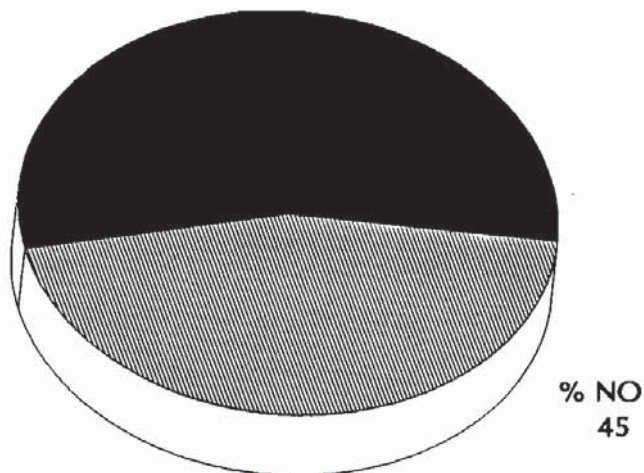


Better means of communication?



Leave education to teachers?

% YES  
55



N = 60