DOCUMENT RESUME

ED 358 922

PS 021 404

AUTHOR Rogers, Colin

TITLE Children's Attributions for Success and Failure in the British Primary School.

PUB DATE Apr 91

NOTE 21p.; Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, IL, April 3-7, 1991).

PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS Age Differences; *Attribution Theory; Elementary Education; Elementary School Mathematics; *Elementary School Students; Failure; Foreign Countries; Grade 2; Grade 4; Grade 6; Interviews; *Peer Evaluation; *Performance Factors; Reading; Sex Differences; *Student Attitudes; *Success

IDENTIFIERS England

ABSTRACT

A study explored the causes cited by British primary school students for instances of relative success and failure in class work in a free-response setting. The study involved 157 7-, 9-, and 11-year old students in 2 primary schools. Because the 7-year-olds were reluctant to talk about their own work, children were asked to talk about the reasons for someone else's performance being better or worse than their own. Three forms of school work in regular classroom use were selected, two math activities and a reading activity. The effects of school attended, age, gender, subject, and type of outcome, and the interaction of variables were also assessed. Study findings included the following: (1) overall, the children were most likely to explain success and failure in terms of performance ability, specific competence ability, effort and interest, behavior, and speed; (2) no child explained success or failure in terms of chance; (3) as children got older, they were less likely to answer "don't know/no response" or to attribute success and failure to performance ability; (4) gender had no effect on attribution patterns; (5) the response category "effort and interest" was used more frequently to account for performance variation in math, while "voluntary time spent" was used to account for variation in reading; and (6) responses related to "behavior" were more likely to explain failure than success. Comparisons are drawn with a similar 1985 study. (AC)

Children's Attributions for Success and Failure in the British Primary School.

Colin Rogers.

Department of Educational Research. Lancaster University.
Lancaster. LA1 4YL.
England.

Paper presented at AERA Annual Meeting.

Chicago. April 1991.

The study to be reported in this paper is concerned with an exploration of the causes cited by British primary school children for instances of relative success and failure in aspects of class work in a free response setting. The study seeks to partially replicate and to extend the findings of Little (1985) who had also examined the attributions of school children with a free response procedure.

Little's research had sought to explore the range of attributions made by children for classroom success and failure under free response conditions, that is under conditions where the investigator has not predetermined the range of responses that could be made. Her conclusions indicated broadly that there were significant age related changes in the pattern of attributions made, and that the range of attributional categories used did not correspond to the four causes of success and failure (ability, effort, luck and difficulty) that were typically employed in research at that time.

While the structure of Little's study enabled some comments to be made about the effects of factors other than the age of the child, these received only limited attention. The present study arises from an opportunity presented by the author's engagement in a broader project in two British primary schools. The present paper presents some preliminary results from a first analysis of the data obtained.

In addition to seeking to replicate Little's exploration of the range of attributions made by young children under free response conditions, and the effects on this of age, this study also seeks to explore the effects of the school attended by the child attributer, whether the child is making attributions about success or failure, and the form of work under discussion.

Method:

Initial pilot work showed that is was very difficult to get the youngest children involved in this study (7 years old) to talk freely about their own work, so it was decided to ask each child to talk about the reasons for someone else's (the object child's) performance being better or worse than their own. While, as will be apparent later, many of the younger children still found this difficult, it produced an acceptable range of responses.

Three forms of school work were selected for discussion. One basis for this selection was that the work was seen to be central to the children's experience of school, both from the point of view of the children themselves and of their teachers, and that the three forms selected provided contrasts both in terms of the subject matter and in terms of the nature of the classroom activity associated with the work. Otherwise, the principle concern was to draw upon work that was familiar to the child as a part of regular classroom life. As the study was conducted in the final term of the school year, the pattern of activity characteristic of each classroom would be familiar to the child.

Form One, Maths Schemes, consisted of the work carried out on a regular basis by the children on the commercial maths scheme in use in both of the schools (SMP). This scheme, in common with others, presents the child with an extensive sequence of graded tasks contained on individual cards, through which the child will work at his or her own pace. Individual cards are completed, the child seeking help from the teacher as required, and when the class teacher is satisfied that the card has been completed to an acceptable standard, the child

progresses to the next card. It is clear that differences will exist in the level obtained by various children in the class.

Form Two, Maths Tests, shares with Form One the subject matter (Maths) but employs a different means of organisation. The class teacher would introduce a particular concept, method etc. to the whole class. They would then engage in a period of practice which would be followed by a test administered again to the whole class. Each child would then score either their own work or that of a neighbour and the results would be made public throughout the classroom.

Form Three was reading. While the content was clearly different from Forms One and Two, in terms of classroom organisation this form has some similarities with Form One. Children would be reading books selected either from a reading scheme (mainly in use with the younger or the lower attaining children) or from books from the school library graded for difficulty, and progressing through books in approximate order of difficulty with their teacher's approval. Each of these three forms of work were in regular use in the classrooms involved in the study. No alterations to these regular procedures were made.

Each child was interviewed in a part of the school familiar to them, but away from the distractions of their own classroom. The author served as the interviewer in each case and all interviews were fully tape recorded and full transcripts produced later. Interviews would last from 10 - 20 minutes.

At the beginning of each interview, the interviewer first identified an example of each of the three forms of work and made certain that each child had accurately understood the identity of each. Taking the forms in a predetermined order, each child then proceeded to identify someone in their class who was better (or at least as good) and worse (or at least as weak) as they were at each form of work. They were then asked the question "Can you tell me why X does better/worse than you do?" If the child was unable to give an answer the question was repeated. If still no answer was forthcoming the interviewer moved on to the next form. Following an answer, the follow up question "Can you think of any more reasons why X does better/worse than you do?" was put. This was repeated until the child could or would give no further answers.

Following this procedure each child responded to six situations (three forms x two outcome levels). While the order of forms was systematically varied, and the order of success and failure varied within forms, the success and failure versions for each form were always taken one after the other. In each case children were responding to a recent example of the type of work and had specified an actual classmate whose performance, relative to their own, they were explaining.

A total of 157 children completed the task for each of the six (form (3) x Outcome (2)) conditions. Of these 82 were girls and 75 were boys. 82 children were drawn from School I and 75 from School L. Distributions across the age groups were as follows:

Year 2 (7 years): 44; Year 4 (9 years): 54; Year 6 (11 years): 59.

Analysis.

The transcripts of the interviews were to be examined by using an adapted

version of the coding procedure developed by Little. Her system employed a total of eighteen categories details of which are given in Appendix A. Initial readings of the transcripts suggested that it would be worthwhile adding some extra categories. These are described below.

The first of these was the Don't Know/No response category. An entry would be made in this category if the child could give no other codeable response after prompting. An initial response to the effect of "I don't know" was not entered if the child went on to give some other codeable response following the prompt question. Little had chosen not to analyse these responses but instead to concentrate on the positive responses given. While this is a quite legitimate strategy, given the interest here in possible variations in children's responses across conditions, it seemed desirable to examine any possible variations in the inability or unwillingness of children to give positive responses.

A second additional category seemed warranted on the basis of initial reading of transcripts (but in fact proved to be used only rarely) and that covered Other's Attributions. Here the child would make a reference to an attribution made, or assumed to have been made, by the child whose performance was the subject of discussion.

For example "He does less well because he thinks he has little ability.". Such a statement would be treated differently from the statement "He does well because he has little ability" (this being coded as General Competence Ability).

Finally, when coding was underway, it became apparent that in order to obtain acceptable levels of inter-coder agreement one final category of response was needed: Voluntary Time Spent. In many respects this category bridges the gap between the categories of Time Spent, and Effort and Interest, which were both employed by Little. In this analysis Time Spent was taken to refer to different amounts of time spent on the activity which arose in a manner that was not under the object child's own direct control. Voluntary Time Spent covers statements were the object child has clearly chosen to engage in the activity, but an explicit reference to effort is not made. The Effort and Interest category covers those cases where effort is clearly referred too. Examples of statements falling into these three categories are given below to clarify these distinctions.

Time Spent: "He is better at this because he has just come to this school and he did more of this work at the school he was at before."

Voluntary Time Spent: "In the evenings he reads instead of playing out."

Effort and Interest: "He's better at SMP because he is really interested in it."

The transcripts of each child's interview were then coded by the following procedure. First each reference to a cause of relative success or failure was identified. These were then coded by two independent coders into the 21 categories described earlier. Inter-coder agreement of greater than 97% was obtained.

A tally was then produced recording the number of children who had used each category at least once. This tally provides the basis for the analyses presented below.

Overall frequency of use:

The first question to be addressed concerns the overall pattern of usage of the 21 categories. Table One provides this data collapsed over the 6 conditions. The rank order of use is presented along with the rank order produced by Little (1985).

TABLE ONE ABOUT HERE

It can be seen that there is a substantial level of agreement, in terms of the overall rank order produced, between the data collected here and the data collected, under somewhat different circumstances, by Little (1985). As was the case with Little, it is clear that attributions to Task Difficulty and Chance are relatively unimportant under these free response conditions. Task Difficulty is somewhat less frequently used, relative to other categories, and this would seem to be related clearly to the nature of the task set for the children. As the general task is the same for the two children whose performance was being considered, references to difficulty would largely not help to explain differences in outcome levels. The complete lack of use of Chance in this study further confirms the earlier observation of Little's that Chance is generally not perceived as a significant cause of outcomes in real classroom settings. As children are responding here to differential performance on tasks with which they have had prolonged experience, and where the performance levels of self and other have been observed over relatively long periods of time, a highly unstable causal factor such as Chance is not likely to be seen as relevant.

It is also clear that some of the categories receive a very low level of usage. It was therefore decided to continue further analysis using only those categories that were reasonably widely used - those categories that were used by more than 20%. Further analysis therefore, continues with the categories of: Performance Ability, Specific Competence Ability, General Competence Ability, Effort and Interest, Time Spent, Voluntary Time Spent, Behaviour, Speed and Don't Know/No response (these are highlighted in Table 1). Apart from the categories of Voluntary Time Spent and Don't Know/No response which were not included at all in Little's analysis, there are no other categories included here that were absent from those included in the earlier study. In Little's case two further categories (Others and Motivation) were included in the sub-set considered for further analysis. In the present study the category of Others was only marginally short of the cut off point for inclusion. Motivation on the other hand was used on only 1 occasion in the present study.

The nine most frequently used categories were then further examined by means of Chi^2 to determine the influence of the main effects of School, Age, Gender, Subject and Outcome.

Effects of School attended.

Of the nine categories examined three were shown to have significantly varying patterns of usage as a function of the school attended by the child. Table 2 shows the data for those categories where significant effects were found for School.

TABLE 2 ABOUT HERE

Effects of Age:

Age of the child had a stronger general effect upon the pattern of attributions made. Of the nine categories included in this analysis seven produced distributions that varied significantly as a function of age.

Table 3 shows those categories where there is a significant variation in the use of categories with age. Categories are organised by the direction of age-related change.

TABLE 3 ABOUT HERE

Effects of gender:

The gender of the child had no effect on the overall pattern of use of any of the categories.

Effects of Subject:

Children had responded to three different Subjects (Maths Schemes, Maths Tests and Reading). Of the nine categories of response examined, four showed a significant level of effect with respect to Subject. Table 4 shows the distribution of responses for these categories.

TABLE 4 ABOUT HERE

Effects of Outcome:

Finally, in presenting the results for overall effects, the degree to which the Outcome (relative success or relative failure) effects the use of the nine categories is examined. Out of the nine categories analysed, four produce significant effects for Outcome. Table 5 shows the data for these four categories.

TABLE 5 ABOUT HERE

Comments on first level analysis.

It is clear from the analysis so far that the greatest impact on the use of the categories of explanations is produced by the factor of age of the child. The pattern of age related change is not however a straightforward one, as would be anticipated by other research findings (e.g. Nicholls 1989). First there is an increased certainty in the accounts of success and failure given by older children. While 43% of the responses from the youngest age group were classified as a Don't Know/No response this was true in only 14% of the cases from the oldest group. Most of this decline in non-response takes place between the Year 2 and Year 4 age groups. The use of the performance ability category also declines with age, but this time mainly between the Year 4 and Year 6 groups. It is worth noting however, that use of this category remains at a high level throughout with 70% of the oldest children using it at some point. (It should be recalled here that unlike the other categories, an entry to the Don't Know/No response category was only made if the child made no other codeable response). Little's view of the Performance Ability category as an indication of uncertainty about the meaning of success and failure within a specific context has some appeal. However, it is also possible that the response is simply used, perhaps by the older children more than by the younger ones, as a stalling device to allow them time to think

of a more compelling answer. Further examination of the use of this type of response will be needed to clarify its meaning further.

The use of Specific Competence Ability, Effort and Interest, and Voluntary Time Spent all showed increased use with age. The different categories however show different trends. Specific Competence Ability shows an increase that comes after the Year 4 age group, that for Effort and Interest comes mainly before the Year 4 age group, while that for Voluntary Time Spent is more gradual across all three groups. The first of these two observations would seem to be broadly supportive of the claims of Nicholls with respect to effort being seen as a prime cause of success and failure at a relatively early stage. Only later does ability emerge as an important causal factor. However, it is of interest to note that the General Competence Ability category did not show any significant age related increase in use, staying at a relatively low level throughout.

The use of the Voluntary Time Spent category is a little more difficult to interpret as its status as a category is itself less secure. Clearly there are close conceptual similarities between Effort and Interest, and Voluntary Time Spent, with the latter perhaps being best regarded as a precursor to the former, the child who uses this category still lacking the ability to articulate clearly a concept of effort. It is quite likely that different methods of exploring children's understanding would show these two categories as being more closely related than they are here. However, as will be noted below, the use of these two categories does vary in a reasonably systematic manner in relation to some of the variables included in this study. This observation would help to justify the recognition of these two categories as discrete entities reflecting different aspects of development.

Behaviour, as a category of response, seems to be particularly associated with the middle age group. While both of the older groups use this form of explanation more frequently than the Year 2 children it is the Year 4 children that use it the most. Whether this reflects actual variations in standards of behaviour in the respective classrooms, or an increased sensitivity to this possible cause of success and failure is not clear.

Gender had no effect at this level of analysis. In common with other studies that have examined data collected in naturalistic settings (Covington and Omelich 1979), there is no evidence here of a general disposition for girls and boys to interpret success and failure differently. While this remains the case throughout the great part of the analysis to follow, there are some more specific situations where gender does exercise some influence. In as much as these attributional measures provide some index of motivational patterns, it would seem that motivational differences in respect to gender are best considered as situation specific.

It is also important to note that the school attended has some effect on broad attributional patterns. Without additional data, perhaps relating to observations of aspects of school life in each of the two settings, it is difficult to know what to make of the effects identified. Essentially, children in one school, through their higher use of the Performance Ability category, are indicating a possible lack of clarity about the causes of school success and failure. Those at the other school are likely to see both Effort and Interest, and Behaviour as more important ways of accounting for relative success and failure. Such a difference could clearly be related to the "ethos" of the school and as such raises the possibility of

attributional patterns providing a link between school effectiveness (Mortimore et al 1988) and individual motivational patterns.

Finally in this section a comment on the effects of Subject and Outcome. With respect to Subject, it is again the case that the categories of Effort and Interest, and Voluntary Time Spent operate in somewhat different ways. Effort and Interest is used more frequently to account for performance variation in both forms of Maths, while Voluntary Time Spent is the category used to account for variation in Reading. Again further data would be needed to fully explain this effect, but it would appear from the details of children's comments that Reading is regarded as an activity that takes place outside of the school setting to a much greater degree than maths. Therefore a child is more likely to simply state that Reading success, for example, is caused by extra time ("He does well because he reads a lot at home instead of going out to play"). Perhaps the child does not feel the same obligation to explain this use of time by making a more explicit reference to Effort and Interest in the way that they might when seeking to account for variations in the allocation of time within school. After all, if maths work is supposed to be carried out in school, then one may well feel a greater obligation to explicitly state a reason for differential allocation of time to this activity within the school context.

The other difference noted affects the Maths Scheme subject area. In comparison to the other two forms of work, variations in performance here were explained less often by reference to Specific Competence Ability and more often by reference to Behaviour. Casual observation of the classrooms while engaged in Maths Scheme work helps to explain this. The schemes require a lot of movement around the class, with children needing to collect different items of apparatus, seek teacher advice and so on. While the movement would generally be regarded as task related, the nature of the classroom activity clearly gives rise to greater opportunities for misbehaviour, than during times when the children are receiving class instruction or engaged in quiet reading. What is intriguing is the possibility that a greater tendency to see a form of work as being related to Behaviour is associated with a tendency to see it as being less dependent upon Specific Competence Ability.

Behaviour is again involved in differences relating to Outcome. Behaviour is used substantially more often to refer to a lack of success than to explain its presence. While Specific Competence Ability does not differentiate between success and failure, General Competence Ability does with the latter being used more often to explain success. Voluntary Time Spent, and Speed are also used more frequently to account for success than for failure. In the eyes of the children taking part in this study then, success is particularly associated with a high level of general competence, the ability to work fast and being prepared to allocate additional time to the work. Failure however, is seen frequently to result from poor classroom behaviour.

The effects of subject and Success in interaction with School, Age and Gender.

The data for those categories, from among the nine analysed, showing significant effects for Subject in interaction with School, Age and Gender, respectively, are shown in Tables 6 - 8.

TABLES 6 - 8 ABOUT HERE

The effects of Outcome (relative success or failure) on the use of the more frequently used categories, as a function of the variables of School, Age and Gender is also examined. Tables 9 - 11 show the significant effects for School, Age and Gender respectively.

TABLES 9 - 11 ABOUT HERE

The pattern of results shown in Tables 6 - 11 indicates that the general effects of School, Age and Gender are broadly the same across the two conditions of Subject and Outcome, but with some variations that may be of significance.

In respect to School the broad finding that School L children make greater use of the Effort and Interest, and Behaviour categories continues to be supported. School L children however, tend to talk more about Effort and Interest when they are addressing success and Behaviour when they are addressing failure. The tendency for school L children, compared to those in School I, to make greater use of both Effort and Interest, and Behaviour is more evident when they are discussing work under the Maths Scheme. The Maths Tests format produces the least school related effects with School I making greater use of the Specific Competence Ability category.

As before the Age of the respondent makes a substantial difference to the pattern of responses. In the overall analysis three categories (Specific Competence Ability, Effort and Interest, and Voluntary Time Spent) showed reasonably linear age related increases. Of these, Effort and Interest seems to be the one that is least influenced by either the Outcome or the Subject variables. The same broad pattern, with the use of Effort and Interest increasing with age (generally particularly so after the Year 2 age group) is evident throughout. Specific Competence Ability also shows fairly robust age related changes, although the increase in use for Success is somewhat slower than it is for Failure. It is also the case that there is no age effect here for the Maths Tests form. Voluntary Time Spent is the least robust of the three, showing age related effects only for Failure (not for Success) and only for Reading out of the three Subject categories.

Two categories (Performance Ability, and Don't Know/No response) had shown overall decreases with age. The decline in the use of the Don't Know/No response category appears across both Outcome conditions, and across two of the three Subjects (Reading being the exception). The use of Performance Ability is largely unaffected by Outcome (possibly being used somewhat more by all age groups in respect to Failure) but is closely related to Subject with a significant Age effect found only for Reading.

Overall, Behaviour had shown a non-linear relationship with age (use peaking for the middle age group). This effect is consistent across all three Subjects but, as anticipated from earlier analyses, appears only with respect to Failure and not to Success.

It is worth noting that the three Subjects produce varying degrees of age related effects. The "richest" subject being Reading, and the one with fewest effects being Maths Tests. Maths Tests also showed the smallest number of School effects. Maths Tests is the subject that produces the most highly structured and "formal" classroom setting. Under these conditions there is less opportunity for the characteristics of the particular classroom to influence the child's experience.

It is important to remember that in the context of this study, both Age and School can be regarded as being essentially between classroom effects.

Finally attention is turned to the effects of Gender. To date this variable has had no significant effect on the use of any of the categories. It still has a very limited number of effects when the analysis is carried out with Outcome and Subject included as interaction variables. In respect to Maths Tests girls are more inclined to make use of the Speed category. Under Failure (but not Success) conditions girls make greater use of General Competence Ability. The latter finding is the more immediately interpretable, fitting with a broad range of observations (Rogers, 1986) to the effect that girls are more likely, than boys, to see Failure as an indicator of a lack of ability. It is important though to note that in this case this effect does not relate to specific competencies associated with specific tasks, but is more generalised.

The greater use of the Speed category by girls with Maths Tests is more difficult to interpret. As with the gender difference just discussed, the variation is best understood as a lack of use of the category by boys, rather than a very substantial use of it by girls. In line with earlier observations it is perhaps the case that the more formal classroom environment prevalent for this type of work, by reducing the scope for effects of classroom variables themselves to be noticeable, enables within class effects, like gender, to emerge. At present this remains speculative. However, it is clear that gender has a relatively weak effect in comparison to the other variables involved in this study. As indicated above, between classroom effects would seem to be more important than those that operate within classrooms. Only where gender effects might be relatively strong (as in the tendency to attribute failure to a lack of general ability) or where the structure of the work reduces classroom variation, does gender emerge as a significant variable in its own right.

Overall conclusions:

Throughout the results presented above, the age of the child making the attributions have a substantial effect upon the pattern of category usage. In this study, however, the effects of age as a purely developmental variable are largely confounded with effects derived from the particular class that a child is part of. Further analysis may shed greater light on this, but examination of the pattern of category usage for Age for each of the two schools separately shows essentially the same pattern. Further studies in which children attending vertically grouped schools are compared with those in single year classrooms would be worthwhile.

The details of age related changes have been described above. It is worth repeating here that the most substantial differences are those that relate to Effort and Interest, with a large part of the increase in use coming in the earlier years. Specific Competence Ability would also seem to emerge as a relatively frequently used category prior to that of General Competence Ability. The latter category requires a greater degree of abstraction on the part of the child as Specific Competence Ability responses still leave the child responding to features of the immediate context.

In addition to the substantial effects of Age (whether understood as an individual variable or a School related effect) there are various other effects that are more clearly related to the specific context. It is clear that the nature of the work that the children are undertaking affects the pattern of attributions that begin to

develop to explain variations in performance levels. Of the three forms examined, Maths Tests produced the most restricted range of effects. It is suggested that this may be due to the greater degree of teacher control or formality present in each of the classrooms under this form of work, thereby reducing the level of variation in the classroom context. Both School and Age effects are more limited under Maths Tests than they are under the other two forms of work.

The immediate environment provides the children with clues as to the interpretation that may be placed upon successes and failures experienced therein. With a subject such as Reading, the nature of which will clearly change considerably with age, and therefore with classroom, different children will be experiencing different learning environments. Therefore patterns of attributions are likely to show greater variability than is the case with the more restricted and uniform classroom environment typical of Maths Tests.

While differences in the degree of variation may prove to be of some significance, it is perhaps more important to emphasise the effects of the immediate environment on the specific type of attributions made. It would clearly be foolish to attempt any substantial generalisations on the basis of a study that has only explored variations across three forms of work and two primary schools. Nevertheless there are some aspects of the present findings which may deserve further investigation.

For example, when Maths is presented under the form of Maths Tests children are less likely to see success and failure as being the result of Behaviour and more likely to see it as being the result of Specific Competence Ability than when maths is presented under the form of Maths Schemes. As might be expected differences between Reading and either form of Maths are generally stronger. Longer term and more detailed studies of the development of children's understanding of the various causes of success and failure in different areas of the curriculum, and under different classroom regimes, may help to explain the development of varying attitudes to school subjects that are often manifest at later stages in a child's school career.

One such area where such variations in attitude, at later stages, are often seen to be important is in respect to gender. As a final comment it is clear that throughout this study gender has only a very marginal effect upon the use of different categories. There is no evidence from the data to show that gender differences may increase throughout the age range studied. However, the finding that girls are more likely than boys to see General Competence Ability as a more important cause of failure than boys do, also suggests that the patterns of attributions emerging here could be seen as helping to establish patterns of performance that are more noticeable with older children. It has been suggested before (Rogers 1986) that gender differences in attainment, while being in themselves very much a secondary school problem, could well have their origins in primary practice. Croll and Moses (1990) have argued that there is little evidence to support the view that primary schools provide substantially different learning environments for girls and boys. In many respects the present data would support that view. The present data, however, could also be seen as indicating that any such differences that might exist will be fairly subtle and will need to be carefully teased out.

Further examination then of the ways in which young children explain success

and failure under a variety of school conditions could prove to be of significance.

References:

Covington, M.V. and Omelich, C.L. 1979. Are causal attributions causal? A path analysis of the cognitive model of achievement motivation. Journal of Personality and Social Psychology, 37, 487-504.

Croll, P. and Moses, D. 1990. Sex Roles in the Primary Classroom. in Rogers, C. and Kutnick, P. (Eds.). The Social Psychology of the Primary School. Routledge. London.

Little, A. 1985. The child's understanding of the causes of academic success and failure: A case study of British schoolchildren. British Journal of Educational Psychology. 55 11-23.

Mortimore, P., Sammons, P., Stoll, L., Lewis, D. and Ecob, R. 1988. School Matters: The junior years. Open Books. Wells.

Nicholls, J. 1989. The Competitive Ethos and Democratic Education. Harvard University Press. London.

Rogers, C.G. 1986. Sex Roles in Education. in: Hargreaves, D.J. and Colley A.M. (Eds.). The Psychology of Sex Roles. Harper and Row, London.

Table 1. Number and percentage number of children using each category at least once.

Category	N	%	Rank	Rank in Little
1 Performance ability	**125**	**80**	**1**	**2**
2.Specific Competence Ability	**104**	**66**	**2**	**7**
3. General Competence Ability	**49**	**31**	**7**	**6**
4 Previous Achievement	17	11	12	12
5 Effort and interest	**97**	**62**	**3**	**1**
6 Motivation	1	1	20	9
7.Time spent	**33**	**21**	**9**	**4=**
7a Voluntary time spent	**63**	**40**	**6**	**n/a**
8.Other persons	32	20	10	8
9. Task difficulty	11	7	13	10
10. Behaviour	**88**	**56**	**4**	**4=**
11. Age	9	6	14=	11
12. Facilities	7	5	16	13
13. Mood and physical state	3	2	17	16
14. Domestic situation	1	1	18=	17=
15. Speed	**80**	**51**	**5**	**3**
16.Sex stereotype	1	1	18=	14
17. Personality	18	12	11	15
18. Chance	0	0	21	17=
I9 Other's attributions	9	6	14=	n/a
20 Don't know/no response	**39**	**25**	**8**	**n/a**

Table 2. Number and percentage Number of children using categories that show significant variation with School.

Category	School I percentage of children using category	L	Chi2	p
Performance Ability	87	72	5.14	.02
Effort and Interest	54	71	4.80	.03
Behaviour	44	69	10.28	.001

Table 3.

Categories showing an increased use with age.

Category	% of children using category Year 2	Year 4	Year 6	Chi^2	p
Specific Competence Ability	55	57	83	12.03	.002
Effort and Interest	3~	63	78	20.06	.000
Voluntary Time Spent	25	37	54	9.29	.001
Categories where tbare is a decreased use with age					
Performance Ability	89	83	70	6.4	.04
Don't know/no response	43	22	14	12.15	.002
Categories where there is a non-linear change with age					
Behaviour	32	72	59	16.48	.0003

Table 4. Percentage number of children using categories showing significant variation with age.

Category	% of children using category Maths scheme	Maths tests	Reading	Chi^2
p				
Specific Competence	36	47	52	8.98
	.01			
Ability				
Effort and Interest	40	46	29	9.39
	.009			
Voluntary Time Spent	11	10	34	39.67
	.000			
Behaviour	41	36	20	16.16
	.0003			

Table 5 Percentage number of children using categories showing significant variation with Outcome.

% of children using category

Category	Success	Failure	Chi^2	p
General Competence Ability	35	15	17.47	.000
Voluntary Time Spent	34	22	6.31	.01
Behaviour	13	55	59.90	.000
Speed	47	29	9.86	.002

Table 6 Percentage of children using categories that show significant variation for School, within Subject.

Subject	Category	School I	School L	Chi^2	P
		Percentage of children using category			
Maths Scheme	Performance Ability	68	49	5.83	.02
	Effort and Interest	32	49	5.07	.02
	Behaviour	27	59	17.64	.000
	Speed	39	24	4.07	.04
Maths Tests	Specific Competence Ability	35	20	4.59	.03
Reading	Performance Ability	71	48	8.42	.004
	Voluntary Time Spent	26	44	5.87	.02

Table 7 Percentage number of children using categories showing significant variation with Age, within Subject.

Subject	Category	Age: Year 2	Year 4	Year 6	Chi^2	P
		Percentage of children using category				
Maths Scheme	Specific Competence Ability	21	33	49	9.24	.01
	Effort and Interest	18	39	58	16.38	.0003
	Behaviour	25	52	44	7.48	.02
	General Competence Ability	5	13	27	10.13	.006
	Don't Know/ No response	34	15	3	17.81	.0001
Maths Tests	Effort and Interest	16	32	44	9.21	.01
	Behaviour	9	52	41	20.35	.000
	Don't Know/ No response	25	6	5	12.72	.002
Reading	Performance Ability	68	74	41	14.85	.0006
	Specific Competence Ability	39	46	68	9.80	.008
	Effort and Interest	11	30	42	11.7	.003
	Behaviour	7	37	15	15.17	.0005
	Speed	25	39	12	11.03	.004
	Voluntary Time Spent	23	24	53	13.81	.001
	General Competence Ability	5	17	24	6.96	.03

Table 8. Percentage number of children using category showing significant variation with gender, within Subject.

		Gender			
Subject	Category	Girls	Boys	Chi^2	p
		Percentage of children using category			
Maths Tests	Speed	22	4	10.89	.001

Table 9. Percentage number of children using categories showing significant variation with School, within Outcome.

		School			
Outcome	Category	I	L	Chi2	p
		Percentage of children using category			
Success	Performance Ability	66		45	6.70 .01
	Effort and Interest	29	44	3.68	.05
Failure	Performance Ability	76		61	3.72 .05
	Behaviour	43	68	10.14	.002

Table 10. Percentage number of children using categories showing significant variation with Age, within Outcome.

		Age				
Outcome	**Category**	**Year 2**	**Year 4**	**Year 6**	**Chi2**	**p**
		Percentage of children using category				
Success	Performance Ability	66	69	37	13.57	.001
	Specific Competence Ability	36	33	64	13.19	.001
	Effort and Interest	18	33	53	13.18	.001
	General Competence Ability	7	20	36	12.22	.002
	Don't Know/ No response	25	17	7	6.58	.04
Failure	Performance Ability	77	78	54	9.32	.009
	Specific Competence Ability	43	50	71	9.25	.01
	Effort and Interest	30	48	66	13.55	.001
	Behaviour	30	70	59	17.10	.0002
	Voluntary Time Spent	9	17	36	11.64	.003
	Don't Know/ No response	41	15	10	16.25	.0003
	Time Spent	5	9	22	7.83	.02

Table 11. Percentage number of children using categories showing significant variation with gender, within Outcome.

		Gender			
		Percentage of children using category			
Outcome	Category	Girls	Boys	Chi2	p
Failure	General Competence Ability	21	8	5.08	.02