

ACKNOWLEDGEMENTS

This paper is sincerely and gratefully dedicated to Dr. Anna-Beth Doyle, for her inspiration, patience, time and continuous encouragement in advising me throughout its planning, research and writing stages. Warm thanks are extended to Dr. Ron Hooper and to Dr. Dorothy Haccoun for their considerate, valuable contributions as members of my thesis committee. I would also like to thank my classmate, Alan Zisman, for assisting me as co-observer in this research. I am indebted as well to Mr. Scott Conrad of the Protestant School Board of Greater Montreal for his assistance in finding appropriate schools for this study, and to the principals, teachers and pupils of Bedford School, Coronation School, Cedarcrest School and Herbert Symonds School for allowing me into their classrooms. Despite labour difficulties between teachers and the government during this period, the cooperation and kind participation of the school personnel was exemplary. The pilot work for this study was made possible by the kind permission of my dear friend, Anne Lazar, Head Teacher, Snowdon Branch, United Talmud Torahs, in whose classroom I sat for many hours. I am equally appreciative of the assistance given to me by Dr. Dolores Gold, whose personal library and valuable time were generously made available to me. Finally I would like to thank my husband, my sons and my daughter for their constant faith in me, their encouragement, support and tolerance which made this project ultimately possible.

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Overview

Sex differences in intellect, personality and occupational roles have been attributed in part to differential socialization practices in school. Although socialization allegedly begins at birth, cultural sex role norms primarily receive institutional reinforcement when a child starts school. It is on the school related theories and studies that this paper concentrates, with emphasis on elementary school.

In recent years, some concern has been expressed over the apparent sexual inequality of socialization as typified by the different social, political and occupational positions of men and women in our society. Women are concentrated in occupations of lesser importance, power and prestige than men, and relatively few females succeed in entering the professional world (Bird, Henripin, Humphrey, Lange, Lapointe, MacGill & Ogilvie, 1973).

Within our culture, the roles and characteristics which are associated with each sex differ. Men are seen as aggressive, independent and ambitious; women are submissive, dependent and passive (Broverman, Vogel, Broverman, Clarkson & Rosenkrantz, 1972). Research has established that male characteristics are regarded as more desirable than those of females (e.g., Broverman et al, 1972, MacBrayer, 1960; Spence, Helmreich & Stapp, 1975), and that men are held in higher esteem than women (e.g., Bem & Bem, 1970; Goldberg, 1968, Mischel, 1974).

Sex appropriate behaviour may be learned as a result of different sex-role expectations that are communicated to boys and to girls (Mischel, 1970). In their extensive review of sex differences, Maccoby and Jacklin (1974) concur with this social learning view, and conclude that sex-role expectations are based on traditional beliefs about sex differences which are often inaccurate and oppressive.

A number of authors have suggested that parents and teachers, as 'primary agents of socialization, perpetuate traditional conceptions and misconceptions of sex-typed abilities and behaviour by reinforcing boys and girls differently, often for the same behaviour (Hoffman, 1972; Howe, 1974; Maccoby & Jacklin, 1974; Levy, 1974; Pitcher, 1974; Stacey, Béreaud & Daniels, 1974). As a result of differential socialization, boys and girls learn to behave in different ways from each other, incorporate different estimates of self-esteem, and ultimately assume their traditionally different sex-roles in society. Specifically, boys are actively reinforced to become assertive, while girls are passively reinforced and become dependent.

This conceptualization of the socialization process forms the framework for the review of the literature which follows, and for the present research. Several other views of socialization will be presented as well. The main body of research concentrates on the classroom interactions of female teachers and their students, with additional studies regarding teacher sex-role attitudes. Specific patterns of teacher and pupil behaviour emerge from these studies

which indicate that boys and girls do not share a similar school experience. Teachers appear to punish and praise boys more than girls. This may be understandable in lower elementary school grades where boys and girls behave differently from each other, but not in the upper elementary school where there appear to be no sex differences in child behaviour.

No clear rationale for differential teacher behaviour can be inferred from the current literature, as no investigator has approached this problem directly. There are preschool studies, and studies on individual grades in elementary school. The present research attempts a comprehensive investigation in grades one to six of those teacher and pupil variables suggested, but not fully explored, by the existing elementary school literature. It also attempts to relate these differences to the teachers' own sex-role attitudes.

Sex-role Socialization in School

Children are able to identify themselves sexually at a very young age, and come into school with a knowledge of conventional stereotypes and sex-linked preferences (e.g., Dubin & Dubin, 1965; Stein & Bailey, 1973; Williams, Bennet & Best, 1975). For example, preschool children in one study (Dubin & Dubin, 1965) could distinguish between jobs traditionally performed by men and by women; even children of working women reported that mothers look after the house and kids while fathers go to work.

There is some evidence that sex-linked preferences remain fairly stable throughout the school years. Career-oriented questionnaires were administered to children in the early grades (Baruch, 1974; Looft, 1971; Williams et al, 1975), as well as to high school and university students (Barnett, 1973). Girls consistently endorsed nursing, teaching and homemaking roles, while boys typically selected careers in space exploration, law and business.

However, not all initial sex differences are maintained. Studies of school achievement generally agree that girls perform better than boys in the early grades (e.g., Lester, Dudek & Muir, 1972; Tyler, 1965). In high school, girls begin to fall behind their male classmates in areas considered masculine, such as math and science (Maccoby, 1972). This shift seems to suggest that girls are somehow discouraged from fulfilling their intellectual potential, or else that boys are initially discouraged but are later encouraged to fulfill theirs.

Some investigators believe that teachers have rigid sex role expectations, and evince bias in favour of male students by spending more time with them than with female pupils (e.g. Dusek, 1975; Levitin & Chananie, 1972; Minuchin, 1965, 1972). In this way, children learn that males are more valued than females, and boys are encouraged while girls are not.

An early set of experiments illustrates this point. Torrance (1967) set out to investigate the popular belief that girls are less able to think scientifically than boys. A small group task requiring

creative scientific thinking was presented to boys and girls in the fourth, fifth and sixth grades in 1959, and replicated in 1960. At the end of the first trial, Torrance observed that boys made many more suggestions than girls, seemingly in confirmation of the popular belief.

Not satisfied with this outcome, Torrance discussed the results with the teachers. In a series of talks, he cautioned them against discriminating between boys and girls in science lessons, and advised teachers that both sexes should be encouraged to talk, ask questions and seek answers by experimenting freely with science materials. In the second trial, 13 months later, the performance of girls equalled that of boys. In 1959, many of the participating girls protested that a science task was an inappropriate activity for girls; by 1960, girls reported as much enjoyment of the task as boys.

Torrance concluded that differential sex-role socialization interferes with the development of creative thinking, and that cultural expectations become self-fulfilling prophecies.

These views are shared by those who have expressed more recent concern with teacher prejudice against girls (Chafetz, 1974; Howe, 1971; Levy, 1974; Minuchin, 1972; Pitcher, 1974; Stacey et al, 1974). They believe that the tendency in society to regard men more highly than women is duplicated in the classroom, and as evidence cite numerous studies which show that boys receive more teacher attention than girls do.

While conceding the possibility that teachers pay more

attention to boys than to girls, a number of researchers suggest that it is in direct proportion to the behaviours emitted by the children (Davis & Slobodian, 1971; Garner & Bing, 1973; Martin, 1972). According to this theory, boys and girls behave differently, and it is likely the greater frequency of aggressive, disruptive behaviour of boys which is more demanding of teacher time. Teachers, who are predominantly female in the first few years of school, expect pupils of both sexes to behave within the confines of feminine standards of behaviour (Biber, Miller & Dyer, 1972; Etaugh, Collins & Gerson, 1975; Fagot, 1975; Fagot & Patterson, 1969). Female teachers reward both boys and girls for feminine behaviours. Since much of the positive reinforcement which boys receive is for their non-preferred behaviour, the increased attention which they receive for their preferred behaviours may be in the form of criticism or reprimands. This argument implies that if teachers are biased, it is in favour of girls, whose behaviours meet with female teacher approval more frequently than do the behaviours of boys.

What these researchers fail to acknowledge is that female teacher approval of feminine behaviours for both sexes may be more detrimental in the long run to girls than to boys. Boys' male-typed behaviours and preferences, as Fagot and Patterson (1969) observed, are not affected by the "feminization" process, but traditional, female-typed behaviours, such as docility, obedience and conformity are strengthened in girls (Chafetz, 1974; Howe, 1971; Levy, 1974;

Pitcher, 1974; Stacey et al, 1974). These latter, feminine behaviours are considered to be incompatible with achievement and striving, and their reinforcement by female teachers may be one of the forces which inhibits girls from aspiring to or attaining prestigious positions in society (Hoffman, 1972; Peplau, 1976; Stein & Bailey, 1973).

Whether one subscribes to the sex-related proposal of teacher differential treatment, or to the behaviour-related feminization explanation, teacher attention is clearly a crucial factor. According to social learning theory and research, teacher attention in any form acts as a reinforcer for the behaviour which precedes it, and becomes the expected consequence of the behaviour it follows (e.g., Kanfer & Phillips, 1970). The increased attention which boys receive even if some of it is unpleasant, teaches boys that their behaviours attract teacher interest and response, and male behaviours are thus reinforced and strengthened (Bardwick, 1970). Girls are either ignored, or rewarded for doing what is expected of them (Levy, 1974). The approval which girls receive is less frequent than the disapproval given to boys, but is sufficient to maintain girls' feminine behaviours.

Although we have indicated that teacher attention is an important variable, and that pupil sex and/or behaviour may elicit differential teacher response, we have not yet examined any research addressed to these issues. A review of studies of differential socialization by female teachers in nursery and elementary school follows, designed to assess evidence that boys receive more attention than girls especially for male-typed behaviours.

The data gathered from nursery and elementary school female teachers and their pupils forms the basis for this survey. The prime interest of the present study is with classroom behaviours in elementary school, and these will be discussed by grade level. However, many of the generalizations about sex differences in child behaviour and in teacher differential socialization originate from preschool studies, and therefore these will be reviewed first. Our focus on female teachers is a practical one; they vastly outnumber male teachers in elementary school and in most of the research on sex-role socialization. It is not our intention to imply or to evoke any prejudice against female teachers.

Although a wide range of teacher behaviours were observed and reported, the most common descriptors of teacher attention were praise (including approval), punishment (scolding, criticism, disapproval and reprimands), and instructional contacts.

Pupil behaviours were generally described as disruptive (aggressive, inattentive), dependent (close proximity to the teacher, passivity) or participatory (attentive). These three behaviours are said to be male-typed (disruption), female-typed (dependent) and non sex-typed (participation), respectively (Etaugh & Hughes, 1975; Levitin & Chananie, 1972; Serbin, O'Leary, Kent & Ronick, 1973).

Teacher-pupil Interactions: Preschool

Etaugh et al (1975), Fagot (1975) and Fagot and Patterson (1969) concentrated on the reinforcement of sex-typed activities, ranging from playing with transportation toys and blocks (male-typed)

to painting and artwork (female-typed). While there were no differences in the amount of reinforcement which boys received as compared to girls, female teachers (and one male teacher) reinforced a greater proportion of feminine than masculine activities for both sexes. These researchers conclude that male-typed activities are not reinforced, but fail to show that they are therefore decreased in boys.

Smith and Green (1975) observed children and teachers in 15 preschool classes, and found that boys were involved in more aggressive incidents than girls. However, they found no consistent evidence that teachers interfered differentially in fights between two boys as compared to fights between two girls; those fights which occurred between a boy and a girl tended to attract the most teacher attention.

Biber, Miller, and Dyer (1972) investigated teacher attention during preschool academic periods. They reported that teachers had more instructional contact with girls, but the number of reinforcements per instructional contact was not different for boys and for girls. It is not clear from this research whether teachers offered girls more assistance than they offered boys, or whether girls requested and received more instruction. Thus, we do not know if female teachers in this study were attending to the girls, as the authors suggest, or to their behaviour.

In a dissenting study, Serbin, O'Leary, Kent and Tonick (1973) found that teachers responded at a higher rate to all behaviours in boys as compared to girls. This research is particularly noteworthy, as it was carefully designed and sophisticated with regard to method-

ology. Recognising that teacher responsiveness to boys may be more frequent due to the more salient behaviour of young boys, these researchers controlled for differences in emitted rates of disruptive, dependent and participatory behaviours. Teacher attention was calculated in proportion to the frequency with which it was elicited or solicited. This was achieved by totalling the frequency of teacher response to each child behaviour, and dividing this sum by the concomitant frequency of the child behaviour. Thus, even though boys were found to behave differently from girls, and emitted different rates of behaviour, these were no longer factors to be considered. Preschool teachers (female) in the 15 classrooms responded more often and more vigorously (by loud as compared to soft reprimands) to boys' disruptive behaviours than to girls'. The girls' rate of proximity to the teacher was significantly higher than that of the boys. Girls who stayed close to the teacher received more attention than those who did not, while boys received a constant rate of teacher attention no matter where they were. There were no significant differences in the rate of teacher attention which boys and girls received for being near the teacher. However, in response to requests for assistance, teachers directed more attention to boys than to girls, and boys were given more extended direction than girls. When both sexes were participating appropriately, and not requesting attention, boys received more nurturant and instructional forms of attention than girls did. These authors conclude that differential contingencies are in effect in preschool, and that they favour boys.

Clearly, if we were to draw our conclusions about the differential distribution of teacher attention from the preschool studies, we would have to state that the majority found no discrimination in teacher behaviour. Yet, the findings of Serbin et al (1973) cannot be ignored, and may be more representative of preschool teacher-pupil interactions than all the others. There are a number of factors to be considered.

The three "feminization" studies (Etaugh et al, 1975; Fagot, 1975; Fagot & Patterson, 1969) were conducted in free-play situations, as was the study by Smith and Green (1975). It is probable that some behaviours, notably aggressive or disruptive ones, are more tolerated or less noticeable during play periods than in a more structured situation. This is not merely speculation. The feminization studies reported that teacher criticism was rarely heard, and Smith and Green (1975) implied that teachers seemed to accept fights between same-sexed children as part of normal play activities. Serbin et al (1973) observed a variety of classroom activities, including those which were more structured. Disruptive behaviours are inappropriate, for example, during a discussion period, and are more likely to evoke teacher reaction than they would during free-play. While disruptive behaviours were infrequent in Serbin et al's study, they occurred and were responded to sufficiently to warrant analysis. In both studies where it was observed (i.e. Serbin et al, 1973; Smith & Green, 1975), boys' aggressivity exceeded girls' aggressivity in frequency. But this behaviour was responded to significantly more in male children when

it occurred during a variety of activities (Serbin et al, 1973) rather than during free-play (Smith & Green, 1975).

A second difference between these studies concerns the range of behaviours which were observed. There is no doubt that the study by Serbin et al (1973) was the most extensive with regard to overall teacher and pupil classroom activities. Each of the other preschool studies had a specific orientation, e.g., reinforcement of aggressivity or of masculine and feminine typed behaviours, and seemingly ignored or overlooked how teachers respond to children in general.

Finally, only Serbin et al (1973) and Biber et al (1972) investigated instructional contacts. Observations in Serbin et al's study were made in vivo (as were the other preschool studies). Biber et al made 56 videotapes, each ten minutes long of 14 female teachers and the pupils, one surmises, who were nearest to the teacher. Although teachers in this study interacted more with girls than with boys, the evidence from Serbin et al indicates that girls stay near the teacher more than boys do and receive more reinforcement when near. While this is only an assumption, it is possible that girls in the Biber et al study received more instructional contact than boys because only the children in close proximity to the teacher (and/or the camera) were noted.

In summary, these studies indicate that preschool boys are more disruptive than preschool girls, and may be less dependent. Some teachers do not discriminate in the amount of attention they

pay to boys as compared to girls, while others do. These differences in teacher behaviour may be a function of the kind of activity, behaviour or situation which is observed. Although feminine preferences are reinforced for both sexes, boys and girls continue to prefer same-sexed activities. Teachers pay more attention to boys when both sexes participate equally in work-related activities. Girls receive more attention if they are near the teacher, suggesting that dependent behaviours are reinforced in girls. Overall, boys and girls may not receive the same amount or the same kind of attention in preschool. The child's sex may be an important variable in teacher responsiveness.

Teacher-pupil Interaction: Elementary School

Brophy and Good (1970) used an observation system in which specific dyadic interactions were coded and analysed. They concluded that boys in grade one have more interactions with the teacher, but that these may be mainly related to disciplinary actions which boys "brought on themselves". The children who were observed were the three boys and the three girls ranked highest and an equal number ranked lowest by the teacher in order of achievement in each of four grade one classrooms, and represented extremes rather than a random sample. There is no indication as to the homogeneity of these children. That is, the reader is not told whether the "highs" were actually equal in performance, or whether the "lows" were equally poor academically within each classroom. These investigators noted that the teacher differential behaviour with respect to praise was observed which was not directly attributable to objective differences

among the children. For example, teachers demanded and praised better performance from those children for whom they had higher expectations, and rarely praised good performance from the low expectation group, even when it did occur. When overall praise was totalled, boys received more praise than girls did. These results indicate that boys, especially bright boys, receive more encouragement than bright girls do, and that teacher differential expectations function independently of pupil behaviour.

Davis and Slobodian (1971) observed that teachers called on boys and girls to read and/or to respond with the same frequency in 10 grade one classrooms. Even though boys interrupted more frequently, teachers reacted to boys' interruptions in essentially the same way (by response or by ignoring) as to the less frequent interruptions of girls. These researchers conclude that teachers did not appear to consider the sex of child relevant, and did not act differently toward boys and girls, obviously ignoring the fact that boys, in general, received more overall attention than did girls.

Samuels and Turnure (1974) investigated sex differences in classroom attentiveness, and concluded that in grade one, girls are significantly more attentive than boys are. They failed to specify how teachers reacted to girls' attention or to boys' inattention.

Martin (1972) concurred with the grade one observation that if boys receive more attention from the teacher, it may be because they demand it. Second grade teachers in five classrooms were asked to rank their students according to extent to which they

exhibited problem behaviours. The eight most disruptive boys and girls were observed relative to each other and to the other children in the classroom. The rate of misbehaviour was higher for the disruptive boys than for the disruptive girls, and these boys interacted significantly more with their teachers than the disruptive girls, and more than the boys and girls who were less disruptive. Disruptive girls received no more attention than the other children. Martin concludes that the high mean rate of teacher-male student interaction is not characteristic of boys in general, but is caused by very high rates of attention to problem boys.

McKinney, Mason, Perkerson and Glifford (1975) focused on pupil behaviour in five second grade classrooms in the fall and spring of a school year. There were no significant sex differences in the children's aggressive, dependent and attentive behaviours in the fall. In the spring, there were still no marked differences in overall attending, dependency or aggression between the sexes, but girls showed a significant increase over time in the frequency of passive responding, while boys showed no change in passive behaviour. No teacher behaviours were observed or reported.

The relative absence of sex differences in McKinney et al's (1975) study was contrary to the previous findings; however, these pupil observations were similar to those reported by Etaugh and Harlow (1975) in grades five and six. In this latter study, analyses of observed pupil behaviours (which included participatory and inappropriate behaviours) did not reveal any significant sex differences.

The two male and two female teachers in this study taught a particular subject in each of the five participating classrooms. The proportion of time spent on four categories of teacher behaviour (praise, scold, call on, elaborate) was calculated separately for boys and for girls, and for teacher sex. When these were compared, it was found that both male and female teachers scolded boys more than girls, female teachers alone praised boys more than girls, and there were no teacher or pupil sex differences for the other teacher behaviours. Thus, despite the fact that boys and girls did not behave differently from each other, teachers were more attentive to boys than to girls. The authors indicate that these findings are suggestive rather than definitive, due to the small sample size.

Jackson and Lahaderne (1967) concluded that the kind of interactions which children had with their teachers in four grade six classes was partly determined by sex. There were no significant sex differences between the amount of approval or instructional contacts which each sex received, but 80% of the sixth-grade teachers' negative comments and criticism were directed toward boys. Low-achieving boys received the most criticism of all. These researchers observed that when they compared the amount of attention which boys and girls received in proportion to the number of interactions initiated either by the teacher or by the children, that boys received more than their share.

While we consider the next study to be ambiguous, both in description and interpretation, we are including it in our survey

because it is cited in almost every review and piece of research on differential socialization.

Meyer and Thompson (1956) observed three grade six, female teachers for a total of thirty hours each. Boys in each of the three classrooms received more disapproval than girls, and more approval than girls in one of the classrooms. There were no observed differences in teacher distribution of approval in the other two classrooms. The authors suggest that it is understandable that boys, who are more aggressive and non-conforming, would receive more disapproval, while girls who are "quiescent and conforming" receive more approval. The one teacher who gave boys more approval was thought to feel "guilty" because she punished boys so much, and was compensating by praising them as well.

However, they did not demonstrate that girls received more approval, even though they claim they did; nor did they show that boys are disruptive and girls quiescent at this age as they failed to report any observations of pupil behaviour within these classrooms. Thus, it is unclear why boys received the amount and kind of attention which they did. We can only conclude that boys received more overall attention than girls, and that the authors, if not the teachers, are "guilty" of stereotypic sex-typing.

From the evidence which we have presented it is clear that boys in elementary school do receive more overall attention than girls, particularly in terms of punishment and praise. Some authors assume that boys are punished for disruptive behaviour which they

display with greater frequency than girls do. This assumption may receive some support from the junior grade studies (e.g., Davis & Slobodian, 1971) which demonstrate that younger boys are more inattentive and disruptive than younger girls. However, the evidence from the senior grades is less clear as there is some suggestion that older children may not differ from each other in their behaviour in the classroom (Etaugh & Harlow, 1975), and yet teachers in this study scolded boys significantly more than girls. It is possible that older boys are no less disruptive than younger boys, but that the sex differences in grades five and six are less obvious because older girls have learned to become as disruptive as their male classmates in order to generate more teacher attention. It is equally possible that teacher behaviour patterns are determined by their sex-typed expectations of how boys and girls behave, and not by actual pupil behaviours.

What is even more puzzling is why boys in lower and upper grades receive more praise than girls. According to the feminization hypothesis, female teachers reward feminine behaviours in both sexes. In stereotypic terms, dependency, passivity and submission are considered to be feminine behaviours and are certainly not reported more frequently in boys than in girls. In the studies reviewed here, passivity was the only one of these behaviours specifically mentioned in elementary school. While girls in McKinney et al's (1975) grade two showed an increase in passive behaviours, boys did not, and there were no overall sex differences in dependent behaviours. No teacher

data accompanied this study. Teacher reinforcement of feminine behaviour was reported in preschool, but it has either not been observed or not reported in elementary school. Hence, there is no evidence that the excessive praise which boys receive from female teachers is related to feminine-typed behaviours.

The third pupil behaviour which has been specified, participation, is more likely to merit praise than either disruption or dependency. In the studies which directly mentioned participatory behaviour and teacher praise (Brophy & Good, 1970; Etaugh & Harlow, 1975), female teachers praised boys more than girls. It is possible that teachers praise boys differentially for participation to encourage appropriate behaviours and to discourage inappropriate ones such as inattention. However, if older boys and girls do not behave differently from each other in disruption or in participation, it is difficult to account for the continued use of differential contingencies for boys in senior elementary grades.

It is conceivable that teachers do not respond directly to a child's behaviour, but to the child's sex. Teachers may expect different behaviours from boys and girls. Even when these behaviours are not different, teachers react as if they were, in accordance with stereotypic expectations of sex-typed behaviours and sex-roles. Since men in society are held in higher esteem than women, teachers may be more interested in male classroom activity as compared to female classroom activity. The increased attention which boys receive may be unpleasant in part, but the general message which is con-

veyed to the children may be that anything that boys do, appropriate or not, generates more teacher attention than similar or different activity by females.

Although boys and girls in elementary school sit in the same classrooms, essentially follow the same basic curriculum and are taught by the same teachers, the quality of school life appears to be different for each sex. Disruptive boys receive more attention than disruptive girls, participating boys receive more praise than participating girls, and, in the end, boys and girls turn out differently. Martin (1972) demonstrated that attention for disruption goes only to a few, highly disruptive boys; Brophy and Good (1970) showed that only a few, bright participating boys receive the most praise. Yet, boys in general grow up to be more aggressive, independent and ambitious, and girls become more submissive, dependent and passive.

Each of the studies reviewed here investigated some aspect of teacher and/or pupil behaviour within one or two grades per study. Some grades, notably three and four, were not observed at all. This gap in the literature is unfortunate, as sex-differences seem to shift or disappear as children get older. We do not know whether this is because boys begin to behave more like girls, or because girls begin to behave more like boys.

While all these studies share a common research orientation, they differ in focus, in range of observed behaviours (both pupils' and teachers'), in setting and population, and in observational methods. These differences make generalisation difficult, but suggest

that teachers interact more with boys than with girls regardless of how the children behave.

To summarize, the literature seems to suggest that there are at least two explanations for teacher differential socialization. The first hypothesis, that behavioural differences in younger children elicit differential teacher response, does not account for different treatment of boys and girls in older grades where there were no observed sex differences in pupil behaviour. The second hypothesis that teachers prefer male to female pupils and attend more to all male activity is based on the assumption that teachers incorporate societal biases, which lead to different sex-role expectations and differential socialization practices. This assumption, which also implies that teachers who are more liberal in their sex-role expectations would be less partial to boys than traditional teachers, has not been tested empirically.

Teacher Sex-role Attitudes

There is evidence, however, that some teachers do have stereotypic or biased attitudes regarding male and female characteristics and behaviour.

In an unpublished study cited by Chafetz (1974), one out of every three female teachers interviewed said she might act less knowledgeable to impress a man. Men were regarded as more capable than women in abstract reasoning, while women were described as more likely to exhibit emotions than men. Two-thirds of these teachers felt that women had only themselves to blame for not doing better in

life. Chafetz concluded that these teachers, like most women in society, tend to overvalue males and undervalue females.

Female teachers in another study (Ricks & Pyke, 1972) indicated that they preferred male students. When asked whether boys and girls behave differently, and expect to be treated differently, significantly more teachers answered yes to both questions. Boys were seen as more active, girls as more passive. Teachers thought that boys expect to be treated sternly, while girls expect to be treated in a more "genteel" fashion. These authors concluded that males and females are socialized toward the maintenance of traditional sex-role behaviour.

Junior grade teachers (Levitin & Chananie, 1972) and senior grade teachers (Etaugh & Hughes, 1975) were asked to indicate the typicality of specific sex-behaviour pairings in hypothetical children corresponding in age to their own pupils. The behaviours were aggressivity (male-typed), dependency (female-typed) and achievement (non sex-typed). No sex differences were found for the typicality of achievement-related behaviours in either study. Teachers of grade one, two and three children, associated aggression more with boys than with girls, and dependency more with girls than with boys. Grade four, five and six teachers rated both of these behaviours as typical of both sexes, although there was a non-significant tendency to attribute dependency more to older girls than to older boys. The different sex/behaviour attributions of the junior and senior elementary school teachers may be representative of actual behaviours of their pupils,

or they may be indicative of how teachers expect children to behave at each grade level. This research suggests that sex-role stereotyping may be reflected in the attitudes of some, but not all teachers, and that teacher expectation of pupil behaviour may be age-related.

None of the studies compared teacher attitudes with observed teacher and/or pupil behaviour. Thus, while it is clear that some teachers have distinct stereotypic perceptions, there is no evidence that their attitudes are automatically manifested in differential socialization behaviour, or in different sex-typed behaviour by children.

These three variables, sex-role attitude, socialization behaviour and child behaviour, were investigated in a related study by Fagot (1974). She administered a questionnaire concerned with sex-appropriate play to parents after observing them interact with their toddlers. Some parents indicated that many typical play behaviours were appropriate to one sex only ("traditional" group), while other parents selected almost all the play behaviours listed as equally appropriate for both sexes ("liberal" group). There were no observed differences in the reactions (praise or punishment) of either parental group to their children's performance of these behaviours. That is, traditional parents did not reinforce sex-typed behaviours any more or less than did the liberal group. Nor was there any difference in the degree of sex-typed behaviour in the children. This study suggests that regardless of differing parental attitudes, neither the behaviours of the parents nor of their children differed significantly. Yet boys and girls differed from each other.

In contrast, Minuchin (1965) compared boys and girls in traditional (stressing socialization toward general standards) and modern (stressing individual development) homes and schools. She found that sex-typical reactions and concerns were more characteristic of children from traditional backgrounds, but that girls from modern backgrounds exhibited the more open attitudes toward social sex-roles. Minuchin was unable to tease out the relative influence of families and schools, and it remains an open question whether teachers with liberal outlooks stereotype less than those with traditional outlooks.

These studies show the difficulties in assessing attitude. As Summers (1970) and Triandis (1971), in two separate reviews concluded, pencil and paper attitude measures alone do not necessarily predict the actions of an individual; conversely, observation of overt behaviour alone may not always provide an accurate index of attitude. These authors suggested that attitude may be inferred from a combination of verbal and non-verbal behaviour, but cautioned that when the components are inconsistent, prediction may be difficult. We have seen that some teachers have stereotypic attitudes toward sex-roles, and that some teachers do not. However, there are no studies which compare the overt behaviours of these two groups of teachers, or the effects on their pupils.

Rationale for the Present Study

The empirical literature on sex-role socialization in school was reviewed in an attempt to determine whether female teachers differ in their behaviours toward boys as compared to girls. There is support

for the theory that teachers pay more attention to boys than to girls. This relates mainly to punishment and praise. Other forms of teacher behaviour were not investigated extensively, but may be equally important.

The research does not confirm the hypothesis that the higher frequency of teacher-male pupil interaction is a function of the more frequent attention-getting behaviour of boys. Inattentiveness and disruption are more typical of younger boys than of older boys, yet boys in general receive more disapproval than girls. It is also unclear why boys receive more praise than girls, as boys' behaviours do not appear to merit more praise than the behaviours of girls.

In an impressive preschool study (Serbin et al, 1973), when the rate of differential pupil disruption, dependency and participation was controlled, teachers nonetheless paid more overall attention to boys for every behaviour. Such a finding suggests that teachers may discriminate in their responsiveness to boys as compared to girls because of a cultural sex-bias, and not as a function of a child's behaviour.

A variety of teacher and pupil behaviours were examined at different grade levels. However, no single study observed the same variables of teacher and pupil behaviour in more than one or two grades. We can only speculate from the existing studies that boys demand and receive more attention of every sort from their teachers, and that girls are relatively ignored. Much of the evidence which

we have presented is based on small samples, and only a few grades have been investigated.

The research suggests a bias in favor of boys in the amount of attention which they receive. Teachers' sex-role perceptions and expectations have been labelled as sex-typed, but we have no evidence that teacher behaviour is a function of sexist attitudes. Nor do we know whether the more "liberated" female teacher behaves differently toward boys and girls than her "traditional" colleagues.

The present research was designed to assess the behaviours of female teachers in their interactions with boys as compared to girls. Since pupil behaviours may be different both by sex and by age, two grade levels were contrasted: lower elementary school grades 1, 2 and 3, and upper elementary school grades 4, 5 and 6.

Salient pupil behaviours, disruption (male-typed), dependency (female-typed) and participation (non sex-typed), identified in previous research (Etaugh & Hughes, 1975; Levitin & Chananie, 1972; Serbin et al, 1973), were observed and recorded separately at each grade level and for each sex. It was hypothesized that there would be no sex differences in dependent behaviours at either grade level and that sex differences in the disruptive and participatory behaviours of boys and girls would be observed in younger, but not older children.

However, teacher behaviours were the major interest of this study. Based on a recommendation by Kliebard (1972), three main categories of teacher behaviour served as the interactional basis for observing and recording what teachers did in the classroom and to

whom their behaviour was directed. These categories were: soliciting (asking for response or elaboration); responding (to handraising, to requests for assistance or for clarification); reacting (by approval or disapproval). Observed teacher behaviours were always linked with a particular sex, and, where applicable, calculated in relationship to concomitant pupil behaviour. It was hypothesized that teachers would interact more with boys than with girls in all categories, even when the frequency of emitted rate of pupil behaviour was controlled (as in Serbin et al, 1973), and at both grade levels.

A measure of teacher sex-role attitude was taken after all observations were completed. The scores were then correlated with the calculated differences in teachers' soliciting, responding and reacting behaviours toward each sex. It was predicted that traditional teachers would discriminate in their behaviour toward boys and girls; but that the more liberated teachers would treat boys and girls alike.

Method

Subjects

Thirty-two female teachers and their students participated in this study. Each teacher had a minimum of two years of teaching experience. Sixteen of the teachers taught grades one, two and three, and sixteen taught grades four, five and six. The distribution of teachers and grades may be seen in Table 1. Teachers were from four working class district schools which were under the jurisdiction of the Protestant School Board of Greater Montreal.

Insert Table 1 about here

Pupils ranged in age from six to twelve years. Class enrollment was between 19 and 37 children, with uneven numbers of boys and girls in each classroom. About 75% of the children were white, with the distribution of non-white children approximately the same in each of the four participating schools.

Observation Code

Observational criteria were developed for the recording of pupil and teacher behaviour. Observing everything that happened in a classroom was an obviously futile task. It was therefore necessary to single out those dimensions of behaviour which reflected the main considerations of the present study, namely pupil behaviours, and teacher/pupil contacts which could be identified and classified into categories of interest.

Table 1

Distribution of Teachers and Grades Observed

Lower Grades	Number of Teachers	Upper Grades	Number of Teachers
1	7	4	6
1-2	1	5	5
2	3	5-6	2
3	5	6	3
Lower Grade Total	16	Upper Grade Total	16

For pupils, relevant behaviours were those suggested by Serbin et al (1973): disruption, dependence, participation. In the observations, these categories were considered mutually exclusive and exhaustive. Clearly, certain behaviours such as head-scratching or eye-blinking for example, which did not seem relevant, were ignored. In fact, the actual recording situation rarely required observing more than one category of pupil behaviour during a ten second interval. However, all salient pupil behaviours were recorded in one or more of the three major categories which were subdivided to distinguish as many behaviours as possible. The categories and subdivisions of pupil behaviours, recorded individually for each sex were as follows:

1. Disruptive Behaviour

a. Not Attending - any behaviour which a child exhibited indicating inattention, but not involving another child. For example, not looking at the teacher during an oral lesson, not listening to an ongoing lesson, playing with a pencil or some other object, taking books or putting books away when these behaviours were incompatible with what was expected of the class, not working at assigned seatwork, doodling, day-dreaming.

b. Disobedience - any behaviour, verbal or non-verbal, which was directed at the teacher or at another child in a rude, aggressive, disruptive or provocative way. For example, calling out inappropriately, leaving one's seat or classroom without the teacher's explicit or implicit sanction, refusing to comply with a direct request by the

teacher, hitting, talking to another child, being disrespectful of others, or of their property, making noise, throwing objects.

2. Dependent Behaviour

a. Help-seeking - going up to the teacher to ask for help, asking for assistance, explanation or clarification.

b. Approval-seeking - asking the teacher to approve of work, of self (e.g., "Do you like my new shoes?"), asking for a favour or privilege such as, "May I leave the room?... erase the blackboard?... give out the paper?"

c. Unsolicited Handraising - raising one's hand when the teacher did not specifically solicit handraising. This was classified as a dependent behaviour rather than a participatory one, since during the pilot work this behaviour nearly always resulted in a request for help or approval.

3. Participatory Behaviour

a. Attending - paying attention in a non-verbal way by looking at the teacher or at work being demonstrated during a lesson, working at an assigned task, ignoring disturbances created by other children or inappropriate requests from other children.

b. Solicited Handraising - in contrast to unsolicited handraising, raising one's hand in response to a question or request from the teacher.

c. Answering Questions - responding verbally to the teacher in reply to a question or request, participating in a class discussion appropriately, reading aloud on request, giving an oral report.

Teacher behaviours of interest were those which distinguished between different forms of teacher attention and which could be quantified into reciprocal teacher/pupil interactions when base rates of boys' and girls' behaviours were taken into account. Many of the cited studies did not permit conclusions about teacher differential responsiveness to boys versus girls because they did not simultaneously examine teacher behaviour in relation to concomitant pupil behaviour or to the frequency with which boys and girls exhibit attention-getting behaviour. For this reason, all teacher behaviours were classified in the manner recommended by Kliebard (1972): structuring, soliciting, responding and reacting. As was the case with pupil observations, each category was subdivided to account for as many salient teacher behaviours as possible. The main categories and subcategories of teacher behaviour, recorded individually by sex were as follows:

1. Structuring

This category included all non-interactional teacher behaviour, or teacher behaviour directed at the class as a whole. Examples of this behaviour were lecturing, demonstrating a lesson, working at the desk alone, strolling around the classroom without interacting with a child, telling a story, talking to a classroom visitor, setting up a projector, erasing the blackboard, writing on the blackboard, getting ready for a lesson, etc.

2. Soliciting

Behaviours were classified in this category when they were directed toward a child in the classroom with the obvious intent of

eliciting some response, for example, questions or requests for verbal or physical responses. Soliciting was scored only if handraising was not a factor, such as when the teacher said, "Jim, read the first question" or "Mary, would you lend your book to Jane." A second factor was the teacher's tone of voice. Sarcasm or criticism were not scored as soliciting behaviours, but rather as disapproval.

a. Asks for Response - asking a question of a particular child, selecting a child for a particular task other than one which could be deemed a privilege (e.g., erasing the blackboard, giving out materials).

b. Asks for Elaboration - requesting more information of the same or another child after one response or part of a response was given.

3. Responding

These behaviours were various forms of teacher response to pupil requests, assistance to pupils at the discretion of the teacher, sequential responding, such as looking at children's work while walking up and down rows or correcting classwork brought randomly to the teacher. Again, the teacher's tone was a determining factor.

a. Responds to Unsolicited Handraising - calling on a child whose hand was raised when no request for handraising was made by the teacher.

b. Responds to Solicited Handraising - teacher asked a question or made some request and waited for a show of hands before selecting one child to respond. (Note: if a child was selected immediately without a show of hands, this was scored as "Asks for Response").

c. Neutral Interaction - teacher-pupil interaction where no words were exchanged, where a mild or neutral comment was made, or where the comments were inaudible. For example, children came up to the teacher or teachers walked around to check the work of each child but said nothing, nodded, wrote in the child's book, or said "Fine", "Uhuh", "Okay" or some such remark in a neutral tone. This subcategory included these and other neutral interactions where the teacher's response was neither positive nor negative.

d. Clarifies - explaining a new concept to a particular child, teaching one child individually, responding to help-seeking behaviour or to a question or answer from a specific child, where the teacher's intent and tone were clearly audible.

4. Reacting

In this category, all forms of behaviour in which the intent was clearly some form of verbal or non-verbal punishment or reward, were recorded.

a. Disapproval - inclusive in this subcategory were criticism, punishment, scolding, sarcasm, negative feedback with regard to a pupil's behaviour, reprimands, withdrawing or failing to provide a privilege which had been promised. If the teacher gave negative feedback with regard to a child's work, such as "Your work is poor", this was scored under "clarifies" if she then went on to help the child. However, if she merely criticized the child without any clarification, or made some remark like "... and that's because

you're lazy" or added a criticism of the child without specifying what it was about the work that was unsatisfactory, this was scored as a reprimand.

b. Approval - including encouragement, tangible or intangible rewards, privileges, positive feedback, praise, enthusiastic expression of comments like "Fine", or giving permission for activities such as drawing when others were doing regular school work, requests to assist the teacher in a desirable task such as distributing materials, correcting the work of others or running an errand.

Procedure

Observations were scheduled during academic periods and only when the regular class teacher was in attendance. Teachers were told that the purpose of the study was to see what boys and girls do in school during a normal classroom session. In return for allowing the observations to take place, each school was offered (and accepted) free psychological consultation by the author, which was given after the study was completed.

The observer was seated at the back of the classroom. A pre-recorded signal audible only to the observer, allowed for a ten second observation period and a five-second recording time, totalling one hour per classroom. This resulted in four recording intervals per minute, or 240 recording intervals at the end of the hour. Behaviours were recorded on prepared checklists (Appendix A).

Children were observed sequentially following the seating arrangement of the class, and the sex of the child was noted in each

recorded behaviour. Alternating with each child observation, was an observation of teacher behaviour and the sex of child with whom she interacted, if applicable. Thus, at the end of the observation time of one hour for every classroom, a total of 120 child intervals and 120 teacher intervals were recorded.

Observers and Reliability

Two psychology graduate students, one male and one female, were trained to record child and teacher behaviours following the observation code described above during pilot work (Appendix B). The primary observer was the female, while the male co-observer observed simultaneously in half of the sample classrooms to ensure reliability. Reliability was obtained for the categories of pupil behaviour and teacher behaviour. For each of the classrooms in which both observers recorded behaviours, the measure of reliability employed was the number of agreements between the observers in coding the occurrence of a particular behaviour, divided by the total sum of agreements and disagreements in recording that behaviour. Average reliability across the total observations was .83 for child-behaviour categories (range .80 - .88) and .87 for teacher behaviour categories (range .84 - .91).

Attitude Scale

The Attitudes Toward Women Scale (Spence & Helmreich, 1972) was administered after all the observations were completed. This Likert-type scale, a 55-item test of pro-feminist (liberal) attitude

to women has a possible range of scores from 0 to 165. A high score on this scale indicated a profeminist attitude, while low scores indicated a non-feminist (traditional) outlook. The test was normed on University of Texas students, and the two most stable factors which emerged had to do with equality of opportunity in vocation and education, and with socio-sexual behaviour, i.e., what constitutes a conventional woman. Validation evidence for this scale was also provided by Lunneborg (1974) who found it sensitive to differences in students before and after exposure to a course on the psychology of sex differences at the University of Washington.

Teachers in the present study completed the scale on a volunteer basis, and although the teacher's name did not appear on the test, each had been coded to allow for identification by the author only (Appendix C). Confidentiality was assured.

Results

Pupil Behaviour

For each measure of pupil behaviour, recorded frequencies of the occurrence of each behaviour were averaged per sex per classroom. The resulting data represented the mean rate of emission of not attending and disobedience, help-seeking, approval-seeking and unsolicited handraising, as well as attending, solicited handraising and answering questions, per teacher per sex. Those scores which comprised the subcategories of each of the three main categories, disruption, dependence and participation, were summed to yield total scores for each category. One particular behaviour, answering questions, had non-zero values in only 12 of the 32 classrooms observed, and was not analysed separately, but the scores from this subcategory were included in the total participation analysis.

The data from the seven subcategories (after answering questions was eliminated from separate analysis) and the three main categories were analysed by means of ten 2×2 analyses of variance. The unit of analysis was the teacher ($N = 16$ per cell) and the factors were Grade Level (younger and older) and Sex, with repeated measures on Sex.

Disruption

The analyses of the disruption scores are summarized in Table 2. Grade Level effects were not significant. Sex differences were found for not attending and disobedience as well as for the total,

disruption. As can be seen from the means of the pupil disruption scores shown in Table 3, boys displayed more not attending, disobedience and total disruption than girls. However, the Grade Level x Sex interaction was significant for not attending and for the total, disruption. For not attending, planned comparisons showed that younger boys emitted more "not attending" behaviour than younger girls,

$t(15) = 7.21, p < .01$, but there were no significant differences between older boys and girls, $t(15) = .29, p > .05$. Younger boys emitted significantly more total disruption than younger girls, $t(15) = 7.43, p < .01$, and older boys more than older girls, $t(15) = 2.88, p < .01$. In both not attending and the total, disruption, younger and older boys did not differ significantly from each other, nor were younger and older girls found to be significantly different.

A further analysis of the means (as described in Winer, 1971, p. 530) revealed a significant linear trend for not attending, $F(1,42) = 16, p < .01$, and for the total, disruption, $F(1,39) = 28.37, p < .01$. Younger boys showed the most "not attending" and total disruption and younger girls the least. Overall, then, the disruptive behaviours of boys were found to be emitted at a significantly higher rate than those of girls, but there were greater significant differences between younger boys and girls than between older boys and girls.

Insert Table 2 and Table 3 about here

Table 2

Analysis of Variance Summary Table for Disruptive Pupil Behaviours

Behaviour	Source	df	MS	F
Not Attending	Grade Level	1	.00256	.36
	Error (b)	30	.00720	
	Sex	1	.04322	28.62 ***
	Grade Level x Sex	1	.03572	23.65 ***
	Error (w)	30	.00151	
Disobedience	Grade Level	1	.00187	.35
	Error (b)	30	.00540	
	Sex	1	.01408	12.09 **
	Grade Level x Sex	1	.00451	3.88
	Error (w)	30	.00116	
Total Disruption	Grade Level	1	0.	0
	Error (b)	30	.01317	
	Sex	1	.11159	57.35 ***
	Grade Level x Sex	1	.01672	8.59 **
	Error (w)	30	.00195	

*** $p < .001$ ** $p < .01$

Table 3

Mean Pupil Disruption by Grade Level and by Sex

Not Attending			
	Boys	Girls	Total Grade Level
Younger	.211	.112	.162
Older	.151	.147	.149
Total Sex	.181	.129	
Disobedience			
	Boys	Girls	Total Grade Level
Younger	.063	.050	.056
Older	.090	.044	.067
Total Sex	.076	.047	
Total Disruption			
	Boys	Girls	Total Grade Level
Younger	.274	.158	.216
Older	.242	.197	.220
Total Sex	.258	.177	

Dependence

No significant differences were found either for Grade Level or for Sex in any of the three measures, help-seeking, approval seeking and unsolicited handraising, nor in the total category measure for dependence. (Summary of analysis in Appendix D, means in Appendix E)

Participation

No significant differences were found in the measure for solicited handraising, and this analysis is summarized in Appendix E. Answering questions, as indicated earlier, did not occur frequently enough to warrant analysis. The remaining analyses, attending and the total, participation (which included attending, solicited handraising and answering questions) are summarized in Table 4. Grade Level effects were not significant. Sex differences were found in attending and in total participation. From the means, which are reported in Table 5, it may be seen that girls attended and participated significantly more than boys. The interaction effect of Grade Level and Sex was not significant.

Insert Tables 4 and 5 about here

Teacher Behaviours

Although the teacher behaviour, structuring, was recorded in order to have an extensive record of teacher behaviour, it was not analysed as part of the present study. Only those behaviours which were seen as one-to-one interactions were considered important at

Table 4

Analysis of Variance Summary Table for Participatory Pupil Behaviours

Behaviour	Source	df	MS	F
Attending	Grade Level	1	.00121	.79
	Error (b)	30	.01696	
	Sex	1	.06619	24.15 ***
	Grade Level x Sex	1	.00627	2.29
	Error (w)	30	.00274	
Total Participation	Grade Level	1	.00099	.18
	Error (b)	30	.01784	
	Sex	1	.06883	23.61 ***
	Grade Level x Sex	1	.01023	3.51
	Error (w)	30	.00292	

*** $p < .001$

Table 5

Mean Pupil Participation by Grade Level and by Sex

Attending			
	Boys	Girls	Total Grade Level
Younger	.613	.697	.655
Older	.641	.686	.663
Total Sex	.627	.691	
Total Participation			
	Boys	Girls	Total Grade Level
Younger	.652	.743	.697
Older	.685	.725	.705
Total Sex	.668	.734	

this time. As defined earlier, structuring included all those teacher activities which were not specifically directed at one child. The remaining three classes of teacher behaviour, soliciting, responding and reacting, were divided into eight subcategories. These were: asks for response and asks for elaboration; responds to unsolicited hand-raising, responds to solicited handraising, neutral interaction and clarifies; approval and disapproval. Base rates of child behaviours were taken into account in all analyses of teacher behaviour (see below). The teacher behaviours were analysed by means of eleven 2×2 analyses of variance whose unit of analysis was again the teacher ($N = 16$ per cell), and whose factors were Grade Level (younger and older) and Sex, with repeated measures on Sex.

Soliciting

For the two subcategories, "asks for response" and "asks for elaboration", as well as for the total, "soliciting", pupil base rates were taken into account and teacher behaviours were summed separately for boys and girls. The total was divided by the number of opportunities the teacher had to solicit a response from boys and from girls. Potentially, the teacher could solicit a response from any child, regardless of that child's behaviour. Therefore, the response opportunities were equal to the total number of pupil observation intervals for the sexes in each classroom. For example, a teacher asked for a response from boys in her class 20 times, and from girls 10 times during the total observation period. The 15 boys and 12 girls in that classroom were each observed 5 times. This meant

that the teacher had 75 opportunities to call on boys, and 60 opportunities to call on girls. The teacher total for boys, 20, as numerator, was then divided by the boys' total, 75, as denominator, resulting in a teacher mean of .2667, and for girls, 12 was divided by 60, yielding a teacher mean of .2000. In this way, the proportion of boys to girls within a given classroom was taken into account, and the mean for each teacher was not biased by unequal numbers of each sex in a classroom. Thus, the frequency of the teacher behaviour was the numerator, and the total of response opportunities was the denominator for each of the two subcategory behaviours "asks for response" and "asks for elaboration". Both teacher subcategory frequencies were summed to yield a score for the total, "soliciting", which was treated in the same way as the subcategories, controlling for different pupil base rates.

The analyses of the soliciting means are summarized in Table 6. Grade Level effects were not significant. Significant Sex differences were found for "asks for response", "asks for elaboration" and for the total, "soliciting". As may be seen from the means which are reported in Table 7, teachers asked for more responses and for more elaboration from boys than from girls. They also solicited more from boys than from girls, even though girls participated more than boys. The Grade Level x Sex interaction was not significant.

Insert Tables 6 and 7 about here

Table 6:

Analyses of Variance Summary Table for Teacher Soliciting Behaviours

Behaviour	Source	df	MS	F
Asks for Response	Grade Level	1	.01241	.48
	Error (b)	30	.02606	
	Sex	1	.11120	19.23 ***
	Grade Level x Sex	1	.00861	1.49
	Error (w)	30	.00578	
Asks for Elaboration	Grade Level	1	.02179	3.61
	Error (b)	30	.00603	
	Sex	1	.00994	5.79 *
	Grade Level x Sex	1	.00488	2.84
	Error (w)	30	.00172	
Total Soliciting	Grade Level	1	.06698	1.42
	Error (b)	30	.04719	
	Sex	1	.18745	16.55 ***
	Grade Level x Sex	1	.02640	2.33
	Error (w)	30	.01132	

*** $p < .001$ * $p < .05$

Table 7

Mean Teacher Soliciting Interactions by
Grade Level and Sex of Pupils

Asks for Response			
	Boys	Girls	Total Grade Level
Younger	.196	.136	.166
Older	.247	.141	.194
Total Sex	.222	.138	
Asks for Elaboration			
	Boys	Girls	Total Grade Level
Younger	.038	.031	.035
Older	.093	.050	.072
Total Sex	.066	.041	
Total Soliciting			
	Boys	Girls	Total Grade Level
Younger	.234	.167	.201
Older	.340	.191	.265
Total Sex	.287	.179	

Responding

Base rates of child behaviours were again taken into account in these analyses of teacher behaviour. Since teacher behaviours were not observed directly in relation to pupil behaviours, it was previously determined empirically (in pilot observations) what teachers were in fact responding to. For the two subcategories, "responds to unsolicited handraising" and "responds to solicited handraising", pupil base rates were available, as these behaviours had been observed, and teacher response to each of these pupil behaviours were calculated by dividing the actual frequency of this teacher behaviour by the actual frequency of this pupil behaviour, per sex. However, "neutral interactions" were divided by the total number of observation intervals in which pupils of each sex showed help-seeking, approval-seeking or attending, behaviours which were most likely to elicit this teacher behaviour. Similarly, "clarifies" was divided by the total number of observation intervals in which pupils displayed help-seeking, approval-seeking and answering questions; again, separately for each sex.

Occasionally teacher response exceeded the number of observed occurrences of pupil behaviour, but this did not alter the proportion of teacher/pupil scores per sex or per grade level. If a specific pupil behaviour or combination of pupil behaviours did not occur in a particular classroom, then a nominal "1" was used as the pupil score on the assumption that the teacher was responding to a behaviour which occurred, but which must have been missed by the observers. In the

32 classrooms observed, zero scores were recorded 4 times for boys; 2 times for girls in "unsolicited handraising", once each for boys and girls in "solicited handraising" and once for boys, six times for girls in the totals of "help-seeking" approval-seeking" and "answering questions".

Thus, while in some instances a nominal "1" was the denominator, the frequency of teacher responses to specific behaviours were divided by the observed occurrence of pupil behaviours which were the most likely to elicit such a teacher response. The total of all teacher responding behaviours was divided by the number of observation intervals in which pupils displayed both forms of handraising, help-seeking, approval-seeking and answering questions behaviours, separately for each sex. Here, no nominal numbers were used. While it is understood that the pupil base rates were arbitrary, they nevertheless were calculated in the same way for boys and girls, and are thus respectively representative of the behaviours of each sex as potential elicitors of teacher response.

The analyses of variance of the responding scores are summarized in Table 8. Significant Grade Level differences were found for responds to solicited handraising, but for no other behaviour. Significant Sex differences were found for responds to unsolicited handraising and clarifies, but not for neutral interactions. Scores from all three behaviours were included in the total, responding, where a significant Sex effect was found. The means of teacher responding behaviours may be seen in Table 9. When teachers asked for

handraising, they responded significantly more to solicited hand-raising by boys than by girls, and clarified for boys significantly more than for girls. Overall, teachers responded significantly more to boys than to girls. There were no interaction effects of Grade Level \times Sex.

Insert Tables 8 and 9 about here

Reacting

The frequency of teacher disapproval was divided by the total number of observation intervals in which pupils displayed any behaviours which were most likely to elicit adult disapproval. These were determined both empirically and from suggestions in previous research. Obviously, not attending and disobedience were behaviours of which teachers disapproved; however, teachers also scolded children for help-seeking, approval-seeking, unsolicited handraising and answering questions. For example, teachers told children to sit down when they came for help, to lower their hands, or reprimanded children who answered incorrectly. Sometimes teachers showed approval of these latter pupil behaviours, and so these were added to attending and solicited hand-raising as targets for teacher approval. In effect, teacher disapproval was calculated by considering the base rate of pupil disruption, and approval was calculated by considering the base rate of pupil participation, but help-seeking, approval-seeking, unsolicited handraising and answering questions were added to each to ensure that

Table 8

Analyses of Variance Summary Table for Teacher Responding Behaviours

Behaviour	Source	df	MS	F
Responds to Unsolicited Handraising	Grade Level	1	.24338	.12
	Error (b)	30	2.02005	
	Sex	1	6.30004	5.87 *
	Grade Level x Sex	1	3.07121	2.86
	Error (w)	30	1.07261	
Responds to Solicited Handraising	Grade Level	1	7.41201	4.07 *
	Error (b)	30	1.81932	
	Sex	1	.41249	.41
	Grade Level x Sex	1	3.15951	3.13
	Error (w)	30	1.00960	
Clarifies	Grade Level	1	10.26073	.87
	Error (b)	30	11.80550	
	Sex	1	100.79231	11.23 **
	Grade Level x Sex	1	3.40389	.38
	Error (w)	30	8.9743	
Total Responding	Grade Level	1	.00131	.01
	Error (b)	30	2.70741	
	Sex	1	.72044	22.43 ***
	Grade Level x Sex	1	.04995	1.56
	Error (w)	30	.96343	

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 9

Mean Teacher Responding Interactions by
Grade Level and Sex of Pupils

Responds to Unsolicited Handraising

	Boys	Girls	Total Grade Level
Younger	1.427	1.238	1.332
Older	1.989	.923	1.456
Total Sex	1.708	1.080	

Responds to Solicited Handraising

	Boys	Girls	Total Grade Level
Younger	.484	.768	.626
Older	1.616	1.004	1.310
Total Sex	1.050	.886	

Clarifies

	Boys	Girls	Total Grade Level
Younger	5.172	2.201	3.686
Older	3.910	1.861	2.885
Total Sex	4.541	2.031	

Total Responding

	Boys	Girls	Total Grade Level
Younger	.604	.447	.526
Older	.650	.382	.516
Total Sex	.627	.415	

teacher scores in the reacting category were representative of actual teacher behaviour. Since the total of these four behaviours showed no pupil sex differences, they represent the addition of a "constant" sum to the base rates of pupil behaviour. The total of all teacher reacting behaviours were divided by the total number of response opportunities which each sex presented, as potentially, every behaviour could meet with either approval or disapproval. All calculations were made separately for boys and for girls.

The analyses of reacting behaviours are summarized in Table 10. There were significant Grade Level effects for the total, reacting, but none for the subcategories. There was a significant Sex effect in disapproval, approval and in the total, reacting. The means are shown in Table 11. Teachers reacted significantly more to younger than to older children, but boys received significantly more disapproval, approval and total reaction. The Grade Level x Sex interaction was significant only for disapproval, but not for approval, or for the total, reacting. Planned comparisons showed that teachers displayed disapproval to older boys significantly more than to older girls, $t(15) = 3.99$, $p < .01$, but no difference was found in disapproval to younger boys and girls, $t(15) = .69$, n.s. Teachers did not differ significantly in the amount of disapproval they directed toward younger boys when compared to older boys, or to younger girls when compared with older girls. Further analysis of the means revealed a significant linear trend for disapproval, $F(1, 50) = 9.57$, $p < .01$. Older boys received the most disapproval, older girls the

least. Overall, boys received more disapproval, approval and total reaction from teachers than girls did, but older boys received the most disapproval, older girls the least.

Insert Tables 10 and 11 about here

The raw percentage of time which teachers spent in each behaviour were examined, but not analysed (Appendix H). These data revealed a trend similar to the one which emerged from the analyses which were performed when base rates of pupil behaviour were taken into account. That is, teachers of younger children spent 58% of their interaction time with boys, 42% with girls. Teachers of older children spent 65% of their time with boys, 35% with girls. Teachers disapproved of younger boys 13%, younger girls 8%, older boys 12% and older girls 3% of their total classroom interaction time.

These findings suggest that punishment and praise make up only a small part of the teachers' interactions with children, with punishment, however, predominating. In the junior grades, teachers spent a total of 72% of their interaction time on instructional behaviour, and in the senior grades, a total of 80%. Thus, it is surprising that many studies emphasize teachers' disciplinary behaviours with regard to differential treatment of boys and girls, and concentrate much less on teachers' instructional behaviours. This is additionally difficult to understand when we consider that children spend most of their time participating appropriately in classroom activities (see means in Table 5), and only a small part of their classroom behaviour is disruptive.

Table 10

Analyses of Variance Summary Tables for Teacher Reacting Behaviours

Behaviour	Source	df	MS	F
Disapproval	Grade Level	1	.19564	1.11
	Error (b)	30	.17643	
	Sex	1	.82349	11.05 **
	Grade Level x Sex	1	.40687	5.46 *
	Error (w)	30	.07451	
Approval	Grade Level	1	.01300	2.44
	Error (b)	30	.00534	
	Sex	1	.01857	6.61 *
	Grade Level x Sex	1	.00013	.05
	Error (w)	30	.00281	
Total Reacting	Grade Level	1	.15645	8.35 **
	Error	30	.01874	
	Sex	1	.18748	12.87 ***
	Grade Level x Sex	1	.04623	3.17
	Error (w)	30	.01457	

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 11

Mean Teacher Reacting by Grade Level and by Sex of Pupils

Disapproval

	Boys	Girls	Total Grade Level
Younger	.608	.541	.574
Older	.657	.271	.464
Total Sex	.633	.406	

Approval

	Boys	Girls	Total Grade Level
Younger	.101	.070	.085
Older	.075	.038	.060
Total Sex	.088	.054	

Total Reacting

	Boys	Girls	Total Grade Level
Younger	.292	.237	.264
Older	.247	.085	.166
Total Sex	.270	.161	

Perhaps the most striking feature of all the data, when we look at both the base-rated means and at the raw percentages, is that the teachers of older children differentiated more between boys and girls than did teachers of younger children. Such teacher behaviour differences occurred even though older boys and girls were equally different from each other, or even more similar to each other, when compared to younger boys and girls.

Teacher Attitudes

Each of the four alternate responses on the 55-item attitude scale is weighted per item with a range of 0 to 3, where 0 represents the most traditional response, and 3 is the most profeminist answer. Thus, the higher the total, the more liberal is the respondent's attitude to women. Scores were calculated and ranked. The range of scores was 83 - 152, with a mean of 124.29, and a median of 125.5. T-tests for Grade Level showed no difference in attitude between teachers of younger and older children, $t(22) = -.018$, n.s.

Due to teacher labour difficulties, only 24 out of 32 teachers completed the scale, 13 in the lower grades, 11 in the upper grades. The frequencies of each of the three total teacher behaviour categories, soliciting, responding and reacting, per pupil response opportunity, were divided by the total of pupil response opportunities in the 24 classrooms in the same manner described earlier for the full sample. These means were compared with the means of the larger group, but do not appear to differ considerably (Table 12).

The difference between the scores for boys and girls in each classroom was calculated and ranked for each of these three

teacher behaviours, which was the degree to which the teacher differentiated between the sexes. Each of these three sets of ranks was then correlated separately with the ranked results of the teacher scores on the attitude scale. To control for ties, the Kendall ranked correlation coefficient, Tau, was employed. The correlation coefficient was nonsignificant, (Tau, = $-.22$, n.s.) for soliciting, and (Tau, = $.077$, n.s.) for responding, indicating that the degree to which these teacher behaviours discriminated between boys and girls was not related to their attitudes to women. However, for the third teacher behaviour, reacting (which was made up of teacher distribution of disapproval and approval), the correlation coefficient (Tau) was $-.297$, $p < .05$, indicating a monotonic negative relationship between teachers' attitudes to women and their reacting behaviours. Therefore, the degree to which teachers discriminated in their distribution of the combination of disapproval and approval between boys and girls was negatively correlated, signifying that the more traditional a teacher was, the more she discriminated in these behaviours, and the more profeminist a teacher was, the less she discriminated in this behaviour.

Insert Table 12 about here

Table 12

Mean and Range of Teacher Behaviour in Full and Reduced Samples

Soliciting

Younger Grades	Boys	Girls
Full Sample	.234 (.031 - .476)	.167 (.037 - .385)
Reduced Sample	.259 (.031 - .476)	.179 (.039 - .385)
Older Grades		
Full Sample	.340 (.108 - 1.214)	.191 (.017 - .581)
Reduced Sample	.402 (.108 - 1.214)	.210 (.058 - .581)

Responding

Younger Grades	Boys	Girls
Full Sample	.604 (.116 - 1.096)	.447 (.133 - 1.205)
Reduced Sample	.624 (.116 - 1.096)	.430 (.140 - 1.205)
Older Grades		
Full Sample	.650 (.311 - 1.118)	.382 (.103 - .860)
Reduced Sample	.651 (.311 - 1.000)	.413 (.103 - .860)

Reacting

Younger Grades	Boys	Girls
Full Sample	.292 (.130 - .600)	.237 (.091 - .667)
Reduced Sample	.296 (.156 - .600)	.224 (.091 - .667)
Older Grades		
Full Sample	.247 (.052 - .544)	.085 (.0 - .231)
Reduced Sample	.243 (.052 - .507)	.088 (.015 - .231)

Discussion

Sex Differences in Teacher-pupil Interaction

The results of the present study confirm the hypothesis that female teachers interact more with boys than with girls in elementary school. In each of the three major categories of teacher behaviour, soliciting, responding and reacting, the means of teacher/pupil interactions were significantly and consistently higher for boys than for girls.

Teachers solicited more responses and elaboration, responded more to unsolicited handraising and to requests for elaboration, and reacted by more disapproval and approval of boys than of girls at both grade levels. Although boys and girls differed significantly in several of the observed pupil behaviours, all teacher behaviours were calculated as reciprocal interactions in which the number of boys and girls present and/or their concomitant behaviour was taken into account. It appears that boys received more of the teachers' active attention than girls did.

Soliciting behaviours were teacher-initiated. Although potentially any child in the classroom could be called on, teachers chose significantly more boys than girls. We cannot say precisely why this was, but it may be argued that teachers solicited more responses and elaboration from inattentive boys to engage them in ongoing classroom activities. Younger boys were nearly twice as inattentive as younger girls, and could justify such an argument, but

there were no sex differences in "not attending" for older boys and girls, although overall, boys were more disobedient. On the other hand, it may be that teachers selected more boys than girls to reinforce the boys' participatory behaviours, since girls at both grade levels were more participatory. A third possibility is that teachers tend to call on boys more often because they find boys more interesting than they do girls. The net effect of this teacher behaviour, whatever the cause, is that boys and girls do not receive equal response opportunities from teachers.

Unlike soliciting, responding categories were those in which the teacher responded to pupil-initiated behaviour. There were four kinds of teacher-pupil interactions recorded here.

Teachers responded more to the unsolicited handraising of boys than of girls, even when pupil base rates were taken into account. (Unsolicited handraising was any form of handraising not specifically requested by the teacher, and was considered a form of dependent behaviour as described earlier). This would imply that teachers tend to reinforce dependency in boys more than in girls, in partial support of the studies which suggest that female teachers try to "feminize" boys (e.g., Fagot & Patterson, 1969). Teachers may consider that girls' dependent behaviours need less reinforcement, as they may perceive them as well-established in elementary school. However, the higher incidence of teacher response to unsolicited handraising in boys may also be interpreted as demonstrating to children that boys'

requests are more important than girls' requests. Such a possibility is further strengthened by the observation that teachers' scores in "responds to requests for elaboration" were significantly higher for boys than girls in the second subcategory of "responding".

While there were no significant sex differences for teacher "responds to solicited handraising" in the third subcategory, there was a significant Grade Level difference, and a near significant Grade Level x Sex interaction, $F(1,30) = 3.12, p < .09$. The Grade Level difference does not contribute directly to our understanding of teacher differential socialization behaviour, and may be indicative of a difference in teaching techniques for younger as compared to older children¹. The near significant interaction is of interest. From an examination of the means, there is the suggestion that older boys ($\bar{X} = 1.616$) receive more attention when they raise their hands in response to the teacher than older girls ($\bar{X} = 1.004$), whereas younger boys ($\bar{X} = .484$) receive less attention for this behaviour than younger girls ($\bar{X} = .786$). The trend for increased teacher

¹ Teachers may ask more rhetorical questions of younger than older children, such as "Who has the book open at the right page? Who can see the sun shining? Raise your hand if you can see the new word on the blackboard". Younger children may thus be requested to raise their hands when the teacher has no intention of responding to their handraising. Within our coding system, the teacher request is recorded as "structuring" as it is not directed at any one child or followed by a response from the teacher. The raised hands of the children are clearly solicited, and recorded as such. Fewer teacher responses to a child behaviour yield lower scores.

responding to older boys, and the reversed trend for older girls, may lend some support to the hypothesis that as boys get older, and begin to resemble adult males, they command increasing interest, just as males in society are regarded as more interesting than females.

The final category in the teacher "responding" category, "neutral interactions", was not significantly different in either Grade Level or Sex. Teachers did not appear to discriminate in the amount of attention paid to each sex in this behaviour. What is perhaps noteworthy here is that this was the only interaction recorded in which the teacher often did not have the choice of whom she would interact with. Children usually came up to the teacher in random order to have their work checked, or their seatwork was examined in the sequence of their seating arrangement. Since this was the only teacher behaviour where no sex difference appeared at all, there is the suggestion that when there is a choice involved, teachers prefer to interact more with boys than with girls, as we have previously indicated.

In summarizing teachers' responding behaviour, there is evidence that teachers reinforce dependency more in boys than in girls (unsolicited handraising), and also respond more to boys than to girls. It seems likely that as boys grow older, they become more interesting to the teacher, while older girls receive less attention relative to older boys. Thus, both the sex of a child and his/her age may influence teacher response.

There is further evidence in support of these observations in the "reacting" category. Teachers reacted with significantly more approval and disapproval toward boys than toward girls. In the "approval" subcategory, boys received significantly more positive feedback in the form of rewards, privileges and praise than girls did. There was a similar overall sex difference in disapproval. The significant interaction of Sex and Grade Level demonstrates clearly that boys, (especially older ones) received more negative feedback in the form of punishment, criticism and sarcasm than girls, (especially older ones) relative to the behaviours that merit this response. These findings are consistent with the previous suggestion that older boys may be of more interest to the teacher than the other children, and in particular, more than older girls. In addition, younger children received more overall teacher reaction by approval and disapproval combined, suggesting that teachers use more disciplinary measures in the younger grades, and more instructional behaviours in the older grades.

Sex Differences in Pupil Behaviour Across Grades

There is consensus in the literature that teachers approve of and praise participation, and disapprove of and punish disruption. Since boys received more approval and disapproval, contacts in the present study, a logical prediction would be that the increased teacher attention would maintain or even increase the rate of disruptive and participatory behaviour in boys, and decrease the rates

for girls. Thus, we would predict that in the transition from lower to upper grades, older boys would be as disruptive and as participatory as younger boys, or even more so, and that older girls would be less disruptive and participatory than younger girls. However, this was not the case. At both grade levels, boys were significantly more disruptive than girls, but the sex differences were significantly greater between younger children than between older ones. The means for disruption (younger boys, .274; younger girls, .158; older boys, .242; older girls, .197) indicate that disruption decreased with age for boys, and increased for girls. At both grade levels, girls were more participatory than boys, and younger and older girls did not differ significantly from each other in participation. Thus, teacher approval of participation in boys, and their relative neglect of girls' participation may not have the desired effect. A third finding was that teachers responded more to dependency (unsolicited handraising) in boys than in girls. However, in this study, as in the preschool investigation of reinforcement of feminine-typed behaviours (e.g., Fagot & Patterson, 1969), there was no greater increase (or decrease) in dependency for boys as compared to girls at either grade level.

These data seem to indicate that there may not be a functional relationship between teacher reinforcement and the developmental pattern of boys' and girls' behaviours. In an attempt to explain why teachers pay more overall attention to boys than to girls, most authors stress that the disruptive behaviours of boys are a major influence on teacher behaviour. For example, Brophy and Good

(1970) suggest that the teacher attends to all behaviours of boys in a more vigilant manner than to the behaviours of girls because of boys' high potential for troublesome behaviour. Serbin et al (1973) indicate in a similar vein that boys' disruptive behaviours may be more intense than those of girls, and that teachers feel a greater urgency to react immediately to boys, encouraging their participatory behaviours at the same time. Both of these explanations imply that teachers may not respond directly to the boys' actual behaviour. Teachers appear to behave in accordance with differential expectations of what boys might do if they are not closely supervised and tend to overlook the consequences of ignoring girls. One such consequence in the present study, for example, was that girls became more inattentive, but teachers decreased, rather than increased the amount of attention they paid to older girls as compared to older boys. It is possible that the absence of sex differences in the behaviours of children in the study by Etaugh and Harlow (1975) was due to an increase in disruption and a decrease in attentiveness by girls in grades five and six, combined with or in addition to a relative decrease and increase in the parallel behaviours of older boys. Nonetheless, teachers in Etaugh and Harlow's study, as well as those in the present study (when pupil base rates were considered) appeared to behave as if these sex differences were present. Thus, it is not unreasonable to assume that teachers are less likely to be shaped by children's behaviours than to shape them. The incongruity in the present study between teacher reinforcement for specific behaviours,

and the failure to observe overall changes in these behaviours may be due to our method of calculation. However, it is clear that teachers spend more class time with boys than with girls, even though the overall effects of teacher attention may not be immediately observable in marked behavioural changes in their pupils.

While we have suggested reasons for the absence of sex differences in Etaugh and Harlow's (1975) study of boys and girls in senior grades, it is obvious that older children in the present study were significantly different from each other in disruption and participation (as were the younger ones). Failure to replicate Etaugh and Harlow's pupil results may be due to a number of factors. There were differences between the studies in sample size, sample population and range of behaviours investigated. Etaugh and Harlow conducted their research in five classrooms in middle-class schools, while the present research (in senior grades) took place in 16 classrooms in working class districts. Since more behaviours were investigated in a larger number of classrooms in this study, the chances of discovering sex differences were maximized.

The only behaviour which was significantly different for younger children, but not for older children, was "not attending". However, this was equally due to a decrease in the frequency of this behaviour for boys and to an increase in frequency for girls (Table 3). It is possible that boys do not become more dependent or participatory as a result of differential teacher praise or punishment; they may become less disruptive. These same teacher behaviours do not seem to cause

girls to become less dependent and participatory as might be predicted; they become more disruptive. That is, the main shift in pupil behaviour in this study was that older boys and girls differed less from each other in disruption than younger children did.

What then is the impact of teachers' differential socialization practices on the social learning of boys and girls as they move through the elementary school years? One consequence might be a cumulative increase in independent, autonomous behaviour by boys as they are praised, reprimanded, encouraged, criticized, instructed and generally responded to more actively by the teacher (Sears & Feldman, 1974). Another might be an increase in passive, dependent behaviours in girls, as well as a lowering of self-esteem. Mischel (1970) pointed out that while there are no sex differences in dependency in younger children, girls in high school and in college score significantly higher than boys on dependency measures. Sears and Feldman (1974) report that bright girls in grades five and six were significantly lower in their self-concepts of mental ability than were boys of the same age and intelligence.

The developmental task of acquiring and maintaining sex-role behaviour is evidently influenced in part by the differential socializing behaviours of teachers. Boys are involved more actively in the socialization process than girls. Boys receive more direction and instruction, whereas girls' activities are less firmly defined and enforced. The manner and frequency with which teachers interact with boys suggests that they find boys more interesting and more

attention-provoking than girls, a conclusion which Maccoby and Jacklin (1974) came to with regard to the socializing behaviours of parents. Although it has been suggested that differential reinforcement by teachers may be influenced by differential pupil behaviour (e.g. Martin, 1972) such reinforcement does not seem to have the desired effect on these behaviours. This may be because teachers use punishment and praise ineffectively, but, as we have demonstrated, teacher socialization goes beyond the differential distribution of punishment and praise. Teachers spend a small percentage of their class time punishing and praising children relative to the amount of time they spent in instructional interactions, such as soliciting and responding. In all the instructional behaviours, as in the disciplinary ones, teachers interact significantly more with boys than with girls. We suggest that the total impact of differential attention on the social learning of boys and girls ultimately guides boys and girls toward distinctly different sex-roles and goals.

Differences in Teacher Attitude and Behaviour

There was no correlation between teacher attitude and teacher behaviour for two of the three main teacher categories, soliciting and responding. Both traditional and profeminist teachers were equally discriminatory in their classroom manifestations of these two behaviours. However, a significant negative correlation was found between teacher attitude and reacting behaviours. This meant that the more traditional a teacher was, the more she discriminated in her distribution of approval and disapproval to boys and girls, in the

direction, of more attention to boys. The more profeminist a teacher was, the more equally she distributed praise and reprimands to boys and girls in her classroom, or even gave more to girls.

It is possible that the profeminist teachers are more aware of their behaviour in administering approval and disapproval than in soliciting or responding, and make a conscious effort to praise and reprimand girls and boys equally. The possibility that teachers can become aware of their own behaviour in this category, speaks well for the possibility that they may also become less discriminatory in other teacher-pupil interactions as well.

Implications and Suggestions

The present study demonstrated the importance of examining teacher and pupil interactions at more than one grade level. In this way, differences in the behaviours of younger as compared to older children, as well as differences in the behaviours of teachers of younger as compared to older children were observed within the parameters of the same study. While the effect of teacher reinforcement was difficult to assess relative to the pupil behaviours recorded, we have seen that teachers paid more overall attention to boys than to girls. In addition, younger and older boys did not differ significantly in any of their behaviours and neither did younger and older girls. However, despite these findings, examination of the adjusted means of teacher behaviour and the percentages of interaction time which teachers spent with younger children as compared to older children, suggests that teachers of older children differentiated more between boys and girls than teachers of younger children. That is, teacher reaction

by approval and disapproval was more differentiated at the older grades even though older boys and girls were equally different from each other or even more similar to each other, when compared to younger boys and girls.

Although there may be sex differences in pupil behaviours, they may not be the main determinant of teacher differential reinforcement. When base rates of pupil behaviours were taken into account, the sex and age of the child appear to be very important. Teacher expectation of pupil behaviour also appear to influence differential socialization practices. It is possible that as boys grow older, their disruptive behaviour may represent a greater threat to classroom order than the disruptive behaviours of smaller boys. Unfortunately, we did not measure differences in the intensity of any behaviours, either by grade level or by sex.

If the reinforcement contingencies observed in the present study are typical for elementary schools generally, then it is possible that children are unaware that specific behaviours attract different forms of teacher attention. It may appear to children that any male activity merits more teacher attention than any female activity, just as it did to the observers in the present study. Teachers do not seem to realize that an optimal way to extinguish an undesirable behaviour is to ignore it while reinforcing other, more desirable behaviours. A less than expedient method was employed by the majority of the teachers. That is, they attended to male behaviours in disproportion to those of females, even though males showed more negative behaviours, and females more positive ones.

There was partial confirmation in the present study of findings in previous research on younger children (e.g., Brophy & Good, 1970; Davis & Slobodian, 1971), but not older children (e.g., Etaugh & Harlow, 1975). In the present study, both younger and older boys were more disruptive and less participatory than younger and older girls. There were no sex differences found for dependent behaviours, but other elementary school research did not investigate these behaviours. Participation was discussed in previous junior grade studies only relative to teacher solicitation, and therefore it is unclear whether there were sex differences in participation in younger children. However, Etaugh and Harlow (1975) in grades five and six indicated that there were no sex differences in the participatory behaviours of older children, while the present study did not uphold these findings. This may be because the present study was more extensive with regard to sample size and behaviours observed. A second possibility for the failure of the present study to replicate Etaugh and Harlow's (1975) pupil results may be attributed to a social class effect. While the latter study was conducted on a middle class population, the present study focused on working class children. Thus, our results are only generalisable for working class populations.

We have suggested that the effects of differential socialization may be manifested in the social learning of boys and girls. It is our contention that boys and girls do not become more/less disruptive, participatory or dependent directly as a result of teacher differential attention. However, the overall attention which boys receive may teach boys and girls another lesson. Children

learn that boys are important, because whether boys participate or not, teachers appear to pay more attention to them than to girls, even though girls are more participatory than boys. Girls seem to receive attention almost by default, but not specifically for being "good" or "bad". Thus boys, but not necessarily their behaviours, are reinforced, while girls tend to be neglected increasingly as they grow older. Possibly this is why older girls begin to pay less attention in the classroom. These speculations have unfortunately not been empirically tested in the present study, and future observational research which includes measures of self-esteem across grades may be able to assess these effects.

The finding that teachers with profeminist outlooks were less discriminatory in their distribution of punishment and praise than traditional teachers is encouraging. Perhaps it is too early to assume that schools can overcome their conservative origins and become agents of social change. As Torrance (1967) demonstrated, when teachers become aware of their behaviours, they encourage both sexes in the development of creative potential. Discussing the results of the present study with groups of teachers may have a similar effect. This, using Torrance's paradigm, a worthwhile project for future research might be to compare two groups of teachers (one with and one without awareness training) in their classroom behaviours vis-à-vis boys and girls. Measures of children's achievement and self-image might be included as well.

The relationship between various patterns of teacher-pupil

interactions and their effects on sex-role development require continued investigation. As Sears and Feldman (1974) aptly state, our society may have to revise its ideas about what constitutes a "proper" sex-role, and what experiences are best for maximizing the development of creative potential for all children.

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APPENDIX A

Sample Checklist for Recording Pupil and Teacher Classroom Behaviours

Intervals	1	2	3	4	5	6	7	8	9	10	Total	
Pupils											M	F
Not Attending												
Aggression												
Help-seeking												
Approval-seeking												
Unsolicited H. R.												
Attending												
Solicited H.R.												
Answering Questions												
Teachers	1	2	3	4	5	6	7	8	9	10	M	F
Structuring												
Asks for Response												
Asks for Elaboration												
Responds to Un. H.R.												
Responds to Sol. H.R.												
Neutral Interaction												
Clarifies												
Disapproval												
Approval												

School _____ Grade _____ Room _____ Sheet _____ Out of _____ sheets

Mark M (for male) or F (for female) to indicate sex of child emitting or receiving behaviour. For teacher structuring, mark X to indicate that this behaviour occurred. All behaviours occurring during one observation should be recorded.

APPENDIX B

Pilot Work

For several weeks prior to the pilot study, the author of this research project paid informal visits to a grade three and a grade five classroom to observe ongoing classroom activities. The behaviours of the teacher and her pupils were noted, and some attempt was made to classify these. Child behaviours which occurred were divided into three categories, disruption, dependency and participation, as suggested by Serbin et al (1973). Similarly, teacher behaviours were grouped together under four classifications, structuring, soliciting, responding and reacting, in a manner suggested by Kliebard (1972). Operational definitions were delineated for the main pupil and teacher behaviours based on the specific behaviours which were observed. An observational code was then developed for observing and recording ongoing classroom behaviour. Each category was subdivided to include as many distinguishable, salient behaviours as possible.

Two classrooms, a grade two and a grade six, not part of the major study, were visited for a total of twelve hours. During this time, the observational code was tested empirically with the two observers who participated in the main study. Although some minor changes were made in the operational definitions for greater clarity, the basic observation and recording method was successful. Reliability across observers, computed as the number of agreements

divided by the number of agreements plus disagreements, was .89 for pupil behaviours, and .91 for teacher behaviours during the two final one-hour observation periods in each class.

While significance was not possible due to the small number of observations, the results indicated some sex and grade level differences in the behaviours of children and differential treatment in those of their teachers. In grade two, there was an observed difference only in the participatory behaviour of boys and girls, with girls participating more than boys. There were no observed differences in the disruptive or dependent behaviours of either sex. Observed differences in grade six revealed that girls were more disruptive, but equally as participatory and dependent as boys.

Teacher behaviours in grade two were observed as more responsive generally to boys. In grade six the teacher interacted more with boys in all categories.

Informal discussion with the grade six teacher revealed that she found boys were far more interesting than girls, and enjoyed teaching them more. This was in keeping with Maccoby and Jacklin's (1974) observation that adults act as if they find boys more interesting. A second grade six teacher who taught the same children, was observed by only one of the observers, and also appeared to interact more with her male students than with her female pupils. When the results of the pilot study were discussed with her, she expressed great surprise, priding herself in her "liberated woman" attitudes.

APPENDIX C

The Attitudes Toward Women Scales

The statements listed below describe attitudes toward the role of women in society which different people have. There are no right or wrong answers, only opinions. You are asked to express your feelings about each statement by indicating whether you (A) Agree strongly, (B) Agree mildly, (C) Disagree mildly, or (D) Disagree strongly. Please indicate your opinion by marking the column on the answer sheet which corresponds to the alternative which best describes your personal attitude. Please respond to every item.

(A) Agree strongly (B) Agree mildly (C) Disagree mildly (D) Disagree strongly

1. Women have an obligation to be faithful to their husbands.
2. Swearing and obscenity is more repulsive in the speech of a woman than a man.
3. The satisfaction of her husband's sexual desires is a fundamental obligation of every wife.
4. Divorced men should help support their children but should not be required to pay alimony if their wives are capable of working.
5. Under ordinary circumstances, men should be expected to pay all the expenses while they're out on a date.
6. Women should take increasing responsibility for leadership in solving the intellectual and social problems of the day.
7. It is all right for wives to have an occasional, casual, extra-marital affair.
8. Special attentions like standing up for a woman who comes into a room or giving her a seat on a crowded bus are outmoded and should be discontinued.
9. Vocational and professional schools should admit the best qualified students, independent of sex.
10. Both husband and wife should be allowed the same grounds for divorce.
11. Telling dirty jokes should be mostly a masculine prerogative.