The effect of gender role models on children's musical instrument preferences.

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Despite the increasing emphasis on gender equality in our society, children are still conforming to many traditional gender stereotypes. For example, researchers (eg. Abeles & Porter, 1978; Delzell & Leppla, 1992) have demonstrated that North American children associate gender with musical instruments and that these stereotypes influence their instrument preferences. The present study had three main aims. Firstly, it was designed to explore whether Australian children are stereotyped in their musical instrument choices. Secondly, if these stereotyped preferences do exist, can they be altered by exposing children to musicians playing gender-inconsistent instruments (i.e. positive role models). The final aim was to determine which of two gender theories (i.e. gender constancy versus gender schema) would most adequately explain children's musical instrument preferences.

Gender and Musical Instruments
A number of studies (eg. Abeles & Porter, 1978; Delzell & Leppla, 1992; Pickering, 1996) have reported that adults view some musical instruments as being more feminine (eg. flute, violin, clarinet, 'cello), and others as being more masculine (saxophone, trumpet, trombone, drum). It has also been noted (eg. Fortney, Boyle & DeCarbo, 1993; Zervoudakes & Tanur, 1994) that young children reproduce these adult stereotypes in their choice of musical instruments. Thus girls tend to prefer feminine-typed instruments while boys select those that are masculine-typed.

Because these stereotypes limit children's opportunities to learn certain instruments, some researchers have attempted to change children's gender-typed preferences by exposing them to positive role models (eg. Abeles & Porter, 1978; Byo, 1991; Bruce & Kemp, 1993). In the most recent study (Bruce & Kemp, 1993), school classes containing 5-7 year old children were randomly assigned to one of four live performances given by a group of musicians. The gender of the musicians was manipulated so that in each group, some of the instruments were played by females and others by males. At the conclusion of each concert, children were invited to approach one of the players. It was found that children tended to approach same-sex players, regardless of the instrument they played. Thus, gender inconsistent instruments were selected if they were played by a musician of the same sex as the child.

Although this study has high external validity, there are a number of methodological issues that need to be addressed. For example, participants were not asked to approach the instrument of their choice, but the player of their choice. Therefore, players may have been approached for reasons other than the instrument being played. It cannot be concluded that the child actually wanted to play the instrument involved. A second difficulty lies with the group testing procedure in which some children may have influenced others in their
choice of player. Because of these and other flaws (see Pickering, 1997), it remains unclear whether the presentation of live players with gender-inconsistent instruments can alter children's musical instrument preferences.

Gender Theories
The research exploring children's musical instrument preferences has been largely atheoretical. Researchers have failed to consider their findings in terms of the various theories that have been put forward to explain the development of gender-typed behaviour. Kohlberg's (1966) "gender constancy" theory, for example, holds that changes in children's gender-typed behaviour are due to qualitative advances in their cognitive capacity. With this in mind, Kohlberg isolated three stages in children's acquisition of gender knowledge, or what he termed, the "gender concept". The first stage, gender identity (2 - 3 yrs), is the point at which children can correctly identify self and others as male or female. The next stage is gender stability (3 - 4 yrs), which involves the understanding that gender is stable over time (eg. a little girl becomes a woman and a little boy a man). The third stage, gender consistency (5 - 7 yrs), is where children know that an individual's sex cannot be changed by their behaviour, appearance or motivation (eg. a girl dressing up as a boy is still a girl). Once this final stage has been reached, children are classified as gender constant. Kohlberg argued that it was not until this point that children would actively seek out same-sex models and acquire gender consistent behaviours/attitudes.

Various researchers have demonstrated that the attainment of gender constancy is not related to gender-typed behaviour (eg. Carter & Levy, 1988; Yee & Brown, 1994). Instead, many children who are not yet gender constant have been found to behave in a stereotypical fashion. While some researchers discarded the theory altogether, Ruble (1987) reformulated gender constancy theory to account for these findings. In this reformulation, gender identity is assumed to coincide with the passive display of gender-typed behaviour, while the attainment of gender constancy is related to a more active choice of gender typed behaviour. Ruble (1987) suggests that the acquisition of a gender identity leads to the imitation of same- rather than opposite-sex models, but only if the behaviours do not differ in their attractiveness. Thus, gender appropriateness is not the only factor influencing the behavioural choices of non-gender constant children. In contrast, gender-constant children are actively motivated to select gender-consistent behaviours to the exclusion of all other behaviours.

Gender schema theorists, on the other hand, have discarded Kohlberg's ideas altogether and have concentrated on an information processing account. Martin and Halverson (1981) have suggested that only the attainment of gender identity is necessary for gender-typed behaviour to occur. In their view, children construct two types of gender schemata. Initially, the child forms an "in-group/out-group" schema, in which objects, behaviours, attitudes and so on are categorised as appropriated for either females or males. At a later stage, an "own-sex" schema is constructed. A positive evaluation of the same sex and a negative evaluation of the opposite sex is created, thus enabling children to decide which behaviours to display and which to ignore.
Although the existence of these schemata has been supported by the research literature (eg. Martin & Halverson, 1983; Bradbard, Martin, Endsley & Halverson, 1986), there is no evidence to suggest that gender-typed behaviour is related to the attainment of gender identity.

The Conflict Paradigm
Frey and Ruble's (1992) "conflict paradigm" is one way to determine which theory best describes and explains children's gender development. It was originally designed to test Ruble's "active/passive" reformulation of gender constancy theory. In this paradigm, children must decide whether to imitate an opposite-sex model who displays interesting behaviour or a same-sex model displaying less interesting behaviour.

In this context, the two gender theories would predict very different age-related patterns of imitation. According to the reformulated version of gender constancy theory, gender constant children should imitate the less interesting behaviour of the same-sex model. This is because gender-typed behaviour is actively selected at the expense of more interesting behaviours. On the other hand, non-constant children should imitate the more interesting behaviour, regardless of the model's gender.

In contrast, gender schema theory would predict that younger children (aged 3-6) will imitate the same-sex model, even if that includes less interesting or gender-inconsistent behaviour. The gender of the model is more salient to these children because they are still developing their "in-group/out-group" schema. On the other hand, as children develop their "own-sex" schema, the gender of the model is no longer important. Instead, they attend to the gender appropriateness of the behaviour. Thus, in the conflict condition, older children (ages 7-10) will imitate the behaviour if it is consistent with their own gender, but ignore the behaviour if it is gender-inconsistent.

By examining children's musical instrument choices in a conflict paradigm and addressing the methodological problems in previous research, three questions were addressed in the present study. Firstly, whether Australian children, like North American children and adults, display gender-typed instrument preferences. Secondly, if these stereotyped preferences do exist, can they be altered by the presentation of positive role models. Finally, by comparing the instrument choices of kindergarten and fourth grade children, it can be determined whether Ruble's reformulation of gender constancy theory or gender schema theory is the most useful in explaining the development of gender-typed behaviour.

The design of the present study differed from the original conflict paradigm in that the conflict was between musicians' gender and instrument stereotype. Thus, a choice had to be made between a same-sex model playing an instrument inconsistent with the child's gender, and an opposite-sex model playing an instrument consistent with the child's gender (i.e. the "positive role model" condition). A control condition ("no role model"), in which instruments were displayed without players was also included, along with a "gender stereotype" condition, in which musicians played gender-consistent
Ruble's reformulation of gender constancy theory would predict that in the "positive role model" condition, fourth grade children (assumed to be gender constant) will choose more gender inconsistent instruments than kindergarten children (assumed to be non-gender constant). Thus, the older children will imitate the same-sex model regardless of the type of instrument played, while younger children will disregard the model's gender and play the more "interesting" instrument. In contrast, gender schema theory would predict that, in the "positive role model" condition, the younger children will choose significantly more gender inconsistent instrument than the older children. This is because kindergarten children are still developing their "in-group/out-group" schema by imitating same-sex models. Fourth grade children, however, have also developed their "own-sex" schema. Thus, they should attend to and imitate gender-consistent behaviour, regardless of the model's gender. In the "no role model" control and "gender stereotype" conditions, neither theory would predict an age difference. In each condition, children both age groups would be expected to select an instrument consistent with their own gender.

Method
Participants
One hundred and fifty-six kindergarten children (i.e. 5-6 year olds) and 158 fourth grade children (i.e. 9-10 year olds) from six public schools in Southern Sydney participated in this study. Males and females were equally represented in each age group, and were naive to the aims of the experiment. This study was approved by the Department of School Education.

Materials
Eight musical instruments were presented in the same random order in each of three videotapes. The same short piece of music was played on each instrument by different musicians. The "gender stereotype" videotape consisted of four female and four male musicians playing the musical instruments. In accordance with adult stereotypes, females were shown with the feminine-typed instruments (flute, violin, clarinet, 'cello) and males were shown with the masculine-typed instruments (saxophone, trumpet, trombone, drum). The "positive role model" videotape also consisted of four female and four male musicians playing the instruments, but the players were inconsistent with the adult stereotypes. Thus, females played masculine-typed instruments and males played feminine-typed instruments. The "no model" videotape consisted of the same eight instruments and music, but no musicians were shown with the instruments. In each treatment condition, the real instruments were present while the videotape was being played so that children could match these with the videotaped images.

Procedure
Children were randomly assigned to one of the three treatments and were individually tested. Each child watched the assigned video, and at the conclusion was invited to select the instrument that they would most like to play.

Results
The first research question addressed was whether Australian children
are stereotyped in their musical instrument preferences. Children's instrument choices (gender consistent versus inconsistent) in the "no model" condition were analysed using multiple chi-squares and a Bonferroni type adjustment. Overall, children were more likely to select a gender consistent (.73) than inconsistent (.27) instrument, $(2(1, n=314) = 14.49, p<.0001$. Two additional chi-square tests revealed that there were no gender or age differences in children's instrument preferences (both ps>.02).

The second research question focussed on whether children's instrument choices could be altered by the presentation of positive role models. Data from the three treatment conditions were analysed using hierarchical loglinear analysis (see Green, 1988). A backward elimination procedure indicated that the best fitting model included a Treatment X Instrument Choice and a Gender X Instrument Choice interaction, $(2(16, n=314) = 11.60, p = .77$. The Treatment X Instrument Choice interaction revealed a relationship between children's instrument choice (gender consistent versus inconsistent) and their treatment group. Thus, regardless of age and gender, children were more likely to select a gender-inconsistent instrument when exposed to positive role models (see Table 1).

Table 1  
Gender-Consistent Instrument Choice as a Function of Treatment Group.  
<table>
<thead>
<tr>
<th>Treatment group</th>
<th>Consistent Instrument Choice</th>
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<tbody>
<tr>
<td>No model</td>
<td>77 (73%)</td>
<td></td>
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<tr>
<td>Gender stereotypes</td>
<td>71 (68%)</td>
<td></td>
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<tr>
<td>Positive role model</td>
<td>55 (53%)</td>
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The Gender X Instrument Choice interaction indicated that boys were more likely to select gender-consistent instruments than girls, regardless of age or treatment group (see Table 2).

Table 2  
Gender-Consistent Instrument Choice as a Function of Gender.  
<table>
<thead>
<tr>
<th>Gender</th>
<th>Consistent Instrument Choice</th>
<th></th>
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<tbody>
<tr>
<td>Boys</td>
<td>113 (72%)</td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>90 (57%)</td>
<td></td>
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The hierarchical loglinear analysis presented the simplest, best-fitting model, so additional post-hoc analyses were conducted to explore some of the more complex and theoretically interesting patterns that emerged in the data. These analyses were conducted using chi-square tests with a Bonferroni adjustment. Fourth grade girls were less gender-typed in their instrument choices in the "positive role model" compared to the "gender stereotype" condition $(2(1, n=52) = 7.69, p<.01$, but this was not the case for kindergarten girls or boys in general (all ps>.01, see Table 3).
Gender and Age.

Age and Gender Groupings
Treatment Group
Kindergarten Girls
4th grade
Girls
Kindergarten
Boys
4th grade
Boys
Gender stereotype
54%
69%
62%
85%
Positive role model
44%
31%
64%
73%

Discussion
The data indicated that boys and girls in both age groups selected gender-consistent instruments when no role models (i.e. musicians) were presented. Thus, like North American children and adults, Australian children appear to attach gender stereotypes to musical instruments. Moreover, regardless of age, boys were significantly more stereotyped than girls. This finding is consistent with previous literature (eg. Frey & Ruble, 1992; Slaby & Frey, 1975), which has found that girls are more willing to play with an opposite-sex endorsed gender-neutral toy than boys. It would appear then, that by the beginning of school, boys have very strong gender stereotypes relative to girls. Further research is necessary, however, to determine whether, and to what extent, pre-school children display these gender-typed instrument preferences.

Can these gender-typed preferences be altered by the presentation of positive role models? Overall, children were more likely to select gender inconsistent instruments if they were played by musicians of the same sex as themselves. This finding has an obvious educational implication. School music classes should present their young students with examples of musicians who do not conform to the instrument stereotypes and at the same time minimise exposure to musicians confirming these stereotypes. The presentation of positive role models might also be effectively applied to other domains, such as future occupation and recreational activities, in which gender stereotypes often dictate children's choices. The more detailed post-hoc analyses obviously require replication, but they suggest that boys in general, and kindergarten girls are much more resistant to change than fourth grade girls. These groups of children may require more extensive exposure to positive role models or the presentation of live as opposed to videotaped musicians.

The results are somewhat confusing when the two theories of gender
typing are considered. If Ruble's reformulation of gender constancy theory is to be supported, fourth grade children should actively choose to behave in a stereotyped manner. For example, in the "positive role model" condition, they should reject the more attractive (or preferred) gender-consistent instruments because these are endorsed by opposite-sex models. Instead, children should select instruments that have been played by musicians of the same sex as themselves. On the other hand, kindergarten children are assumed to be passively influenced by the gender of a model. Thus, they should select the more attractive instrument (i.e. one that is gender consistent) rather than imitate the behaviour of a same-sex model who is playing a less attractive (i.e. gender-inconsistent) instrument. Interestingly, in the present study, the pattern of results for the girls, but not the boys, is consistent with these predictions. There was no difference in the instrument choice of kindergarten versus fourth grade boys. Both age groups preferred masculine-typed instruments, regardless of the gender of the musician. This finding is also inconsistent with the predictions derived from gender schema theory. According to this theory, only the older age group would ignore the gender of the model and attend to the gender appropriateness of the instrument. This was clearly not the case among the boys, where even five to six year olds were selecting instruments consistent with their own gender but modeled by the opposite sex.

One possible explanation for these findings is that boys are precocious in their gender development, relative to girls. For example, in the present study, Kindergarten children were assumed to be non-gender constant, but maybe gender constancy occurs at an earlier age in boys. Previous research (eg. Langlois & Downs, 1980) suggests that boys experience greater social and familial pressure to act in a gender-typed manner. It is possible, then, that this pressure hastens the emergence of gender constancy in boys. However, even if kindergarten and fourth grade boys were gender constant, their pattern of instrument choice is still inconsistent with gender constancy theory. Gender-constant children should actively choose to follow the same-sex model, regardless of the instrument.

Alternatively, it could be argued that social pressure leads boys to develop an "own-sex" schema at an earlier age than girls. Kindergarten boys would then behave like those in fourth grade, ignoring the model's sex and selecting instruments consistent with their own gender. Neither of these explanations is ideal. In each case, the girls' data would support gender constancy theory while the boys' data would not. An adequate theory of gender typing should be able to account for the behaviours of both genders, not simply one. In conclusion, the most important finding in the present study is that children's stereotyped musical instrument preferences can in fact be altered by the presentation of positive role models. However, the behaviour of fourth grade girls appears to be more amenable to change than that of younger girls, and boys in general.
References


