



the realism and sex type of four- to five-year-old children's occupational aspirations

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ABSTRACT

Research on career development has focused primarily on adolescents and adults. However, in Gottfredson's theory of circumscription and compromise (2002) it is proposed that career aspirations originate in the preschool years and that the earliest work aspirations of children are sex typed in relation to the activities of same sex adults. This article investigates young children's career development in the context of Gottfredson's stage theory. Eighty-four children attending a kindergarten/early learning centre for four- to five-year-old children exhibited sex typing of their aspirations, with the vast majority nominating real occupational roles as opposed to fantasy ones, as aspirations for adult life. The pattern of boys' and girls' aspirations differentially support Gottfredson's proposals. Questions are raised concerning the stability of patterns of aspirations in terms of sex type in a changing society.

KEYWORDS *aspiration, career, children, development, gender, occupation*

Most research on career development has focused on adolescence and adulthood. However, Linda Gottfredson's theory of circumscription and compromise (1981, 1996, 2002) proposes that career aspirations originate in pre-school years. Gottfredson suggests that occupational aspirations emerge as an integral aspect of children's developing social identity. Occupations represent major signals of self and identity, in particular through common perceptions of gender roles and social status. The stability of these common perceptions has been established in North American (Lapan and Jingleleski, 1992) and in Australian (Naylor et al., 1997) research. Since occupational role can act as a significant social signal,

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an occupational aspiration can be seen as an attempt to present a preferred self-image. If the self-image is shaped by unrealistic or unattainable perceptions, there may be repercussions for the individual's self-concept.

Gottfredson's theory states that there are four stages in the development of occupational aspirations. Stages 1, 2 and 3 describe processes occurring during childhood while Stage 4 occurs in adolescence and through adulthood. Each stage is based on increasingly complex cognitions about society and self and is reflected in occupational aspirations.

Stage 1 of Gottfredson's theory encompasses the period when most children between the ages of 3 and 5 years, first recognise the adult social world. Children in these years progress from a fantasy stance, with vague conceptions of future time, to an 'orientation to size and power' that recognizes adults as controllers of resources. Children at this level of reasoning 'think that to do or act like the same sex parent is good' (Nelson, 1978: 289) though without understanding adult purposes. With developing cognition, children in Stage 1 outgrow magical aspirations and express realistic occupational aspirations for the first time.

The unique aspect of Stage 1 is that the 'young child has a fairly positive view of all occupations of which he or she is aware' (Gottfredson, 1981: 549). This contrasts with Stages 2 and 3 when older children are said to circumscribe, or restrict, their aspirations to those that are seen as acceptable in accordance with more sophisticated cognitions about society and self.

There is evidence that realistic job aspirations emerge in these early years. Nelson (1978) found that 50 per cent of the 3–4-year-olds and about 80 per cent of 4–5-year-olds in her sample aspired to realistic occupations or adult roles. Trice et al. (1995) found that most of the 5-year-old kindergarten children in their USA sample had realistic occupational aspirations. They also found that about one in five of these children nominated a fantasy occupation (such as princess or dinosaur) as their first choice. The children were drawn from a sample comprising 25 per cent African Americans, 3 per cent Asian Americans, 8 per cent Hispanic and 63 per cent European American.

Henderson, Hesketh and Tuffin (1988) found that the occupational aspirations of children in Stage 1 were already gender-typed. Out of 35 boys, 31 chose male typed jobs (based on New Zealand 1981 census data where 60 per cent or more of employees were of a particular sex), three selected what were referred to as 'androgynous' occupations and one chose a female typed job. Out of 42 girls, 24 chose female-typed jobs, six chose androgynous careers and twelve chose male typed jobs. The main interpretation given by the authors was that 'sex typing of occupational preferences appears at an earlier age than suggested by Gottfredson' (p. 42). In Stage 2 Gottfredson (2002) suggests that occupational aspirations are drawn from a range limited according to gender stereotypes. Most children between the ages of 6 and 8 years onwards 'orient to sex roles', that is, they assimilate the concept that each sex is associated with certain behaviours (Nelson, 1978). Hence children in Gottfredson's Stage 2 actively reject occupations

associated with the opposite sex and select their preferred occupation from a narrowed pool of alternatives that are stereotypically associated with their own sex. Henderson et al. (1988) had assumed that since Stage 2 was associated primarily with gender role orientation, this association should not appear earlier. In fact, as Gottfredson (1996) pointed out, the theory had always accepted that occupational preferences are 'clearly sex typed at the earliest ages assessed' (Gottfredson, 1981: 559). The bias at Stage 1 therefore is not due to rejection of opposite sex roles, but to identification with same sex adult. Children in Stage 1 are able to label themselves and others by sex, and have a preference for same sex peers.

Gottfredson does not suggest whether gender typing will differ between boys and girls, nor whether one sex is more likely than the other to nominate a wider range of occupational aspirations. There is conflicting evidence concerning these issues. Several studies appear to indicate that young girls are more likely to nominate a wider range of occupations in terms of work role and sex type than boys (Helwig, 1998; Trice et al., 1995), while the opposite is also reported (e.g. Auger et al., 2005; McMahan and Patton, 1997). Whether such inconsistencies are due to sampling from different countries, slightly different age groups (eg. kindergarten versus first and second grade), or socio-economic groupings, or are due to classification procedures, is unclear. Sample sizes do tend to be very small. These mixed results and small sample sizes, as well as the changing sex roles in society referred to in Hartung et al. (2005) review of the child vocational development field, give substance to the oft-repeated need for further exploration of this area.

Although Gottfredson argues that Stage 1 children's aspirations result from an attraction to the occupations of same sex adults, Nelson (1978) referred specifically to attraction to the same sex parent. Research has shown that the influence of parents' careers is particularly salient for young children's aspirations (Trice, 1991). However, to complicate the issue, a factor that could influence the attractiveness of parental occupations to children at Stage 1 is parent job satisfaction. Trice and Tillapaugh (1991) found that Grade 3 and 5 children were more likely to aspire to the occupation of the parent more satisfied with their career. This tendency was more evident for the older children. There is therefore, some indication that the same sex parent is not necessarily the model for young children's aspirations.

Trice et al. (1995) found with a sample of 168 kindergarten children, that both boys and girls more frequently aspired directly to their mother's than their father's occupation. Of kindergarten girls in that study 7 per cent aspired to their mothers' exact occupation and less than 1 per cent to their fathers'. Of kindergarten boys, 6 per cent aspired to their mothers' occupation and 2 per cent to their fathers'. Analysis of older children's responses showed that by Grade 6 the boys aspired to their fathers' jobs at a similar rate as to their mothers' occupations.

Notwithstanding these comparative results, the direct correspondence between parents' occupations and children's expressed aspirations was not large. Many research studies tend to report correspondence between parent occupations and child aspirations by matching them according to John Holland's (1997) vocational interest descriptions (often referred to as 'Holland-code match'). Although this method might be meaningful with older children or adolescents, where the latter are able to distinguish similarities across activities and intent of occupations, it seems unlikely that younger children would know sufficient about occupations comprehended within Holland categories for such correspondence rates to be meaningful.

Gottfredson's theory therefore proposes the following insights into the earliest stage of career aspirations. First, most children between 3 and 5 years of age will come to recognise occupations as adult roles rather than fantasy. Second, their occupational aspirations will be influenced by their perceptions of sex type. Third, preferences are typed at this stage through identification with same sex adults, rather than due to rejection of the opposite sex. Since it is evident that many societies are changing, albeit slowly, in terms of gender identification with public roles, it is inherent in these proposals that the content of occupational aspirations will fluctuate according to the pattern of occupational sex type and prestige, or status, within a given society. Although Gottfredson (2002) asks why society reinvents its social inequalities with each new generation, her proposals lead to a quite different presumption – that of change. Helwig (1998) asks whether occupational patterns in terms of 'gender-role' will be different in 25 years. Variations across culture and socio-economic status, and differences in rates of change across nations will make it difficult to establish that change has occurred. It is all the more important to identify patterns within as many communities and cultures as possible in order to identify the route such change might take.

Data were gathered to investigate three hypotheses: that a majority of 4–5-year-old children in the study would express real job aspirations; that the degree to which these aspirations were sex typed would not differ between boys and girls; and that sex typing, if it exists, is due to identification with same sex, rather than rejection of opposite sex.

method

participants

The participants were 84 children attending a kindergarten (pre-school) in urban Melbourne, Australia, and their parents. Although the kindergarten is affiliated with a university, entry is open both to those within and outside the university community. There were 45 boys and 39 girls in the group. All children were 4 or 5 years old; the average age for boys was 58.1 months, and for girls 58.3 months.

procedure

Parent participation included giving consent to the participation of their children, and completing a questionnaire. Children participated in an individual interview conducted within a classroom where their peers were involved in other activities. Children were informed that they could withdraw from the activity at any point. The interviewers were postgraduate students. The majority of the children also completed a cognitive assessment task.

materials

The 10–15 minute interview with each child was structured around 11 questions about work, such as ‘what is work’, ‘what job would you like to do when you grow up’, ‘what jobs would you not want to do’, ‘does everyone you know, work’, and so on. Verbatim transcripts were made of the children’s responses.

The parent questionnaire contained 22 questions concerning their socio-economic status, employment and education, and educational expectations for their child, as well as questions directed at eliciting how much knowledge their children had about the parents’ work or workplaces.

analysis

Child aspirations (for both wanted and unwanted jobs) and parent occupations were coded according to three sets of criteria. The first of these was the Australian Standard Classification of Occupations, Second Edition (ASCO; ABS, 1997). ASCO defines a job as a ‘set of tasks designed to be performed by one individual in return for a wage or salary’ (ABS, 1997: 5). Child aspirations that did not fit the definition of a job used in ASCO were classified as ‘parent’ if centred on domestic duties, ‘student’ where the child aspired to study as a future job, ‘fantasy’ if no such occupation existed (such as a fictional character), or ‘don’t know’.

The ANU4 scale (Jones and McMillan, 2001) is a measure of socio-economic status ranging from 0 to 100. The measure has been developed on the basis of level of education required for performance in an occupation, and income earned, and takes into account cognitive complexity of tasks involved in the particular occupation. The highest score of 100 describes Medical Practitioners; a score of 72 represents a level at which one would find members of an occupational group such as nursing professionals; a score of 43 represents, for example, electricians, and a score of 19, store persons. The ANU4 scale was used as an indicator of socio-economic status of the families participating. Child aspirations and parent occupations were also coded for sex type on the basis of census data from the Australian Bureau of Statistics (ABS; 2001) data for the state of Victoria, where the participants lived. An occupation was classified as male or female for sex

type if 70 per cent or more of the workforce for that occupation was of the one sex; other occupations were coded to neutral sex type.

results

The parent questionnaire was returned by parents of 79 children, 75 of these living with both mother and father. Not all questions were responded to by all parents. Nearly all families (98%) spoke English at home. Full-time employment was the norm for fathers (81%), with 8 per cent in part-time employment, 8 per cent missing, and the two remaining a student and unemployed, respectively. For mothers, part-time employment was most common (54%), with 32 per cent in full-time employment, 3 per cent studying and 6 per cent occupied with domestic duties, and 6 per cent missing. The average ANU4 score for fathers' paid occupations was 71.1 ($SD = 18.6, N = 43$) while mothers' paid occupations had a mean score of 72.3 ($SD = 20.4, N = 39$).

In terms of sex type of parent occupations, 45 per cent of fathers worked in male occupations, 6 per cent in female, and 49 per cent in gender neutral occupations. Of mothers, 21 per cent worked in male occupations, 22 per cent in female, and 57 per cent in gender neutral.

All of the mothers who were working described themselves as generally satisfied with their paid job as did most fathers. However, 6 of 42 fathers were not satisfied in their work roles.

In terms of education, 62 per cent of fathers had a Bachelor degree or higher qualification, 5 per cent had a Diploma, 7 per cent had an Advanced Trade Certificate and 26 per cent had completed up to secondary school. Education levels were slightly higher for mothers: 73 per cent had a Bachelor degree or higher qualification, 9 per cent had a Diploma, 4 per cent an Advanced Trade Certificate, 2 per cent had a Trade certificate, and 11 per cent had completed up to Secondary school. Most parents (88% of fathers and 90% of mothers) hoped that their children would attain a Bachelor degree or higher in the future.

table 1 frequencies of children's aspirations across categories and sex type

	Real job Male	Real job Female	Real job Neutral	Fantasy job	Parent	Student	Don't know	Total
Boys	18 40%	1 2%	10 22%	7 15%	0 0%	1 2%	8 18%	45 100%
Girls	8 21%	7 18%	16 42%	2 5%	4 10%	0 0%	1 3%	38 100%
Total	26 31%	8 10%	26 31%	9 11%	4 5%	1 1%	9 11%	83 100%

The first hypothesis was that most children in Stage 1 would have realistic occupational aspirations. As shown in Table 1, 60 children (72%) named real jobs as aspirations, and 9 children (11%) named a fantasy aspiration. The first hypothesis was supported: most of the children in this sample could nominate a realistic job as an aspiration. Boys were less likely ($p = 0.004$) to nominate a real job (64%) than girls (82%).¹

The second hypothesis was that there would be no clear differences between boys and girls in terms of the degree to which their aspirations were sex typed. Data presented in Table 1 indicate that the clear majority of boys who aspired to real jobs named male occupations. Girls' real job aspirations were evenly spread across male, female and gender neutral careers. The second hypothesis, that sex type of occupational aspirations would not differ for boys and girls, was not supported. In fact, boys and girls differed significantly ($c^2 = 9.67$, $p = 0.008$). The 14 boys who named a real job selected ten different occupations. The most popular choices for boys were: Firefighter (selected by 3 boys), Police Officer (2) and Doctor (2). The 20 girls who named a real job chose a total of 15 different occupations. The most popular choices for girls were: Doctor (2), Nurse (2), Journalist (2), Dancer (2), Police Officer (2).

The third hypothesis concerned the issue of whether sex typing of aspirations, if it exists, is due to identification with same sex models rather than to rejection of opposite sex models. To test this hypothesis, children's knowledge of their parents' occupations was recorded, and direct match between aspirations and parent occupations was examined, as well as children's nominations of jobs they would not want.

table 2 frequencies of childrens' knowledge about their parents' occupations

Father's work	Real job title	Location/ employer	Activity or object related	Domestic role	Don't know/ uncodable	Totals
Boys	12 30.0%	3 7.5%	19 47.5%	1 2.5%	5 12.5%	40 100.0%
Girls	13 36.1%	5 13.9%	11 30.6%	1 2.8%	6 16.7%	36 100.0%
Total	25 32.9%	8 10.5%	30 39.5%	2 2.6%	11 14.5%	76 100.0%
Mother's work	Real job title	Location/ employer	Activity or object related	Domestic role	Don't know/ uncodable	Totals
Boys	11 27.5%	6 15.0%	12 30.0%	4 10.0%	7 17.5%	40 100.0%
Girls	13 35.1%	6 16.2%	8 21.6%	3 8.1%	7 18.9%	37 100.0%
Total	24 31.2%	12 15.6%	20 26.0%	7 9.1%	14 18.2%	77 100.0%

As shown in Table 2, just over 30 per cent of children knew their parents' occupational titles. About 50 per cent of children could name an identifying occupational activity, location or employer of their fathers, and about 40 per cent similarly for their mothers. Although there were some differences between boys and girls, both were more aware of identifying occupational activities of fathers than mothers. Girls tended to be more aware of the job location or employer of their parents than of identifying activity, with boys exhibiting the converse. Girls were slightly more aware than boys of either parent's job. Therefore, just over 80 per cent of the children had sufficient knowledge to identify with their parents' occupations.

Five boys' aspirations matched their fathers' jobs, and two boys' aspirations matched the jobs of both parents; four girls' aspirations matched their fathers', three girls matched their mothers, and three matched both parents. All the aspirations presumed tertiary qualifications, apart from two of the girls' aspirations for their fathers' occupations – Real Estate Agent and House Builder. Twenty per cent of the total 84 children expressed a direct match between their aspirations and their parents' occupations; of the group of children who expressed some knowledge of their parents' occupations, 25 per cent expressed a direct match. The majority of named aspirations involved computing and medical practice (both gender neutral), with girls also nominating 'being a writer in a newspaper [like my mother]' (gender neutral), 'Nurse' (female type), and 'Real Estate Agent' and 'House Builder' (male type).

Children's nominations of jobs they would not want, were also collected and coded for sex type. As can be seen in Table 3, although both boys and girls tended to be more averse to female type occupations than male, this was not a strong predisposition ($c^2 = 2.8, p = 0.25$).

discussion

Most children in our sample had realistic occupational aspirations, a finding consistent with Gottfredson's theory. The proportion of girls stating a real job or an adult role as their first choice is greater than earlier studies such as that of

table 3 frequencies of children's unwanted aspirations by sex type

	Male	Neutral	Female	Total
Boys	9	6	14	29
	31%	21%	48%	100%
Girls	4	9	17	30
	13%	30%	57%	100%
Total	13	15	31	59
	22%	25%	53%	100%

Nelson (1978), who found that just over 50 per cent of 3–4-year-old girls named fantasy aspirations. The 11 per cent rate of fantasy aspirations in our sample was also lower than the 21 per cent fantasy aspirations found by Trice et al. (1995), who used similar methods of data collection as those employed in this study. The substantial majority of girls in this study named a real job or parental role as their first aspiration. Boys were more likely than girls to give a fantasy or 'don't know' response. Whether the difference between this and previous studies is due to societal changes in young children's acquaintance with the world of work, or whether an idiosyncrasy of this particular group of children and parents is not known. These children are attending a centre, which while offering an early years program, also functions as a crèche or long day care child facility. The majority of children attending have parents who both work, either full or part time. It is therefore possible that the meaning of work is more apparent to these children than might be the case for children whose parents do not need to place them in care for work-related purposes.

Gottfredson (2002) makes no distinction between sex stereotyping of aspirations between boys and girls in Stage 1. However, in a review of the literature from the early seventies to the middle nineties Helwig (1998) reports that most studies indicate that the aspirations of boys at all grade levels are more strongly sex typed than those of girls. In our sample the boys' aspirations were clearly sex typed in favour of male jobs. The girls aspired to jobs which were gender neutral twice as much as they aspired to either male, or to female occupations. This is an interesting finding, but without sufficient evidence to assume an underlying trend. Given the consistency with which boys' aspirations appear to be sex typed to a greater degree than those of girls, further reflection on differential attraction to same sex type for children in Gottfredson's Stage 1 is warranted. The results are consistent in part with Gottfredson's proposition that children in Stage 1 are attracted to the activities of same sex adults; however, this is the case for boys only – not for girls.

The girls were attracted to and aware of jobs across the gender spectrum, a finding that appears at first to be contrary to Gottfredson's proposition. An alternative interpretation is that the girls in our sample were influenced by the particular profile of their mothers' occupations. The parent group in this study were highly educated, giving both fathers and mothers access to higher status occupations, many of which tend traditionally to be either male type or neutral. From this perspective, the pattern of the girls' aspirations across male, neutral and female occupations could be explained in part as a reflection of their mothers' occupations. This interpretation would be consistent with Gottfredson's (2002) proposition that children are attracted to the activities of the same sex parent. Bandura et al. (2001) found that increases in socio-economic status raised parents' academic aspirations for their adolescent children as well as the belief in their

efficacy to promote their children's academic development. Consequently, children of families with higher socio-economic status had stronger beliefs in their academic, social and self-regulatory efficacy, which served to promote their occupational self-efficacy. In an analysis of gender differences, Bandura et al. found that perceived occupational self-efficacy predicted the traditionality of career choice. That a substantial proportion of the mothers in this study work in male and gender neutral jobs may develop a family culture that encourages girls to be open to all occupations, including those that are traditionally male. Such families may foster a general social trend towards greater equality and participation for women in the workforce, or may be distinct from the mainstream. In this regard it would be informative to investigate the aspirations of children whose parents are less well educated and whose mothers possibly hold more traditional female occupations.

Clearly the development of a family culture such as that described, is not affecting the aspirations of the boys in our sample. It may be boys are more influenced by same sex models in the wider community (which may also account for the greater proportion of boys with fantasy aspirations). Alternatively, it may be that such a culture is only emphasized for girls. That the girls were more aware than the boys of their parents' occupations suggests that they are picking up more clues from their immediate family environment, either intuitively or with encouragement. This is also reflected in the slightly greater proportion of girls aspiring to a parent's job. Of interest is the relatively high proportion of children who aspired directly to their parents' occupations. This proportion is noticeably greater than reported, for example, by Trice et al. (1995) with their North American sample. In their case, match was reported in terms of Holland code rather than specific occupation, which former method would presumably inflate match rather than the opposite. Another study by Trice (1991) did report a relatively high level of matches, with 41 per cent of early childhood aspirations matching fathers' occupations. However, these data were collected retrospectively, and hence were subject to the vagaries of memory. Thus the relatively high proportion of direct matches found here is of interest. Perhaps, as with the explanation offered for male type of many of the girls' occupations, the self-conscious nature of the children's attendance at the long day care facility may have brought about a general increase of awareness of the children in their parents' adult roles.

In order to investigate whether it was possible to determine if children's aspirations might be influenced by rejection of opposite sex identity, children were asked to nominate jobs they would not want. Although Gottfredson argues that children in Stage 1 have a generally positive view of most occupations, a substantial proportion of Stage 1 children seemed capable of rejecting specific jobs. Forty-eight per cent of the boys rejected female jobs, with 31 per cent nominating male, and 21 per cent nominating neutral jobs; 57 per cent the girls

rejected female jobs, with 13 per cent nominating male and 30 per cent nominating neutral. The pattern of these proportions for boys and for girls differs from wanted jobs, with a comparatively clear rejection of female type jobs by both groups.

Boys tended to reject fewer male jobs than they expressed preference for, and rejected more female jobs than they expressed preference for. This exaggeration of their sex type preference patterns could be interpreted as evidence that Gottfredson's Stage 2 development is already in evidence for these kindergarten age boys. Maintenance of the preference pattern in the rejection pattern would have been seen as supportive of her developmental stages. The kindergarten girls rejected more female jobs than they expressed preference for, and rejected fewer male jobs than they expressed preference for. There is no evidence here for identification with same sex on the basis of opposite sex rejection. Hence, there appears to be differential patterning for boys and girls in terms of sex typing of occupational paths, with girls' preferences relatively uninfluenced by sex type in comparison with their male peers.

The differences between the sex stereotyping of boys' and girls' aspirations raise the issue of prestige. It is widely known that more female type jobs fall at lower prestige levels than do male sex type jobs. Gottfredson (2002), however, proposes that the influence of prestige on aspirations does not come into play until later in children's development. The pattern of rejection by these children at a relatively early age, requires further investigation, both in terms of testing the proposal that Stage 1 children tend to be positive about a majority of occupations, as well as looking at the possibility of influence of prestige at a developmental stage earlier than that previously supposed.

conclusion

This study began with the insights provided by Gottfredson's theory into the earliest stage of career aspirations. She proposes that between 3–5 years of age children will outgrow expressing magical or fantasy aspirations for their future, and will start mentioning what adults regard as realistic occupations for their future roles. Gottfredson also describes a process wherein children will identify with same sex adults, and express preferences for their same sex roles during this early period of life. This same sex adult role preference will be developed through identification with same sex adult, rather than – as later in life – due to rejection of the opposite sex.

The children who participated in this research provided data which were used to inform Gottfredson's proposals. It was found that more than 70 per cent of the four-to five-year-old children in our sample aspired to real 'adult' jobs, with 11 per cent nominating fantasy aspirations; indicating strong support for Gottfredson's

developmental approach. Gottfredson's dual proposal that the aspirations of children in Stage 1 are clearly sex stereotyped, and that this is due to their attraction to the activities of same sex adults, was clearly supported for boys but not for girls. Girls preferred neutral or male type jobs to female type jobs, and there was no evidence for identification with same-sex adult roles on the basis of opposite-sex rejection. This sex difference is not included in Gottfredson's theorising, and is one of major interest. One explanation for the difference is that it may be that there has been a general shift in society wide perceptions about the range of jobs which are accessible for females, although the actual sex split across many of these occupations has not yet altered sufficiently for the sex type attribution to be affected. Alternatively it could be that the girls in our sample were attracted to the activities of their atypical mothers, and that the tendency to favour opposite sex type occupations was influenced by parental modelling and encouragement. This possibility brings to the fore questions concerning societal changes in the roles of men and women, with the repercussions this will have for how our children see their futures.

The particular socio-economic status of the children who participated in this study and the possibility that it accounts for some of the gender differences found, is a timely reminder of issues raised by Gottfredson (2002) concerning implications of prestige and sex type of occupations for the circumscription of occupational aspirations. In future research, it will be important to incorporate greater consideration of socio-economic factors when analysing the aspirations of children and adolescents. For example, there is no evidence to indicate whether young Australians born to parents of lower occupational status would express aspirations similarly patterned to those reported in this study. Are we dealing with society-wide patterns or those specific to particular communities?

There are also complexities involved in establishing the degree to which children, and adults, identify with same sex roles on the basis of attraction rather than rejection of other-sex roles. Although the strategy of analysing both preferred and unwanted jobs by sex role is one avenue to investigate this issue, it is not without its weaknesses. The issue is important insofar as it might influence the circumscription of children's choices inappropriately; for example, if children reject an occupational role primarily due to the perception of it being identified with the 'other' sex.

Gottfredson's theory provides an excellent framework within which to examine the developing interests and understandings of young children about the working world in which they grow. The varied findings both from this report and others, provide a rich basis from which to investigate the complex developmental pathways of our children.

note

1. Goodman and Kruskal tau = 0.15, Exact Tests, for gender.

references

- Auger, R. W., Blackhurst, A. E. and Wahl, K. H. (2005) 'The Development of Elementary-Aged Children's Career Aspirations and Expectations', *Professional School Counseling* 8(5): 322-30.
- Australian Bureau of Statistics (1997) *ASCO Australian Standard Classification of Occupations, Second Edition*, Australian Bureau of Statistics, Canberra.
- Australian Bureau of Statistics (2001) *Census of Population and Housing; Occupation by Sex (a) - Persons (CC55)*, Australian Bureau of Statistics, Canberra.
- Bandura, A., Barbaranelli, C., Caprara, G. V. and Pastorelli, C. (2001) 'Self-efficacy beliefs as shapers of children's aspirations and career trajectories'. *Child Development* 72 (1): 187-206.
- Gottfredson, L. S. (1981) 'Circumscription and compromise: A developmental theory of occupational aspirations [Monograph]'. *Journal of Counselling Psychology* 28: 545-79.
- Gottfredson, L. S. (1996) 'Gottfredson's theory of circumscription and Compromise', in D. Brown and L. Brooks (eds) *Career Choice and Development*, 3rd edn., pp. 179-231. San Francisco: Jossey-Bass.
- Gottfredson, L. S. (2002) 'Gottfredson's theory of circumscription, compromise, and self-creation', in D. Brown (ed.) *Career Choice and Development*, pp. 85-148. San Francisco: Jossey-Bass.
- Hartung, P. J., Porfeli, E. J. and Vondracek, F. W. (2005) 'Child vocational development: A review and reconsideration'. *Journal of Vocational Behavior* 66: 385-419.
- Helwig, A. A. (1998) 'Gender-role stereotyping: Testing theory with a longitudinal Sample', *Sex Roles* 38 (5/6): 403-23.
- Henderson, S., Hesketh, B. and Tuffin, K. (1988) 'A test of Gottfredson's theory of circumscription'. *Journal of Vocational Behaviour* 32: 37-48.
- Holland, J. L. (1997) *Making Vocational Choices: A Theory of Vocational Personalities and Work Environments*. Psychological Assessment. Resources, Odessa, FL.
- Jones, F. L. and McMillan, J. (2001) 'Scoring occupational categories for social research: A review of current practice, with Australian examples'. *Work, Employment & Society* 15(3): 539-63.
- Lapan, R. T. and Jingeleski, J. (1992) 'Circumscribing vocational aspirations in junior high school'. *Journal of Counselling Psychology* 39: 81-90.
- McMahon, M. and Patton, W. (1997) 'Gender differences in children and adolescents' perceptions of influences on their career development'. *The School Counselor* 44(5): 368-77.
- Naylor, F. D., Elsworth, G. R., Care, E. and Harvey-Beavis, A. (1997) 'Sex, status, and generic interests in fields of work, parents and offspring, and fields of study'. *Australian Psychologist* 32 (1): 12-18.
- Nelson, J. N. (1978) 'Age and sex differences in the development of children's occupational reasoning'. *Journal of Vocational Behavior* 13: 287-97.

- Trice, A. D. (1991) 'A retrospective study of career development: I. Relationships among first aspirations, parental occupations, and current occupations'. *Psychological Reports* 68: 287-90.
- Trice, A. D. and Tillapaugh, P. (1991) 'Children's estimates of their parents' job satisfaction'. *Psychological Reports* 69: 63-6.
- Trice, A. D., Hughes, M. A., Odom, C., Woods, K. and McClellan, N. C. (1995) 'The origins of children's career aspirations: IV. Testing hypotheses from four theories'. *The Career Development Quarterly* 43(4): 307-15.

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