

Concern about lost talent: support document

JOANNA SIKORA
LAWRENCE J. SAHA

AUSTRALIAN NATIONAL UNIVERSITY

This document was produced by the authors based on their research for the report *Lost talent? The occupational ambitions and attainments of young Australians*, and is an added resource for further information. The report is available on NCVER's website: <<http://www.ncver.edu.au>>.

The views and opinions expressed in this document are those of the authors and do not necessarily reflect the views of the Australian Government, state and territory governments or NCVER. Any errors and omissions are the responsibility of the authors.

© Australian Government, 2011

This work has been produced by the National Centre for Vocational Education Research (NCVER) on behalf of the Australian Government and state and territory governments with funding provided through the Australian Department of Education, Science and Training. Apart from any use permitted under the *Copyright Act 1968*, no part of this publication may be reproduced by any process without written permission. Requests should be made to NCVER.

Contents

Concern about lost talent	3
Recent conceptualisations of lost talent	4
Prior studies of students' expectations	5
References	12

Concern about lost talent

The purpose of this supplement is to provide greater detail about the background of research into the topic of human talent in society. This body of research has, at one time or another, focused on talent utilisation, but more often has been concerned with talent loss. The concern with lost talent has a long history. By the mid- 20th century, researchers were already concerned about the many persons who were not attaining the level of their potential innate ability, whether it be students attending school or university, people obtaining relevant skills, or those attaining occupations. Much of this concern about talent loss was implicit in the theories of human capital and in the development of strategies (for example, the provision of education, health, and other basic human needs) to improve the productive performance of the reserves of talent of both individuals and societies (Becker 1975; Denison 1962; Woodhall 1994). Most of the early concerns about reserves of talent focused on the importance of material needs for talent utilisation, but it was McClelland (1961) who argued that social psychological variables, such as motivation and need for achievement, are also important factors in the development of human potential. The under-utilisation of potential human resources has been seen to negatively affect both individuals and societies, particularly as technologies, organisations and economies become more complex.

An early conceptual concern about the loss of human resources emerged from educational research. Husen (1960), one of the foremost educational researchers of the 20th century and architect of the Swedish comprehensive education reforms of the 1960s, was one of the first to attempt a systematic study of lost talent. He argued that selective school systems contributed to talent wastage in society by early selection into programs or streams, which did not provide any possibility of movement between programs, thus preventing later opportunities for talent development and utilisation. For Husen, school dropouts and early leaving were symptoms of talent wastage, and comprehensive schools were seen as one means of lowering talent wastage.

Husen's notion of talent and his concern for its wastage was based on a belief in innate ability, at that time usually conceptualised as IQ. Subsequent research took a more malleable ability perspective and focused on students who possessed innate ability, but who were at risk of not developing that ability due to factors that inhibited their continuance in school systems. For the most part, it was recognised that the greatest talent loss defined in this way occurred among students with lower levels of economic, social and cultural capital. A primary strategy for alleviating this loss was the provision of resources unavailable to students at home, through the school system, and the improvement of support provided by school counsellors and others who had influence over school students (Jordan & Plank 2000; Plank & Jordan 1997). Implicit in these concerns has been the relationship between education and the occupational structure of society, and, in particular, the processes which crystallised social inequality among students, leading to differentials in upward mobility.

Following Husen's approach, studies of loss of talent, characterised by premature school leaving, have identified many explanatory variables, including those related to ambition and motivation, as well as to educational and occupational aspirations and expectations. These represent the social psychological dimensions of lost talent. Moreover, it is possible to conceptualise lost talent, from a structural perspective, as the social structural constraints or barriers which can prevent entire groups of people from potential talent usage. Thus, there are many potential meanings or conceptualisations of lost talent that deserve consideration in educational research.

A common feature of studies in the lost talent tradition is the recognition that youth is a particularly important life course stage, in which individuals develop a more mature and critical approach to their own ability, as well as to their future career trajectories (Holland 1997; McMahon & Watson 2008; Turner 1964). During this period, young people begin to develop more realistic ideas about potential occupational destinations, based on both their own experiences as well as their growing knowledge about society (Helwig 2008). A process of anticipatory socialisation begins and through this process, adolescents begin to prepare for their expected occupational destinations by acquiring necessary educational credentials (Turner 1964). Thus, although vocational knowledge develops in all stages of childhood, the expectations formed in secondary school are of particular significance, not only because this is a time at which important decisions about the future are made, but also because this is when young people are more aware of structural constraints likely to impinge on their chances of success (Helwig 2008). Therefore, much of the empirical literature in this area has focused on adolescents who have commenced the last stage of their compulsory schooling (Feliciano & Rumbaut 2005; Mello 2008; Patton & Creed 2007a; Rindfuss, Cooksey, & Sutterlin 1999). In this report we also focus on plans of youth who were approximately 15 years old in 1998 in this report, and expect these plans to be significantly related to the students' later occupational destinations.

Recent conceptualisations of lost talent

It is easy to think of lost talent in Husen's initial conceptualisation, namely premature school leaving and other forms of educational underachievement or under-attainment. Whenever young people under-achieve or under-attain, one can argue that both the individual and society are deprived of the full utilisation of potential talent. For the individual, the loss of talent utilisation or mobilisation can mean a lower self-image or self-esteem, or even ongoing frustration (Post 1990). For the society, the loss of talent can mean the loss of productivity or some form of social discontent (Carnoy 1994). But these concerns require an assumption that ambitious youth have the ability to achieve to their desired level. Initially, not everyone agreed with the view that adolescent aspirations and expectations were realistic and stable correlates of attainment. Some regarded the concepts of aspirations and expectations as 'flights of fancy' (Alexander & Cook 1979). Nevertheless, empirical studies in the 1970s and 1980s tended to find positive links between these two variables and later attainments. For example, students who could articulate specific vocational plans while still in school had a better chance of getting ahead compared to those who did not have plans. This relationship was found in Canada (Porter, Porter & Blishen 1982), Australia (Carpenter & Fleishman 1987; Saha 1983), the United States (Haller, Luther, Meier & Ohlendorf 1974), Costa Rica (Haller & Portes 1973), and Brazil (Hansen 1973). More recent studies have documented similar patterns for different groups such as immigrant Americans (Feliciano & Rumbaut 2005) and class-differentiated Canadians (Jacobs, Chhin & Bleeker 2006). Similarly, a longitudinal British study found that adolescents who had specific vocational plans were more likely to achieve their goals, particularly if they had good academic results and their parents worked in similar occupations (Croll 2008).

These studies of the relationship between expectations and attainment demonstrate that youth plans are not merely flights of fancy. The processes in which initially ambitious plans are lowered or not realised, as youth progress through subsequent stages of education and reach the labour market, deserve serious attention. The study of these processes makes up the body of knowledge in the 'lost talent' scholarship.

The five understandings of lost talent

The literature which informs this report, and which we discuss in more detail in sections that follow, has produced at least four operational definitions of lost talent. All are based on the assumption that it is precisely students with above-average academic performance who can experience talent loss. For such students, lost talent is conceptualised as 1) lowered educational expectations, 2) lowered occupational expectations, 3) unrealised educational plans, or 4) unrealised occupational plans. These definitions come directly or indirectly from the seminal study of lost

talent by Sandra Hanson. She argued that lost talent occurred when students who showed early signs of ability, defined as above-average academic performance either 1) had their expectations fall short of aspirations, 2) had their expectations decline over time, or 3) were not able to realise earlier expectations (Hanson 1994, p.159).

Hanson also identified the disparity between aspirations and expectations, i.e. less realistic and more realistic plans, as a fourth form of lost talent. We discuss this important distinction in the next sub-section. In our analysis, however, we have chosen not to consider this particular understanding of talent loss for two reasons. Firstly, the existing literature supports the view that it is expectations rather than aspirations that are better predictors of young people's attainments (Goyette 2008; Saha & Sikora 2008; Saha 1997). Secondly, the LSAY98 data do not contain a variable which measured youth aspirations. A measure of expectations alone is available to us.

We do, however, add to the conceptualisation of Hansen, and argue that there is a fifth form of lost talent related to gender differences, namely that which occurs when the disparity between the occupational expectations of boys and girls is less than it is in occupational attainments. This form of lost talent relates to gender segregation and is included in our analysis.

Youth motivation: aspirations and expectations

As we pointed out above, it is essential to distinguish aspirations from expectations in the study of adolescent motivation. Long before Husen's path breaking research on talent loss, Frank (1935a; 1935b), a social psychologist recognised that strong motivational forces were contained in the aspirations that young people held about aspects of their future. By the 1950s, social psychologists had begun to differentiate between aspirations and expectations, which they defined as either less or more realistic future plans (Caro & Pihlblad 1965; Empey 1956). This conceptual distinction was often regarded as a recognition that there were certain limitations in what a person would like to attain (for example, an awareness of 'obstacles' to attaining what one wanted), compared to what they 'expected' to attain. Twenty years later, these two concepts had become key variables which explained the path to occupational destinations in the studies of the intergenerational transmission of social inequality (Haller 1982; Haller, Luther, Meier & Ohlendorf 1974). Generally speaking, a person's 'aspirations' came to be defined as what a person aspired to, irrespective of social, cultural or structural obstacles. On the other hand, 'expectations' came to be defined as a realistic assessment of what a person might achieve or do. In both cases, research focused on youth, with the idea that these 'motivational' characteristics had predictive value in their eventual attainments as adults. The research has generally supported this focus, but has also found that expectations are better predictors of attainments than aspirations (Goyette 2008; Saha & Sikora 2008; Saha 1997).

Prior studies of students' expectations

A large body of literature concerning the future expectations of young people has emerged from the 1960s to the present time. For a detailed review of this literature, see Saha (1997), and Saha and Sikora (2008). This literature falls within three paradigms; namely, the socialisation paradigm, the social stratification paradigm, and the career development paradigm. The first two paradigms have developed largely within the discipline of sociology, while the latter has flourished within developmental psychology.

The literature in the socialisation paradigm has focussed on how expectations are instilled through various socialisation agents such as family, school, peers and the media. By contrast, the stratification approach focuses on how expectations facilitate the process of social selection and allocation into the stratification system of a society. This paradigm emphasises the role of the structural constraints which facilitate or impede the realisation of expectations. The career development paradigm focuses on the individual young person's cognitive and social development, a period during which school counsellors advise students about future occupational options. Developmental psychologists have largely taken their lead from John Holland's theory of

vocational choice, in which school counsellors were given the role of helping students to match vocational plans with the young person's particular personality traits (Holland 1997; Ojeda & Flores 2008; Schultheiss 2008). Over 40 years ago, it was recognised that school career counsellors hold key 'gatekeeper' positions in giving career advice to school students (Cicourel & Kitsuse 1963; Rothman & Hillman 2008). Thus, research on the plans of young people within this paradigm has grown out of developmental psychology, where cognitive and personality traits are seen as being related to an appropriate 'fit' with particular occupations. School counsellors use this research knowledge not only to try to match individuals with particular career possibilities, but to help individuals negotiate the societal constraints which may impede the attainment of these occupations.

The stratification tradition of research into educational and occupational attainments gained momentum with the first publication of the influential Wisconsin study in the USA in the late 1960s. Based on the Blau-Duncan model of intergenerational occupational mobility, it highlighted the influence of significant others, i.e. peers and family members, in addition to occupational and educational aspirations on future employment (Sewell, Haller, & Portes 1969). Many empirical studies of student attainment in the USA and across the world drew inspiration from the Wisconsin study, in which family background was conceptualised as the key factor in shaping students' plans. The Coleman Report, published in the USA in the 1960s, was also interpreted as evidence that family background was decisive in shaping students' perceptions, rather than school environment (Coleman 1990). In other words, what could appear to some as individual preference was seen within this model as an indirect influence of the socio-economic background of family of origin and peer groups. Within this tradition, Kerckhoff's allocation and rational action theory both came to regard the individual student as a rational agent, whose recognition of structural constraints results in formulating and adhering to specific plans concerning future educational and occupational trajectories (Breen & Yaish 2006; Kerckhoff 1976). Moreover, later studies in the attainment tradition recognised the influence not only of individual expectations as reflections of the socio-economic status of the family of origin, but also of the degree of stratification within the school system (i.e. tracking, streaming etc), in addition to macro-economic conditions (for example, the level of economic development, unemployment and the expansion of the skilled services sector) (Buchmann & Dalton 2002; Buchmann & Park 2009; Sikora & Saha 2007).

One prominent finding of the studies of occupational expectations is that all high school students are very ambitious. A large proportion of them expect to work in one of the highly skilled professional occupations, even though it is clear from the proportion of skilled professionals in the labour force that not all will attain those occupations. This high ambition level is the case for young men and women, students of humble origins and the children of the elite, those of immigrants, and for locally born students too. Trend comparisons indicate that, at least in the USA, ambition levels have risen considerably among younger generations of students (Beavis, Curtis, & Curtis 2005; Goyette 2008; Sikora & Saha 2007; Sikora & Saha 2009). Consequently, some analysts warn against the possible negative consequences of these 'flights of fancy' at both individual and societal level (Alexander & Cook 1979; Reynolds, Stewart, MacDonald, & Sischo 2006). For example, excessive and unrealistic expectations have been recognised as detrimental to young people's self-esteem, as well as possibly resulting in more structural social problems, such as high levels of social discontent. This is because accommodation rates, i.e. employment opportunities, for young professionals, are significantly lower than what would be the case if all the hopefuls were employed in their career of choice (Croll 2008).

On the other hand, the moderation of initially ambitious expectations merits concern when students experience various forms of deliberate social exclusion which result in poor marks. This occurs when students with initial academic potential change their early educational choices, thus locking themselves out of an early start in a desired profession. While the option of further study as mature age students may remain open to them, an early entry into a higher-level career has many advantages (Lee & Miller 2004).

By contrast, some authors argue that ambitious expectations are a form of ‘insurance’ against dropping out of school, and thus should be seen as beneficial even if they remain unfulfilled (Feliciano & Rumbaut 2005). Moreover, in his analyses of LSAY95, Marks found that 45% of respondents worked in managerial and professional occupations around the time they were 24 years of age, which is a relatively high proportion (2008) (see also Appendix Figure1). Thus, at least in Australia, students’ plans may be in line with the rapid changes taking place in the labour market.

Australian researchers have also paid attention to the educational and occupational expectations of adolescents, but despite a number of studies, there are none devoted to lost talent as a concept and none which examined the relative importance of occupational plans for young people’s occupational attainments. Nevertheless, several empirical studies were conducted on smaller samples of high school students in the developmental psychology tradition (Patton & Creed 2007a; Patton & Creed 2007b; Patton & McMahon 2001). Furthermore, a set of comprehensive reports examined the correlates and determinants of educational and occupational expectations of adolescents who were 15 years of age in 1995 and in 2000 (Beavis, Murphy, Bryce, & Corrigan 2004). These studies revealed that gender, academic ability and the vocational orientation of students were the best predictors of students’ post-school plans. Another study, based on the Learning for Life program data collected by the Smith Family, considered changes in students’ plans over time, i.e. between Years 10 and 12, and the consistency between educational and work plans (Beavis 2006) This study found that while some students were somewhat confused in planning their future, most had educational objectives which were fully compatible with entering their preferred occupation.

Cross-national comparative studies of occupational expectations carried out by Sikora and Saha (2007; 2009) complement the formerly described findings with the examination of global trends in the plans of adolescents who were 15 years old in 2000, 2003 and 2006, based on the Program for International Student Assessment (PISA) surveys. The authors of these surveys found that students across most countries tended to have very ambitious plans, shaped primarily by their academic ability, but also by socio-economic background, gender, the characteristics of their schools and the economic conditions in their local labour markets. These studies, however, were based on cross-sectional data trends alone, with the result that they could not provide direct information on the historical consequences of plans in the lives of particular individuals. Studies of students’ expectations and attainments, which trace what happens to youth over time, have been limited so far, particularly in Australia, but also overseas. Only several longitudinal research projects in the USA, and one in the UK has explored the links between expectations and attainments, and most concerned generations who came of age in late 1980s or 1990s (Croll 2008; Goyette 2008; Mello 2008; Reynolds, Stewart, MacDonald, & Sisco 2006; Rindfuss, Cooksey, & Sutterlin 1999).

This limitation in studies is mostly due to the paucity of suitable longitudinal data which would provide the necessary information about younger cohorts of students. This shortage of data has been noted particularly by the ‘lost talent’ researchers whose goal is not only to describe the relationship between plans and attainment, but also to document the impact of specific patterns of change in intentions (i.e. ‘warming up’, ‘cooling out’ and ‘holding steady’) on educational and occupational outcomes of youth (Alexander, Bozick, & Entwisle 2008; Hanson 1994; Rindfuss, Cooksey, & Sutterlin 1999).

Expectations and talent loss

How are educational and occupational expectations related to talent loss? A good illustration can be found in three studies authored by Hanson (1994), Trusty and Harris (1999), and Alexander, Bozick and Entwisle (2008).

Using the High School and Beyond data, Hanson found that 16% of the youth in her USA sample had educational expectations lower than aspirations (a finding we cannot compare), 27% had experienced reduced educational expectations between high school and beyond, and that the ‘loss of talent’ was higher for students with lower levels of economic, social and cultural capital. Hanson

argued that when talent loss is defined in these ways, it produced consequences on both an individual and societal level. She also proposed that although high expectations among all young people were universal, stratification systems enabled only some to realise them, while others were 'cooled out' by the school systems and broader societal factors.

Amongst various determinants considered by Hanson, low socio-economic status in the family of origin turned out to be the only significant predictor of talent loss. This was the case even after some differences in economic and cultural capital between girls and boys were taken into account. Other studies, following her conceptualisation (Trusty & Harris 1999), found that the most powerful predictor of lost talent was the low socio-economic position of a student's family. Much of the SES effect was mediated through the differential involvement of parents who provided resources to their adolescent children. But the effect of these family resources exacerbated the risk of talent loss of young men and young women to varying degrees. On the whole, studies within his tradition have consistently documented gender-specific differences in experiences of talent loss.

Alexander, Bozick and Entwisle (2008) analysed data from a group of youth in the Baltimore area and found that declining expectations were more common among disadvantaged youth. Nevertheless, some individuals with low resources persisted in their intention to finish university throughout their twenties despite various difficulties with enrolment and completion. The authors of this study identified three distinct patterns which characterised change in initial educational plans: warming up, holding steady and cooling out. 'Cooling out' is the institutional process often experienced by disadvantaged youth who receive signals that their educational and occupational expectations are unrealistic, given their resources or academic ability. 'Cooling out' is thus directly related to talent loss. In recognition of the rise of lifelong education ideologies and their impact on people's educational strategies, Alexander and his colleagues called for consideration of the relationship between plans and attainments not only in adolescence and early adulthood, but also for those at later stages of their life course.

Although we utilise Hanson's general conceptualisation of lost talent in our analysis of the Australian LSAY data, we can empirically consider only the second and third element of Hanson's definition, namely the downward adjustment of initially ambitious expectations, and a mismatch between occupational expectations and attainments in early adulthood. Moreover, we focus our attention primarily on the vocational plans of young people for reasons explained in the next section.

The focus on occupational expectations

One feature of the broad and interdisciplinary field of research in youth plans is that, in contrast with educational expectations, occupational plans have attracted relatively little attention. In particular, recent studies which empirically assess the impact of occupational plans on attainments in early adulthood are relatively rare at the international level (but see: Mello 2008; Rindfuss, Cooksey, & Sutterlin 1999), in contrast with research documentation of various factors affecting young people's expectations. In Australia, such studies for recent cohorts of young people are virtually non-existent.

It is conceivable that studies of occupational plans pose more technical difficulties to researchers because the data collection process necessitates the use of various job-coding schemes, and analyses are usually more seriously affected by missing data problems than studies of educational plans. Given these difficulties, the positive correlations usually found between educational and occupational goals researchers stopped at examining only educational plans but not their occupational equivalents.

Recent studies, however, point to the possibility of 'decoupling' the link between educational and occupational expectations and, consequently, also their outcomes (Goyette 2008; Reynolds, Stewart, MacDonald, & Sischo 2006; Tomlinson 2008). One line of argument proposes that educational expansion leads to the situation where university completion becomes less of a guarantee for obtaining high status employment (Goyette 2008: 465), particularly during economic crises.

Moreover, labour markets are becoming more flexible, with the result that the life long career model no longer applies to most young people. Nevertheless, occupational plans may be more salient than educational plans as determinants of attainments, and, as such, need to be investigated in their own right (Rindfuss, Cooksey, and Sutterlin 1999). Vocational objectives can be partly or entirely dissociated from educational goals if young people treat stages of educational completion as 'a next life stage' rather than a way to pursue a particular career.

While the LSAY data have been utilised to analyse the progression of Australian school students to higher education studies and occupational destinations, the data on their occupational expectations have been under-utilised. For example, Khoo and Ainley (2005) examined the educational plans of youth and found that student intentions to attend university were related to actual attendance. Marks, on the other hand, documented the pathways to full-time work by people who did not attend university, but he did not include the expectation variables in his model (2006). Curtis and McMillan (2008) did include educational and occupational expectations in their analysis of the LSAY data, but their primary focus was on the destinations of young people who did not complete school.

In contrast with these previous studies, our own approach focuses specifically on the importance of the expectations for eventual occupational destinations, a topic which, so far, has not been analysed with the LSAY data.

Our focus on occupational expectations, which, in general, have been less frequently considered than educational expectations, has the advantage of providing information on the ultimate destinations made possible by educational credentials. This has a considerable advantage over the study of educational expectations alone. One could even go so far as to question the relevance of educational plans in their own right. For example, some of the questions that cannot be answered in studies limited to educational plans include: 1) How important are early educational plans for entry into specific occupations? 2) What proportion of students make educational and occupational plans which are misaligned and unrealistic, and what are the consequences of these plans?, 3) Are students who, at age 15 cannot name their preferred occupational careers disadvantaged in their attainments, compared to similar age students who have clear educational and occupational objectives? 4) Can a study which matches early expectations to later actual attainments reveal to what extent individual decisions and labour market opportunities determine the career outcomes of young people?

It is natural to expect that educational and occupational plans are related to each other, and that some inferences can be made about the latter from the former. The 2003 PISA data reveal that the correlation between educational expectations, expressed as the plan to attend university, and occupational status (in the 22 countries in which both questions were asked) was $r=0.43$, while in Australia it was $r=0.53$ (Sikora & Saha 2007). This is comparable to the strength of association between educational credentials and occupational status within the adult working population (Sikora & Saha 2007). Indeed, since the time that studies of the two variables were first conducted, the strength of association has varied widely. The reasons for this variation are commonly sought by researchers. Thus, determinants and implications of adolescent plan-making can be understood best when, as in our approach, the dynamic interplay between educational and occupational expectations and attainments is considered in the perspective of an entire life course.

Individual and social structural characteristics that affect expectations

Factors which influence the formation of student expectations fall into two groups: 1) individual characteristics, and 2) school and wider social contexts. Because of this latter recognition,, the expectations of individuals have come to be seen in a more complex manner in recent decades, not only as the product of individual dispositions, but also as the result of a wide array of external influences, such as cultures and institutional opportunity structures inherent in classrooms, schools, or entire societies.

Gender and socio-economic background have been consistently found as strong correlates of ambitious educational and occupational expectations (Holland 1997; Patton & Creed 2007a; Patton & Creed 2007b). With respect to the former, comparative research has demonstrated that girls tend to plan for professional and managerial careers more readily than boys in most countries for which data are available (Buchmann & Dalton 2002; Sikora & Saha 2009).

While young men and women have been found to be equally ambitious in more recent years, studies devoted specifically to the implications of occupational expectations have had a particular focus on gender differences (Feliciano and Rumbaut 2005; Mello 2008). This may be explained by the fact that, although young men and women might share high levels of ambition, they are known to experience different trajectories in their transitions from education to work. In the USA, for example, Mello found that ambitious occupational plans formed in adolescence boosted the chances of early entry into professional occupations for men more than they did for women. One way of interpreting this finding is to conceive of women's labour market opportunities as more limited, and thus less related to individual plans, despite women's gains in educational achievement relative to men. In other words, one explanation might be that young women must strive to obtain university qualifications in order to obtain security, job autonomy, and labour market returns comparable to those available to men. But an insight into the relative role of individual preferences and structural factors in career plans made by both genders is not facilitated by the fact that women tend to choose and pursue occupations markedly different from those pursued by men. This is the case even if men's choices also fall into the same broad occupational category, such as the professions. Thus, what some might see as institutional constraints, others might interpret as the manifestation of young people's entrapment in persisting gender stereotypes.

Unsurprisingly, students with better literacy and numeracy skills, as attested by test scores, have more ambitious plans regarding both their future educational attainment and entry into more prestigious, professional occupations. In addition to the strong positive effects of academic ability and performance, home environments cultivated by highly educated professional parents instil in youth the expectation of working in high status professions. A range of attitudinal factors, such as the perceived locus of control, have also been suggested as relevant contexts which foster optimistic plans (Trusty & Harris 1999). Moreover, differences between cultural practices in different households also seem to influence young people's choices. For example, home environments enriched with books facilitate climates in which adolescents expect to have professional careers and corresponding life styles, which further strengthens their commitment to acquiring more education. Finally, the influence of peer groups and parental involvement in various school-related activities with adolescents contribute to the formation of specific vocational plans (Buchmann & Dalton 2002; Trusty & Harris 1999).

A multilevel analysis has found that these individual level effects are relatively powerful, especially when compared to school environments or other higher level structural contexts. Individual factors account for between 70 and 90% of the variance explained in multi-level models (Sikora & Saha 2007). In spite of the magnitude of individual effects, the additional contribution of higher order effects, i.e. school environments and the characteristics of national education systems is far from being considered trivial and, consequently, merits further research.

Conclusion

The topic of career plans of youth has, in one way or another, received sufficient attention from scholars to indicate that it is an important area of concern for a wide audience, including researchers, vocational counsellors, and education policy-makers. It is equally relevant for the individual students themselves, labour market planners, and ultimately for society as a whole. As we have noted in this supplement, the process whereby young people find their way into the workforce is complex and includes both individual and structural level processes. What this means is that no single-pronged policy will completely solve the issues related to the losses to individuals and to society when students with appropriate abilities are not able to utilise them in their adult working lives.

Yet, in spite of the extensive research which has been conducted, there remain some fundamental questions to be answered. We do know what young people say when asked about their educational and occupational expectations, and we also know some of the characteristics which are related to their responses. Yet, we still know little about the knowledge upon which these expectations rest. Furthermore we know little about how young people see the relationship between educational attainment and occupational attainment. Finally, we know very little about the social and psychological prior conditions or consequences to young people when their expectations are not met. We have suggested that there might be negative associations, such as personal depression, loss of self-esteem, or loss of motivation. But for the most part, studies have not investigated this important aspect of talent loss. What are needed are longitudinal data with the variables which specifically allow the examination of these issues. Only then will we more thoroughly understand the complexity of youth transitions from school to work, and the role of social psychological and structural facilitators and inhibitors to this process.

In spite of the above limitations, our study makes a valuable contribution to our knowledge of talent loss, and the fact that a non-trivial proportion of highly able young Australians during this decade either were lowering their educational and occupational ambitions, or not attaining them. In addition to documenting the extent of this phenomenon, we have also been able to show that this process does not happen randomly, but that it occurs particularly among students from lower socioeconomic backgrounds. Furthermore we have found that there was less gender segregation in occupational expectations than occupational attainments. This phenomenon, also a form of talent loss, deserves further study to fully understand the dynamics of this process. With these findings in mind, we are satisfied that our report will point the way to future studies in the important and strategic issue of talent loss and talent utilisation in Australia.

References

- Alexander, Karl, Bozick, Robert & Entwisle, Doris 2008, 'Warming up, cooling out or holding steady? Persistence and change in educational expectations after high school', *Sociology of Education*, vol.81, no.4, pp.371—96.
- Alexander, Karl L & Cook, Martha A 1979, 'The motivational relevance of educational plans: questioning the conventional wisdom', *Social Psychology Quarterly*, vol.42, no.3 pp.202—13.
- Beavis, Adrian 2006, 'On track? Students choosing a career. An investigation of educational and vocational plans of Learning for Life students A report prepared for The Smith Family', The Smith Family, Sydney.
- Beavis, Adrian, Curtis, David & Curtis, Niola 2005, 'What do students know about work? Senior Secondary Students' perceptions of the world of work', The Smith Family, Sydney.
- Beavis, Adrian, Murphy, Martin, Bryce, Jennifer & Corrigan, Matthew 2004, 'Post-school plans: aspirations, expectations and implementation: a report prepared for The Smith Family', Australian Council for Educational Research, Melbourne.
- Becker, GS 1975, *Human capital: a theoretical and empirical analysis, with special reference to education*, National Bureau of Economic Research, New York.
- Breen, Richard & Yaish, Meir 2006, 'Testing the Breen-Goldthorpe model of educational decision making', pp.232—58 in *Mobility and Inequality*, eds SL Morgan, DB Grusky, & GS Fields, Stanford University Press, Stanford.
- Buchmann, Claudia & Dalton, Ben 2002, 'Interpersonal influences and educational aspirations in 12 countries: the importance of institutional context', *Sociology of Education*, vol.75, no.2 pp.99—122.
- Buchmann, Claudia & Park, Hyunjoon 2009, 'Stratification and the formation of expectations in highly-differentiated educational systems', *Research on Social Stratification and Mobility*, vol.27, no.4 pp.245—67.
- Carnoy, Martin 1994, 'Education and productivity', pp.1690—95 in *The International Encyclopedia of Education: Second Edition*, vol.3, eds T Husen & TN Postlethwaite, Pergamon, Oxford.
- Caro, Francis G & Pihlblad, CT 1965, 'Aspirations and expectations: a re-examination of the bases for social class differences in the occupational orientations of male high school students', *Sociology and Social Research*, vol.49, pp.465—75.
- Carpenter, Peter G & Fleishman, John A 1987, 'Linking intentions and behavior: Australian students' college plans and college attendance', *American Educational Research Journal*, vol.24, no.1 pp.79—105.
- Cicourel, Aaron & Kitsuse, John 1963, *The educational decision-makers*. The Bobbs-Merrill Company, Indianapolis, Indiana.
- Coleman, James Samuel 1990, *Equality and achievement in education*, Westview Press, Boulder.
- Croll, Paul 2008, 'Occupational choice, socio-economic status and educational attainment: a study of the occupational choices and destinations of young people in the British Household Panel Survey', *Research Papers in Education*, vol.23, no.3 pp.243—68.
- Curtis, David D & McMillan, Julie 2008, 'School non-completers: profiles and destinations', Australian Council for Educational Research, Camberwell, Vic.
- Denison, EF 1962, *The sources of economic growth in the United States and the alternatives before us*, Committee for Economic Development, New York.
- Empey, Lamar 1956, 'Social class and occupational aspiration: a comparison of absolute and relative measurement', *American Sociological Review*, vol.21, no.6 pp.703—09.
- Feliciano, Cynthia & Rumbaut, Ruben G 2005, 'Gendered paths: educational and occupational expectations and outcomes among adult children of immigrants', *Ethnic and Racial Studies*, vol.28, no.6 pp.1087—118.
- Frank, Jerome D 1935a, 'Individual differences in certain aspects of the level of aspiration', *American Journal of Psychology*, vol.47, pp.119—28.
- 1935b, 'Some psychological determinants of the level of aspiration', *American Journal of Psychology*, vol.47, pp.285—93.
- Goyette, Kimberly 2008, 'College for some to college for all: social background, occupational expectations, and educational expectations over time'. *Social Science Research*, vol.37, no.2 pp.461—84.
- Haller, Archibald O 1982, 'Reflections on the social psychology of status attainment', pp.3—28 in *Social Structure and Behavior: Essays in Honor of William Hamilton Sewell*, eds RM Hauser, D Mechanic, AO Haller, & TS Hauser, Academic Press, New York.

- Haller, Archibald O, Luther, Otto B, Meier, Robert F & Ohlendorf, George W 1974, 'Level of occupational aspiration: an empirical analysis', *American Sociological Review*, vol.39, no.1 pp.113–121.
- Haller, Archibald O & Portes, Alejandro 1973, 'Status attainment processes', *Sociology of Education*, vol.46, no.1, pp.51–91.
- Hansen, David O 1973, 'Age variations in the formation of educational and occupational career goals of Brazilian youth: a cross-cultural test of the Wisconsin model', *Comparative Education Review*, vol.21, no.1 pp.37–50.
- Hanson, Sandra L 1994, 'Lost talent: unrealized educational aspirations and expectations among US youth', *Sociology of Education*, vol.67, no.3 pp.159–83.
- Helwig, Andrew A 2008, 'From childhood to adulthood: a 15-year longitudinal career development study', *The Career Development Quarterly*, vol.57, no.1, pp.38.
- Holland, John L 1997, *Making vocational choices: a theory of careers*, Psychological Assessment Resources, Odessa, Florida.
- Husen, Torsten 1960, 'Loss of talent in selective school systems: the case of Sweden', *Comparative Education Review*, vol.4, October, pp.70–4.
- Jacobs, Janis E, Chhin, Christina S & Bleeker, Martha M 2006, 'Enduring Links: Parents' expectations and their young adult children's gender-typed occupational choices', *Educational Research and Evaluation*, vol.12, no.2, pp.395–407.
- Jordan, Will J & Plank, Stephen B 2000, 'Talent loss among high-achieving poor students', pp.83–108 in *Schooling Students Placed at Risk*, ed. MG Sanders, Lawrence Erlbaum Associates.
- Kerckhoff, Alan C 1976, 'The status attainment process: socialization or allocation?', *Social Forces*, vol.55, no.2, pp.368–81.
- Khoo, Siek Toon & Ainley, John 2005, 'Attitudes, intentions and participation', Australian Council for Educational Research, Camberwell, Vic.
- Marks, Gary N 2006, 'The transition to full-time work of young people who do not go to university (Report no 49)', Australian Council of Educational Research, Camberwell, Victoria, <http://www.lsay.edu.au/publications/1837.html>.
- 2008, 'The occupations and earnings of young Australians: The role of education and training (Report No 55)', Australian Council of Educational Research, Camberwell, Victoria, <http://www.lsay.edu.au/publications/2106.html>.
- McClelland, David C 1961, *The achieving society*, The Free Press, New York.
- McMahon, Mary & Watson, Mark 2008, 'Introduction to the special section: children's career development: status quo and future directions', *The Career Development Quarterly*, vol.57, no.1, pp.4–7.
- Mello, Zena R 2008, 'Gender variation in developmental trajectories of educational and occupational expectations and attainment from adolescence to adulthood', *Developmental Psychology*, vol.44, no.4, pp.1069–80.
- Ojeda, Lizette & Flores, Lisa Y 2008, 'The influence of gender, generation level, parents' education level, and perceived barriers on the educational aspirations of Mexican American high school students', *The Career Development Quarterly*, vol.57, no.1, pp.84.
- Patton, Wendy & Creed, Peter 2007a, 'Occupational aspirations and expectations for Australian adolescents', *Australian Journal of Career Development*, vol.16, no.1, pp.46–58.
- 2007b, 'The relationship between career variables and occupational aspirations and expectations for Australian high school adolescents', *Journal of Career Development*, vol.34, no.2, pp.127–48.
- Patton, Wendy & McMahon, Mary 2001, *Career development programs: preparation for lifelong career decision making*, ACER Press, Camberwell, Vic.
- Plank, SB & Jordan, WJ 1997, 'Reducing talent loss: the impact of information, guidance, and actions on postsecondary enrolment', Center for Research on Students Placed at Risk, Baltimore.
- Porter, John, Porter, Marion & Blishen, Bernard R 1982, *Stations and callings: making it through the school system*. Methuen, Toronto.
- Post, D 1990, 'The social demand for education in Peru: students' choices and state autonomy', *Sociology of Education*, vol.63, no.4, pp.258–71.
- Reynolds, John, Stewart, Michael, MacDonald, Ryan & Sischo, Lacey 2006, 'Have adolescents become too ambitious? High school seniors' educational and occupational plans 1976 to 2000', *Social Problems*, vol.53, no.2, pp.186–206.
- Rindfuss, Ronald R, Cooksey, Elizabeth C & Sutterlin, Rebecca L 1999, 'Young adult occupational achievement: early expectations versus behaviour reality', *Work and Occupations*, vol.26, no.2, pp.220–63.
- Rothman, Sheldon & Hillman, Kylie 2008, 'Career advice in Australian secondary schools: use and usefulness', Australian Council for Educational Research.
- Saha, Lawrence J & Sikora, Joanna 2008, 'The career aspirations and expectations of school students: from individual to global effects', *Education and Society*, vol.26, no.2, pp.5–22.

- Saha, Lawrence J 1983, 'Gender, school attainment and occupational plans: determinants of aspirations and expectations among Australian urban school leavers', *Australian Journal of Education*, vol.26, no.3, pp.247–65.
- 1997, 'Aspirations and expectations of students', pp.512–17 in *International Encyclopedia of the Sociology of Education*, ed. LJ Saha, Pergamon Press, Oxford.
- Schultheiss, Donna E Palladino 2008, 'Current status and future agenda for the theory, research, and practice of childhood career development', *The Career Development Quarterly*, vol.57, no.1, p.7.
- Sewell, William H, Haller, Archibald O & Portes, Alejandro 1969, 'The educational and early occupational attainment process', *American Sociological Review*, vol.34, no.1, pp.83–92.
- Sikora, Joanna & Saha, Lawrence J 2007, 'Corrosive inequality? Structural determinants of educational and occupational expectations in comparative perspective', *International Education Journal: Comparative Perspectives*, vol.8, no.3, pp.57–78.
- 2009, 'Gender and professional career plans of high school students in comparative perspective', *Educational Research and Evaluation*, vol.15, no.4, pp.387–405.
- Tomlinson, Michael 2008, 'The Degree Is Not Enough': Students' Perceptions of the Role of Higher Education Credentials for Graduate Work and Employability', *British Journal of Sociology of Education*, vol.29, no.1, pp.49–61.
- Trusty, Jerry & Colvin Harris, Morag B 1999, 'Lost talent: predictors of the stability of educational expectations across adolescence', *Journal of Adolescent Research*, vol.14, no.3, pp.359–82.
- Turner, Ralph 1964, *The social context of ambition*, Chandler Publishing Company, San Francisco.
- Woodhall, M 1994, 'Human capital concepts', pp.2643–47 in *The International Encyclopedia of Education: Second Edition*, vol.5, eds T Husen & TN Postlethwaite, Pergamon Press, Oxford.