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The intersection of adolescents' interests and national needs – implications for educators



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James Athanasou is an educational and vocational psychologist who specialises in the field of educational measurement and careers. He has been involved in vocational psychology since 1973. He worked both in private industry and the public sector. He was formerly Principal Executive Officer, Human Resources Division, Department of Industrial Relations and Employment. He has been Deputy Director of the Vocational Services Branch and had responsibility for the Government Recruitment Agency. He was responsible for a branch that provided vocational guidance services through a Statewide network of 24 offices. In 2007, Assoc. Professor Athanasou teaches in the areas of: Work and People, Adult Educational Psychology, Adult Teaching and Learning and Assessing Learning. He has been the editor since 1999 of the Australian Journal of Career Development published by the Australian Council of Educational Research. He is on the editorial boards of Australian Educational and Developmental Psychologist, Journal of Humanities and Perspectives in Education.

Abstract

Interest as much as ability is a major factor in educational achievement and continues to play a substantial role in work adjustment throughout the life span. This presentation examines the role of interest in learning and career development. Career interest results (N = 7477) were obtained from the Career Interest Test (Version 3.1) administered on the Federal government's www.myfuture.edu.au website and were then compared with the nature and structure of employment in Australia. Work-related interests were fairly evenly spread across Outdoor, Practical, Scientific, Creative, Business, Office and People Contact activities. If anything, Business was marginally the highest preference followed by People Contact and then Creative interests. In contrast, the highest areas of employment in Australia were for Business and Practical activities (48.6%). Furthermore, Mathematics courses (20.1%) and Science (17.1%) dominated senior secondary school enrolments. It is clear that the interests and preferences of Australians are not satisfied either by the curriculum offered to them or the work opportunities in modern Australia.

This presentation examines the role of interest in learning and career development. It is based on the view that one's interest is a major factor in educational achievement. Moreover, interest continues to play a substantial role in career throughout the life span. Interest is related to work adjustment and is a key feature of job satisfaction for many individuals. Most people would be prepared to acknowledge that interest is important for learning and working, yet they may not have a clear understanding of the extent of that influence or the extent to which it is able to be expressed.

The relationship between interest and achievement

The links between interest and achievement have been documented in German educational research. These studies emphasise the role of interest in learning and development. A direct example of the relationship between interest and educational achievement in Australia comes from a study of 1324 technical and further education students across 66 courses in 31 technical colleges (Note that all references and sources will be cited in the complete paper to be provided at the conference):

- 66% of students were best at the subject that was their first preference
- 72% were best at a subject that was consistent with their vocational choice
- the preference rank for best subject was 0.84 (ranks varied from 0 to 1) and
- the preference rank for weakest subject was 0.19 (ranks varied from 0 to 1).

The role of interest far surpassed the effect of the quality of teaching. This study was followed up by further research to determine the influence of value, ability and time spent on a subject of interest. There were certainly strong links between interest and ability, indicating that they share some sort of common platform. The relationships are highlighted in the structural diagram below (see Figure 1).

From other research we also know that interest is relevant to occupational achievement and work satisfaction. Here the relationship is more complex than in a school environment because there are many additional factors operating in a career. As the

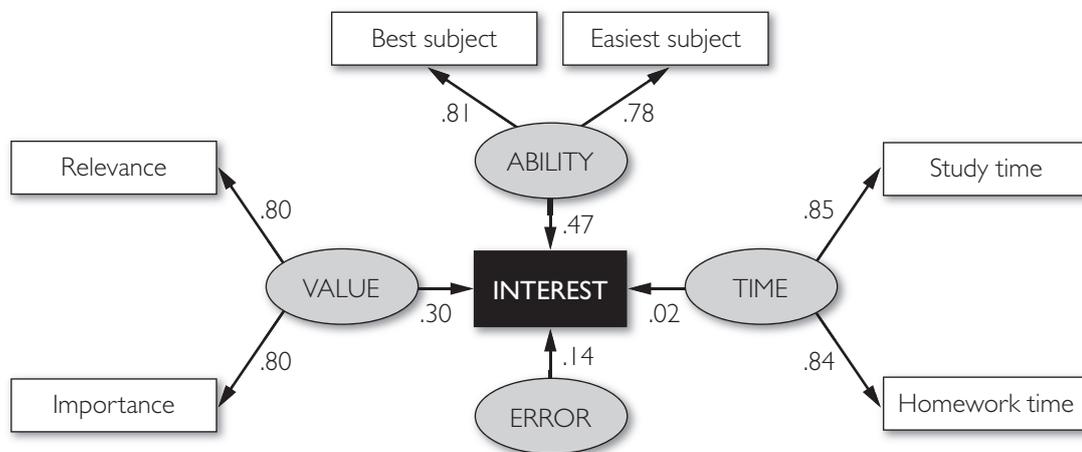


Figure 1: Relationship between interest, value, ability and time

sociologist Gottfredson noted more than 25 years ago, our career choices are circumscribed and compromised. Interest is often one of the factors that is first sacrificed in order to achieve one's goals. Some factors that are resistant to change, however, are one's gender stereotyping of available occupations and the desired prestige level available in a career choice.

Despite the fact that there are multiple influences on occupational choice other than interest, there is still sufficient evidence to state with confidence that when other factors are held constant, then job satisfaction does involve a degree of matching in one's interests with the reinforcers or type of work undertaken. The relationship is not perfect as many people sacrifice their interests in order to take up a job that has other features. This was emphasised by a postgraduate student Karin Hosking, who studies unskilled workers and found that interest and job satisfaction were only partly related. Lest one thinks that this type of finding does not apply to graduates or school leavers, it is important to emphasise that there are around 50 300 labourers with degrees throughout Australia. The point is that interest is relevant but

is by no means a critical factor in job satisfaction.

It is a pity, however, to neglect interest because we know enough about interest to see that it reflects the potential of a person, and that it reflects their natural talents and aptitudes. It also embodies values and accumulated knowledge or experience. Some 20 years ago, Suzanne Hidi described interest as 'a mental resource for learning' and in her later writings she highlighted the increasing lack of interest as a factor that was related to the low levels of motivation in schooling.

Interest has been at the forefront of humanistic approaches to education, especially from the time of John Dewey, who advocated that people should be allowed to learn what interests them. For instance, Dewey emphasised the importance of locating suitable occupations:

To find out what one is fitted to do and to secure an opportunity to do it is the key to happiness. Nothing is more tragic than failure to discover one's true business in life, or to find that one has drifted or been forced by circumstance into an uncongenial calling. A right occupation means simply that the

aptitudes of a person are in adequate play, working with the minimum of friction and the maximum of satisfaction. (Democracy and Education, p. 240)

Although he echoed the views of the founding father of vocational guidance, Frank Parsons, about the satisfaction that ensues from an appropriate vocational choice, he did not specify the steps to choosing a vocation, but in one sense assumed that vocational satisfaction followed from the ongoing fit between the person and their environment.

By and large, most laypersons would not consider it a remarkable insight to state that people are probably best at what they like and probably tend to dislike what they are worst at doing. It is a short but useful step, however, to determine whether the educational and vocational worlds actually match the interests of Australians. This paper describes the career interest patterns of Australians and examines:

- the extent to which career interests are reflected in actual subject enrolments in Year 12
- whether the occupational choices of Australians are congruent with their career interest patterns.

Career interests

Career interest results (N = 7477) were obtained from the *Career Interest Test (Version 3.1)* administered on the Federal government's www.myfuture.edu.au site and were then compared with the nature and structure of employment in Australia. The data represented every fifth user on this website. The Career Interest Test is an assessment of preferences for seven work-related activities: Outdoor (Ou), Practical (Pr), Scientific (Sc), Creative (Cr), Business (Bu), Office (Of) and People Contact (PC).

On the one hand work-related interest in Business was by far the highest preference followed by People Contact and then Creative work activities. The lowest areas of interest were for Outdoor, Scientific and Office activities. The ranking of preferences across the seven career interest groupings is provided in Table 1 and Figure 2. This shows that people's overall interests are fairly evenly spread across the seven categories when one takes into account the standard deviation in the average scores. A strict ranking of these averages, however, might be misleading

as it would be dependent upon the characteristics of the sample. For instance, limited access to broadband in rural regions or amongst some disadvantaged groups might affect the average proportion of Outdoor and Practical interests. It seems more conservative to say that overall career interests overlap but there may well be a preference for Business, People Contact and Creative careers compared to say to Outdoor, Scientific and Office work activities.

Furthermore, the nature of the Career Interest Test allows one to consider interest in jobs, interest in courses of study and interest in activities. It is shown that there is only a small relationship between career, academic and leisure preferences. These appear to be quite distinct domains. It means that what we like to learn may not be how we like to earn and quite distinct from what we want to do in our free time (see Table 2 for a breakdown by category). With the information from Table 1 in hand, it is possible to compare the levels of assessed career interests with the working opportunities available in the labour market.

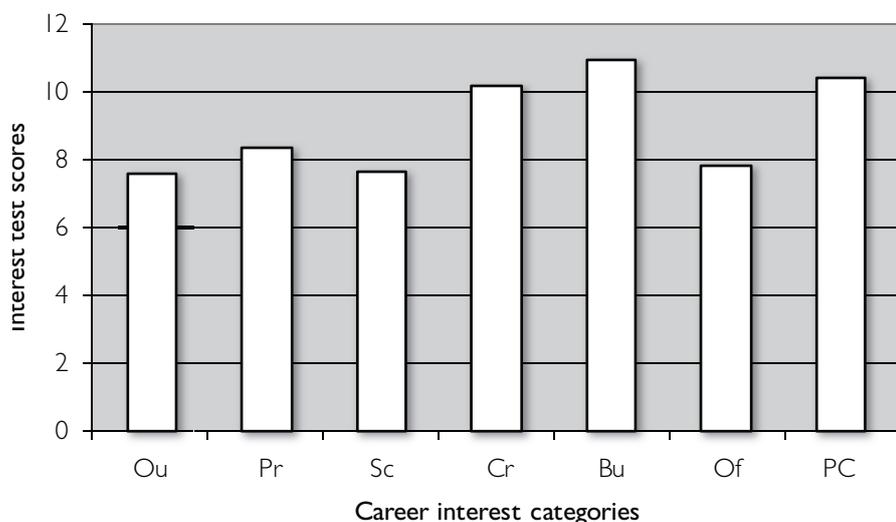


Figure 2: Career interest preferences (N = 7477)

Careers and occupations

An analysis of the comparable distribution of the 494 occupations listed by the Australian Bureau of Statistics into the same seven interest groupings is summarised in Table 3. This shows the number of occupations that have a predominant interest (other interests are also possible and some occupations cover multiple areas). Some occupations were difficult to classify and no claim is made that this categorisation is objective. Similarly the number of workers in each career interest grouping is also listed in column 4 of Table 3.

On these figures, the potential variety of occupational choices is greatest in the Practical category and the least number of available career choices are in the Creative category (see column 2 and 3 of Table 3). When one looks at the occupational groupings in which people are actually employed then most Australians are employed in Business and Practical occupations and the least numbers are in Creative and Scientific occupations (see also Figure 3). A copy of the categorisation is available from the author upon request.

Clearly there is a mismatch between the natural preferences of people and the types of occupations available in Australia. Secondly there is an even greater mismatch between the natural career preferences of people and the jobs in which people are employed (columns 4 and 5 of Table 3). Put simply, most people had a preference for Business, People Contact and Creative careers with lowest preferences for Outdoor, Scientific and Office work activities. The numbers of occupations in these seven categories were highest for Practical and lowest for Creative. This means that there are disproportionate choices. The situation is worse when it comes to looking at where people actually work

Table 1: Average and median scores across interest categories

	Ou	Pr	Sc	Cr	Bu	Of	PC
Average =	7.59	8.37	7.66	10.16	10.97	7.85	10.41
SD =	3.15	4.19	2.93	3.41	2.90	2.96	3.38
Proportion of total score	12.0%	13.3%	12.2%	16.1%	17.4%	12.5%	16.5%

Ou= Outdoor; Pr = Practical; Sc = Scientific; Cr = Creative; Bu = Business; Of = Office; PC = People Contact; Note scores range from 0 to 18; The total score overall on the Career Interest Test is 63.

Table 2: Correlations between domains of interest

	Ou	Pr	Sc	Cr	Bu	Of	PC	Median
Jobs and courses	0.449	0.609	0.317	0.466	0.314	0.424	0.442	0.442
Jobs and activities	0.410	0.573	0.183	0.479	0.374	0.425	0.536	0.425
Courses and activities	0.380	0.615	0.381	0.529	0.318	0.357	0.405	0.381

Table 3: Distribution of occupations and workers in Australia

Category	Number of occupations	% of total	Number of workers	% of total
Ou	60	12.7%	945 262	10.6%
Pr	129	27.2%	2 114 586	23.7%
Sc	56	11.8%	537 607	6.0%
Cr	23	4.9%	170 691	1.9%
Bu	91	19.2%	2 223 666	24.9%
Of	55	11.6%	1 391 498	15.6%
PC	60	12.7%	1 555 285	17.4%
TOTAL	474		8 938 595	

Table 4: Distribution of courses and subject enrolments in the Higher School Certificate

Category	Number of courses	% of total	Number of student enrolments	% of total
Ou	18	10.2%	11 738	3.9%
Pr	40	22.6%	29 821	9.9%
Sc	10	5.6%	52 955	17.6%
Cr	25	14.1%	33 224	11.1%
Bu	13	7.3%	39 052	13.0%
Of	7	4.0%	12 596	4.2%
PC	27	15.3%	29 462	9.8%
Classics/Modern languages	30	16.9%	7 719	2.6%
Mathematics	8	4.5%	60 489	20.1%
History	2	1.1%	23 144	7.7%
TOTAL	180		300 200	

(see also Figure 4). Most people are employed in Business and in Practical type occupations and the smallest numbers are in Scientific and Creative occupations.

Subject interests

The final area which will be considered is that of subject interests. In this instance I have used data from the New South Wales Board of Studies as an initial indicator of nationwide subject preferences. Enrolments in the 2007 Higher School Certificate courses (excluding English) were grouped into the seven career categories. Where possible subjects were further grouped together – such as Chinese Beginners and Chinese Extension. In other instances it seemed conservative to combine courses, such as Children's Services and Children's Services – Introduction. Community languages and classical languages, Mathematics and History were treated as separate groups. Unlike occupations there is double-counting since students were enrolled in more than one subject. Once again, some courses were difficult to classify and no claim is made that this categorisation is objective. Similarly the number of students in each career interest grouping is also listed.

Excludes English, Philosophy Distinction, ANU College Advanced Secondary Studies Programs; Note that subjects have been combined within courses; Student enrolments includes double-counting of individuals; Source: New South Wales Board of Studies, Higher School Certificate, 2007.

This categorisation is fraught with difficulties but it is a helpful starting point from which future analyses may digress. In short, it shows that the Practical category dominates the number of courses in senior schooling examinations. The number of subjects or courses, however, is an equivocal indicator of preference but it does show how widespread or, where, our

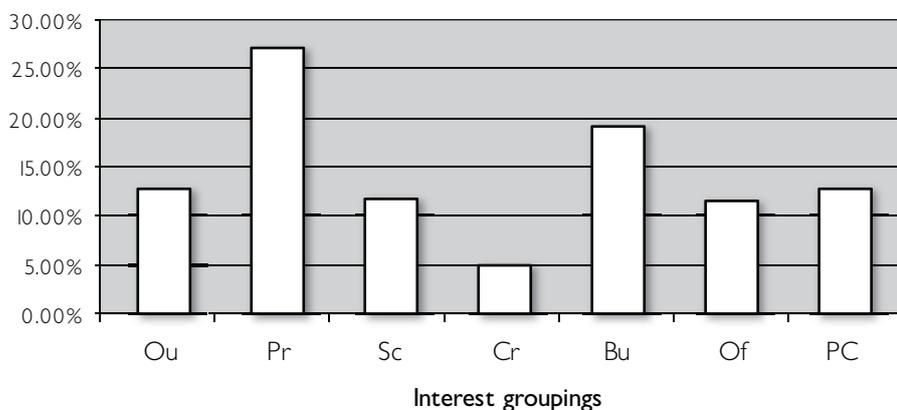


Figure 3: Types of occupations available in Australia (N = 474)

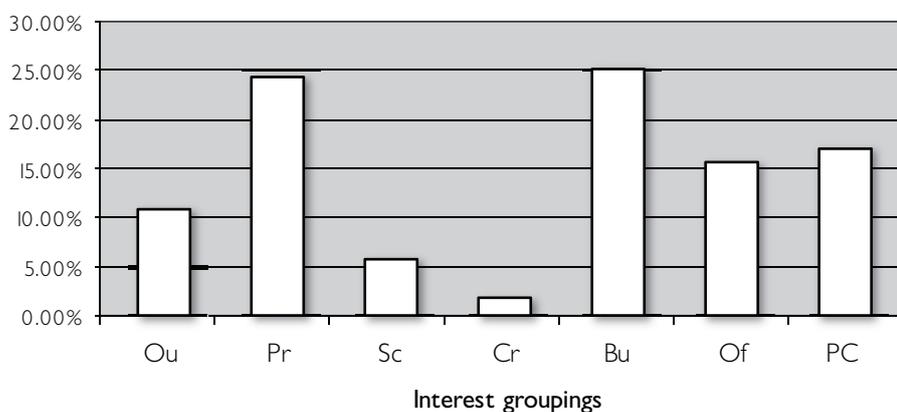


Figure 4: Numbers of jobs in Australia (N = 8.9 million)

administrative resources are placed. The number of student enrolments is a better indicator of preference and this is dominated by enrolments in Mathematics, Science, and to a lesser extent enrolments in Business and Creative courses.¹

While students' career interests are fairly evenly spread across

categories (refer to Figure 2) this is not reflected in the availability of courses for study. Nor is it reflected in the course enrolments. If anything, students' interests were highest for Business and People Contact activities but enrolments are dominated by Mathematics and Science courses. It may be argued, however, that Mathematics is really a foundation subject for other disciplines and there may be some merit in this view.

Equally, the world of work is also distinct from course offerings. Most workers (48.6%) are employed in the Business and Practical categories of commerce and industry whereas only 22.9% are enrolled in these areas. A more telling example is that only around 1.9% of workers are engaged

in Creative occupations but student enrolments were 11.1% in that category. In short, subject enrolments do not match people's interests, nor do they reflect the world of work. Clearly there is a mismatch of expectations, interests, preferences and aptitudes between school and work, and between school and individual preferences. There are implications for everyone in these findings.

Conclusions

If interests are important for individual development then the question arises whether and to what extent they should be reflected in work and course offerings? Table 5 attempts to summarise this three-way comparison.

Of course, it is asking a great deal of school systems to cope with every single interest but there is enough evidence to suggest that course offerings are widespread (well over 300 courses) but not focused. A related issue is to what extent courses should reflect the world of work – some would argue that education should be quarantined from this function. A hybrid policy of addressing (a) tertiary entrance requirements, (b) the requirements of industry, as well as (c) the perceptions of the community may not serve (d) the interests of learners. Ultimately it is a policy question about the nature and purpose of education but whatever answer is provided, there is now some evidence that courses in senior secondary schooling have a trajectory of their own, that diverges from the career preferences and latent abilities of students and is independent of the world of work to which they often pay homage and lip service. The more difficult question is how does one align the world of work and occupations with the latent interests of the population. Whatever the rationale, we are not harnessing interest as a mental resource for earning or learning.

¹ Nevertheless there are some caveats for this conclusion, such as the fact that Information Technology accounts for almost 96% of the Office category (which rightly or wrongly has always included computational activities) or that Religious Studies accounted for just over 57% of the People Contact category. There are valid arguments for separating out these subject areas but there should not be many consequences for the purposes of our comparisons

Table 5: Distribution of interest, employment and course enrolments

	Interests	Occupations	Courses I
Ou	12.0%	10.6%	3.9%
Pr	13.3%	23.7%	9.9%
Sc	12.2%	6.0%	17.6%
Cr	16.1%	1.9%	11.1%
Bu	17.4%	24.9%	13.0%
Of	12.5%	15.6%	4.2%
PC	16.5%	17.4%	9.8%

I Excludes Mathematics, Languages and History

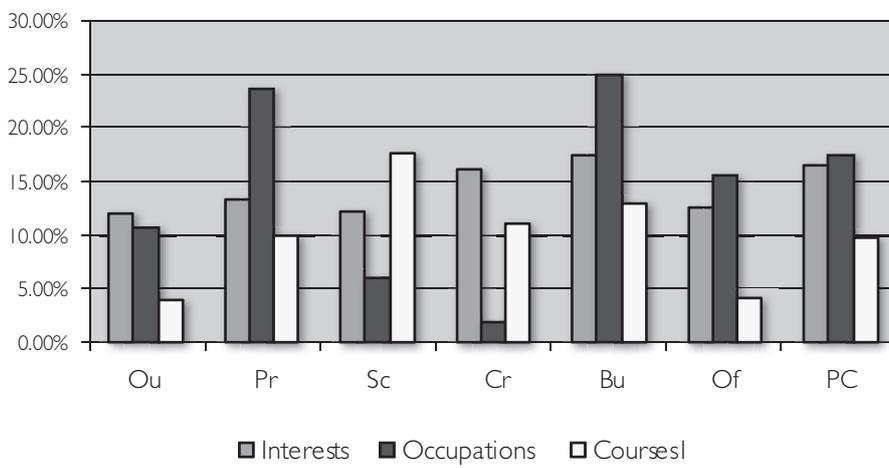


Figure 5: Comparison of career interests, occupations and courses