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# WHICH COMPONENTS OF INSTRUCTION INFLUENCE STUDENT INTEREST?

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## ABSTRACT

*This study investigated how subject interest is related to components of instruction, the nature of the subject and/or student factors. Students (N=524) from over 30 technical and further education colleges completed a survey on aspects of teaching and their interest in a subject. Student ratings of the 12 components of instruction and subject interest were uniformly positive. The overall average of the 12 questions on different aspects of teaching was 3.3 (ratings ranged from 1 to 4). This correlated 0.46 with the rating of subject interest. There was no significant effect of age, gender, being in the first or later years of a course or whether attending full-time or part-time on the level of interest in the subject. A significantly high and positive correlation with the level of subject interest was observed for those subjects which were rated highly in terms of preparing people for a career ( $r=0.55$ ;  $p < .0.01$ ). The most important instructional factors were: the ability to explain concepts clearly, helping students to understand and demonstrating the relevance of the subject.*

The development of interest at the level of further education is a topic of practical relevance and theoretical scope. Firstly, because the decline of student interests in formal schooling and learning by the time of early adolescence is well-

documented (Wigfield, Eccles, MacIver, Reuman & Midgley, 1991). There is no evidence, however, that this decline continues into post-compulsory technical and further education where there is greater freedom and choice in learning. Secondly, it is not clear whether interest is related to the components of instruction or whether it resides in the content of the subject being learnt or whether there are factors inherent in the individual learner. For instance, Deci (1985) regarded interest as intrinsic and inherent in the individual, while Ames (1990) pointed to the influence of task involvement and Hidi (1990) referred to situational factors such as text or topic interest (see also Tobias, 1994).

The importance of interests arises from their relationship to both the quality and quantity of achievement (e.g., Hidi 1990). In a study of 1,324 technical and further education students in Australia, Athanasou (1994) found a direct relation between an individual's interest in a subject, his/her vocational choice and their educational achievement. In that study the impact of subject interest was four times greater than the quality of teaching. Yet interests have been overlooked at the expense of other factors. More often than not, the term interest is not even included in the indexes of modern educational texts (e.g., McCormick & Pressley, 1997) and there are only passing references to interest under the heading of learner

motivation. The emphasis has been on general guidelines (e.g., Gage & Berliner, 1992, pp. 367-377) or practical teaching folklore (e.g., Sotto, 1994) on what aspects of instruction are required to enhance student interest.

Most research into interests has focused on the nature of interest (e.g., Schiefele, 1991; Athanasou 1998a) rather than the production or maintenance of interest. It has focused mainly on school pupils and not post-compulsory education (Athanasou, 1998b). Accordingly, there is scope for significant research in vocational education and training. Secondly there are implications for teaching and learning in teaching, qualifications as well as their industrial or commercial experience and where students tended to rate teaching quality mainly from satisfactory to very good.

Interest in a subject can be a function of the person, learning contexts, instruction, curricula and/or other influences. Firstly, students in further education courses in Australia encounter a wide range of instruction varying in quality and experience. Teaching can vary in the extent to which objectives are made clear, the amount of obvious lesson preparation, the scope that is offered for consultation, how much feedback on work is given, and whether explanations are provided or opportunities are given for questions. Secondly, instruction might be well-structured and delivered in a reasonable and professional fashion but some subjects are not easy to teach because of

technical and further education if it is the quality of instruction or the aspects of a curriculum that provide most input into the development of a person's learning interests. A study of 942 technical and further education students in Australia (Athanasou, 1998c) indicated that interest was dependent upon factors such as ability, as well as the importance and relevance of the subject. Teaching quality, however, was not nearly as significant as interest in its influence. It was argued that this reflected the quite reasonable quality of instruction that exists in a further education system in Australia where teachers have formal the curriculum specifications or their assessment requirements. Subjects can also vary along a number of other dimensions, such as: workload, difficulty levels or their career relevance. For instance Malone (1981) has emphasised the role of subject challenge as essential to motivation and curiosity control factors while Keller and Suzuki (1988) focused on the importance of relevance. Thirdly, in addition to teaching and subject factors, there are also wide differences in the student population in terms of social and demographic characteristics, including gender, age, part-time versus full-time attendance, and being in the first versus later years in their course. The importance of gender has been highlighted in a meta-analysis of 121 independent correlations between interest and achievement, where for males the average correlation was 0.35 compared with 0.25 for females (Schiefele, Krapp, Winteler, 1992, p.202).

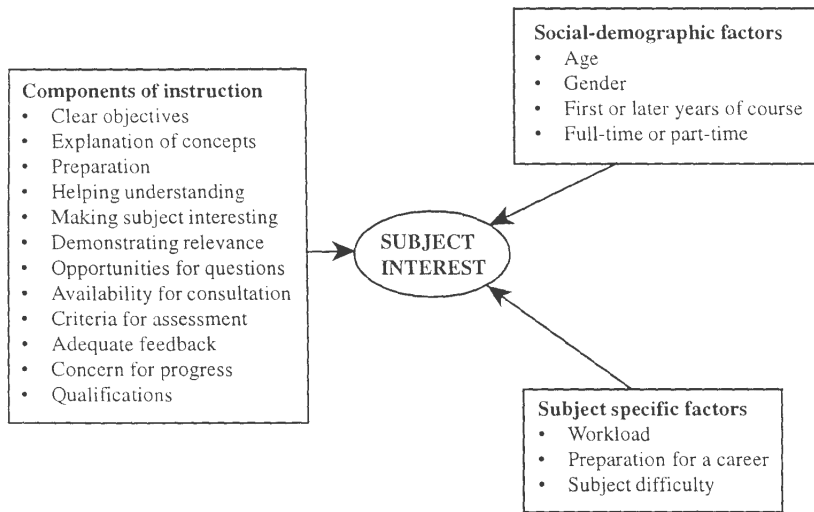


Figure 1. A tentative model of influences on student interests

The purpose of this study was to consider further how subject interest was affected by factors relating to the teacher or the nature of a subject and how it varied amongst technical and further education students. The initial assumption in this study was that subject interest is related mainly to the teacher, the nature of the subject and student characteristics. A tentative model that views interests as a dependent variable is outlined in Figure 1. The answers to such questions also provide some assistance in developing a working model of educational interests for use in the classroom. The dependent variable in this study was the student's self-rated level of subject interest and the independent variables were the student's ratings of teaching and subject factors as well as various social-demographic factors.

## METHOD

**Participants.** The participants in this study comprised 524 technical and further education students from over 30 technical and further education colleges. These colleges provide over 1,500 courses at Graduate, Diploma, Certificate and Trade levels. The background characteristics of the sample are summarised in Table 1. The technical and further education teachers (N=31), who participated in the study taught a diverse range of subjects from the broader areas of accounts, business, community work/welfare, computers, dental assisting, engineering, food chemistry, law, and records management.

**Procedure.** Students were asked to evaluate anonymously the teaching of a subject in their course. No claim is made for the representativeness of the sample. The questionnaire, which contained 15 questions, was based on the teaching evaluation forms used at the University of Technology, Sydney (see Table 3 for a listing of the questions). A four point rating scale was used (4-Strongly agree, 3-Agree, 2-Disagree, 1-Strongly disagree). Ratings were transformed to their reciprocal value for statistical analysis to counter the skewed distribution towards positive ratings (see Ferguson, 1976, p.236). The overall rating of instructional quality was based on the mean of 12 questions and

the internal consistency reliability of the 12-item scale was calculated using Cronbach's alpha as  $\alpha=0.88$ . Specific aspects of the analysis are covered in the results section.

**Table 1.** Demographic characteristics of the sample (N=524)

CHARACTERISTICS	Proportion
Gender	
Male	46%
Female	54%
Age	
15-19	22%
20-24	34%
25-34	22%
35+	17%
Year at college	
1st	59%
2nd or later	41%
Study	
Part-time	41%
Full-time	59%

Note: Percentages rounded; N=524 but complete data was not available for all participants

## RESULTS

**Interest.** The average level of subject interest among further education students was high (Mean = 3.1, SD = 0.7). This high level of interest may reflect the choice of courses within further education being more closely aligned with careers and an indication of the level of interest for some specific subject groups is provided in Table 2. Although this indicated a relatively high level of interest in all subject areas of technical and further education there was still a large difference in terms of subject effect on interest, with a maximum effect size of 1.1 between the lowest rated subject (Food Chemistry) and the highest rated subject (Community Work).

**Teaching Quality.** Student ratings of the quality of teaching were also uniformly positive in terms of the overall rating as well as the 12 specific aspects of teaching. The overall average for the 12 questions on the quality of teaching was 3.3 (SD = 0.4). Ratings of specific aspects of teacher abilities are listed in Table 3. The overall quality of teaching was correlated significantly (0.46) with level of interest and in general, teachers were perceived as

qualified in their field, well prepared for each session and open to questions. All the specific aspects of teacher quality were significantly correlated with interest, even after applying a Bonferroni correction for multiple tests. (While some of the correlations, for example -0.14, 0.16, 0.17 and 0.18 are statistically significant only because of the sample size, others such as 0.55, 0.51, 0.44, and 0.40 are quite high and account for a

large proportion of the variance in interest; they would be statistically significant even with a smaller sample).

*Subject Features.* Student ratings of the subject features were also uniformly positive for all the specific aspects of the subject as well as for overall ratings. Students thought that the subjects were not difficult, were relevant to their careers and that the workloads were in keeping with other subjects (see Table 3). A significantly high and positive correlation with the level of subject interest was observed for the item 'help me prepare for a career ( $r = 0.55$ ;  $p < 0.01$ ). A low but significant negative correlation was observed for the factor 'subject difficulty' ( $r = -0.14$ ;  $p < 0.01$ ).

The multiple correlation of the 12 teaching factors and three subject factors with subject interest was 0.68 ( $R^2 = 0.46$ ,  $F(15,435) = 25.6$ ,  $p < 0.001$ ). Beta weights from the multiple regression are indicated in the second last column of Table 3. These showed that interest was highest for instruction which (a) made clear the objectives for each component; (b) explained the concepts clearly; (c) tried to make the subject interesting, (d) was taught in a way which helped the student to understand, (e) demonstrated the relevance of the subject, (f) had comparable workloads; and which, above all (g) was relevant to a career. These beta coefficients were the most significant ( $p < 0.05$ ) predictors of subject interest and the relative weights (Cooksey, 1996, p.169) in the final column represent a heuristic device for the presentation of the importance of these variables.

*Influence of socio-demographic factors on level of subject interest.* In separate one-way ANOVAs there was no significant effect of age, gender, first

or later years of a course and whether attending full-time or part-time on the level of interest in the subject (Gender  $F(1,367) = 1.79$  n.s.; age  $F(4,363) = 2.02$  n.s.; year  $F(1,365) = 1.48$  n.s.; part-time/full-time  $F(1,375) = 1.58$  n.s.).

Table 2. Level of interest for subject groups.			
Subject	Level of Interest		
	N	Mean	SD
Accounts	42	2.9	0.7
Business	74	3.0	0.7
Community work/welfare	24	3.6	0.4
Computers	149	3.1	0.7
Dental assisting	17	3.5	0.4
Engineering	33	2.9	1.0
Food chemistry	14	2.8	0.6
Law	46	3.1	0.6
Records management	20	3.1	0.6
Note: Only subjects or groups with 14 or more students included in this table			

Table 3. Student ratings of teaching and subjects in technical and further education classes

Teacher and subject components	Mean	SD	Correlation with interest	Beta weights <sup>a</sup>	Relative weights <sup>b</sup>
<b>The teacher:</b>					
made clear objectives for each component	3.4	0.5	18	-08*	6%
was able to explain the concepts clearly	3.2	0.6	44	20***	15%
seemed well prepared for each session	3.5	0.5	16	-07	5%
taught in a way which helped me understand it	3.2	0.7	51	13*	10%
tried to make the subject interesting	3.2	0.7	42	09*	7%
demonstrated the relevance of the subject	3.2	0.6	40	12*	9%
made opportunities to ask questions	3.5	0.5	23	-02	1%
was available for consultation outside class hours	3.2	0.7	17	-05	4%
made clear the criteria used to assess student work	3.2	0.6	30	00	0%
gave adequate feedback on assignments	3.2	0.7	20	-03	2%
was concerned with progress in class	3.2	0.6	32	05	4%
was qualified in his or her field	3.5	0.5	28	-01	1%
<b>This subject:</b>					
workload was similar to other subjects	2.9	0.7	34	12**	9%
will help me prepare for a career	3.1	0.7	55	35*****	26%
was difficult for me	2.1	0.8	-14	-04	3%

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001; \*\*\*\*\*P<0.0001

a: decimal points omitted; b: percentages rounded



## **DISCUSSION**

The findings supported a relationship between specific aspects of instruction and subject interests. The results of this study showed that teachers were able to influence the motivation of students via specific aspects of their teaching but mainly through their orientation to the student. Although a positive correlation with subject interest was observed for each of the 12 components of teaching, a clearer picture emerged through the multiple regression analysis. This indicated that eight aspects of teaching and the subject were integral to interest in this sample.

Teachers who adapted their methods of teaching to achieve student understanding were more likely to have their subject rated as high in interest. The relevance of the subject to the student's career was also noted as being an important component of the teaching style. Socio-demographic factors such as age, gender or year of course did not affect the individual perceptions of subject interest. It did not appear that demographic factors were useful as indicators of the level of interest within a chosen subject area as was considered in the tentative model outlined in Figure 1. Finally, the results do mirror some of the recommendations made in texts on the importance of relevance for motivation (Sotto, 1994); for instance, four out of the 15 motivational teaching strategies recommended by Gage and Berliner (1992, pp. 367-377) are encompassed by these results. The focus of future research might therefore be more useful if it continues to explore the interactions between the teaching processes and the structures of subjects which impact upon student interests. An inspection

of the beta weights, however, indicates clearly that career relevance was far and away the most important indicator of subject interest in vocational education.

There are some limitations in this study that may affect the interpretation of the findings. Firstly, the students' ratings were generally positive and the use of any rating scale may have generated a response set. Taking the reciprocal value of the ratings overcame some of the limitations but ranking of teaching qualities might be an alternative. Secondly, the measure of interest was based only on a single question and this may have had some impact on results (although similar results were obtained in a separate study using a multi-item indicator of interest - Athanasou, 1998a). Finally, the students in the sample were those who had completed most of the semester and so those who had dropped out for any reason were not considered. In part, this reflects an administrative policy and acceptance of high dropout rates inasmuch that the census date for enrolments is some five weeks after course commencement.

These findings mean that further research into student interest in technical and further education needs to take into account the quality of instruction and its relevance for students. The most important teaching factors may be those related to enhancing student understanding efforts to make the subject relevant and explaining the concepts. Findings supported earlier research (Athanasou, 1994, 1997; Tobias, 1994) that subject factors are at least of equal, if not greater, importance than instructional quality, as well as the findings of Keller and Suzuki (1988) on the issue of relevance as a factor in interest. Such findings have not been noted as

factors in generating student interest or motivation in primary and secondary contexts, let alone technical and further education subjects. The advantage of studying interests at post-compulsory education levels is that there is much more freedom of subject or course choice in comparison with secondary and primary schooling. Where there is freedom then teaching quality may not be as important a consideration as in those contexts where subject choice is severely restricted. While pre-existing interests may act as a mental resource for learning (as noted by Hidi, 1990) there is also some additional evidence now to support the role of specific aspects of instruction and the career relevance of the subject as important factors for technical and further education in Australia. While students bring to any subject area their own natural and individual interests, it is also clear that in technical and further education the components of instruction and the nature of the subject act in concert to maintain or enhance interest in learning.

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#### REFERENCES

Ames, C. (1990). Motivation: What teachers need to know. *Teachers College Record*, 91, 409-421.

Athanasou, J.A. (1994). Some effects of career interests, subject preferences and quality of teaching on the educational achievement of Australian technical and further education students. *Journal of Vocational Education Research*, 19, 23-38.

Athanasou, J.A. (1998a). Perceptions of interest: A lens model analysis. *Australian Psychologist*, in press.

Athanasou, J.A. (1998b). Implications for vocational education research of some German views on the nature of interests, *Australian Vocational Education Review*, in press.

Athanasou, J.A. (1998c). Components of intra-individual interest in vocational education subjects: Some Australian data. In Hoffman, L., Krapp, A. S. & Renninger, K.A. (Eds.), *Interest and gender (in press)* Kiel: IPN

Cooksey, R.W. (1996). *Judgment analysis. Theory methods and applications*. San Diego: Academic Press.

Deci, E.L. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum

Ferguson, G.A. (1976). *Statistical analysis in psychology and education* (411 ed.). Tokyo: McGraw-Hill

Gage, N.L., & Berliner, David C. (1992) *Educational Psychology*. Boston: Houghton Mifflin.

Hidi, S. (1990). Interest and its contribution as a mental resource for learning. *Review of Educational Research*, 60, 549-571.

Keller, J.M., & Suzuki, K. (1988). Use of the ARCS motivation model in courseware design. In D.H. Jonassen (Ed.). *Instructional designs for Microcomputer Courseware*. Hillsdale, NJ: Lawrence Erlbaum.

Malone, T.W. (1981). Towards a theory of intrinsically motivating instruction. *Cognitive Science*, 5, 333-369.

McCormick, C.B. & Pressley, M. (1997). *Educational psychology. Learning, instruction, assessment*. New York: Longman.

Schiefele, U. (1991). Interest, learning and motivation. *Educational Psychologist*, 26, 299-323.

Schiefele, U., Krapp, A., & Winteler, A. (1992). Interest as a predictor of academic achievement: A meta-analysis of research. In Renninger, K.A., Hidi, S. & Krapp, A. (Eds). *The role of interest in learning and development*. Hillsdale, N.J: Lawrence Erlbaum.

Sotto, E. (1994). *Men teaching becomes learning. A theory and practice of teaching*. London: Cassell.

Tobias, S. (1994). Interest, prior knowledge and learning. *Review of Educational Research*, 64, 37-54.

Wigfield, A., Eccles, J.S., Maclver, D., Reuman, D.A., & Midgley, C. (1991). Transitions during early adolescence: Changes in children's domain specific self perceptions and general self-esteem across the transition to junior high school. *Developmental Psychology*, 27,552-5