

Individual differences and secondary school students' feelings towards group work

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This paper examines the role of individual differences in explaining secondary students' attitudes towards engaging in group-based learning. While there is a strong literature suggestive of benefits to students of group based learning (for a review see Slavin, 1996), we suggest here that little attention has been given to the underlying cognitive and psychological factors that may influence both the willingness of students to take part in group learning, and the degree to which group learning might effectively occur. From a Vygotskian perspective, there are clear and well documented cognitive advantages to establishing group based learning environments. King (1997), for example, points to the metacognitive advantages of using group learning contexts as a means of facilitating higher-order learning.

We propose that the use of group-based learning rests firstly on the assumption that all children are comfortable with the idea and processes of group learning, secondly, on the assumption that all children possess the requisite cognitive and psychological attributes and abilities appropriate to functioning in a group learning context, and thirdly, that there are no developmental differences in children's capacity to function in group learning environments.

At the cognitive level, we address two potential sources of individual difference: metacognitive abilities and motivational goals. Group learning necessarily deals in complexity of two kinds. Under the Vygotskian assumptions, learning occurs under the impetus of socially created cognitive dissonance. The interplay of competing ideas and their resolution through socially mediated consensus implies on the part of all group members both a preparedness to engage in task-centred group discussion, and the capacity to effectively marshal and regulate the strategies necessary for more complex, higher-order learning. Thus we suggest that the kinds of motivational goals brought to the group learning context and task, in conjunction with the quality of metacognitive knowledge brought to the context and task, will provide major sources of individual difference in students preparedness to engage in group learning. Recent research into achievement goals (Archer, 1994; Ames & Archer, 1988), for example, has suggested that students may ascribe to several kinds of motivational goals, ranging from the content and task-centred "mastery" goals, to more competitively ego-oriented "performance goals and academically detached "alienation" goals. Each of these motivational constructs may be presumed to drive attitudes towards group learning in different ways. Mastery-oriented students, for example, may be expected to both perceive and actively construct a climate in which group-based learning acts to focus on task-development and completion. Students oriented more towards performance goals, however, may, should group interaction be perceived as threatening, see immediate public disclosure as a disincentive to group participation. On the other hand, performance oriented students may, where group disclosure is not perceived as invoking ego-threatening consequences, find the group context ego-enhancing and therefore be more willing to be involved. For students experiencing stronger feelings of academic alienation, the possibility of group pressure to participate may bias these individuals towards a greater preference for individual rather than group-centred learning environments.

The second cognitive dimension considered in this study involves levels of metacognitive awareness. Group based learning inevitably involves the individual in the management of complexity - both in terms of the content demands imposed by the socially invoked cognitive dissonance, and in terms of the development of more complex prosocial behaviours. Fantuzzo et al (1989) identified three essential student characteristics for effective group-based learning: preparedness to teach a peer, to actually teach a peer, and to acknowledge accountability for teaching a peer. Whether younger children are developmentally capable of taking the alternative perspectives in these contexts presume raises a further issue for investigation. Studies of the development of metacognitive awareness have indicated that it may not be until mid-adolescence that children have the cognitive maturity to either meaningfully reflect upon their own strategic learning (eg Cantwell, 1998) or to effectively take the role of instructor (eg Schwanenflugel et al, 1994; Zimmermann, 1995). It may well be the case, then, that as students reflect a greater level of metacognitive awareness that the preparedness and ability to engage in group-based learning increases.

Additionally, the transition from individual to group-based instruction introduces an extra social-psychological variable into the learning context. It would seem reasonable to assume that personality traits such as level of sociability may influence not only the way in which individuals conduct themselves in group learning contexts, but may indeed influence their preparedness to engage in group-based learning at all. One measure of such sociability is Jackson's (1974) *Need for Affiliation*. According to this research, people indicating a high need for affiliation are more likely to participate in co-operative, non-competitive activities and are more biased towards closer, friendly relationships with others (Klein & Pridemore, 1992). In a study of the outcomes of group versus individual learning among undergraduate students, for example, Klein & Pridemore (1992) found that high need for affiliation individuals working alone performed more poorly than all other groups. Moreover, it may also be the case that those students who feel comfortable working in reasonably intimate group contexts will be more likely to positively respond to the group environment than would

be the case of those students for whom social interactions are often strategically quite problematic. Fantuzzo et al (1996) included psychological adjustment in their analysis of the influence of reciprocal peer tutoring on learning amongst undergraduate students. Using Watson and Friend's (1969) measures of *Fear of Negative Evaluation* (FNE) and *Social Avoidance and Distress* (SAD), Fantuzzo et al found both measures of psychological adjustment to group learning to be reduced only in those groups where the group processes were structured to allow equal access to both instructional and learning roles. In the unstructured group condition, the capacity of students high on the FNE and SAD measures to compensate for the less predictable and less certain social demands of group work resulted in a significantly higher reported level of distress in comparison to the structured group as well as the independent work groups. Subjective feelings of distress appear then to be an important mediating influence on the effectiveness of group-based instruction.

In the current study, we investigate the potential mediating role of motivational goals (as indicated by Archer's (1994) Achievement Goals scales), level of metacognitive awareness (as indicated by Schraw and Dennison's (1994) Metacognitive Awareness scales) and psychological adjustment (as indicated by Jackson's (1974) Need for Affiliation scale and Watson & Friend's (1969) FNE & SAD scales) on secondary students' evaluation of group-based learning and preparedness to engage in group-based learning environments.

Method

Participants:

290 students from Years 7, 9 and 11 from a high school in the Lower Hunter region of NSW took part in the study. A breakdown by gender and year is provided in Table 1. The average age of the participants was 13.82 years (sd 1.57), with ages ranging from 12 through to 17.

Table 1: Breakdown of participants by Gender and Year

	Year 7	Year 9	Year 11	Total
Male (%row)	62 (46.27%)	48 (35.82%)	24 (17.91%)	134
Female (%row)	72 (46.15%)	51 (32.69%)	33 (21.15%)	156
Total	134	99	57	290

Materials:

Three questionnaires were used for the study. Five of these were established instruments: Archer's (1994) *Achievement Goals Questionnaire*, Schraw & Dennison's (1994) *Metacognitive Awareness Questionnaire*, Watson and Friend's (1969) *Fear of Negative Evaluation and Social Avoidance and Distress* scales, and Jackson's (1974) *Need for Affiliation* subscale of the *PRF - Form E*. An additional questionnaire, to be indicative of students' *Feelings Towards Group Work*, was developed for the study.

Achievement Goals Questionnaire (Archer, 1994). These scales are designed to measure three achievement goals. Items are measured on 5-point Likert scales, with some items requesting feelings of success, some items requesting feelings of satisfaction, and some items requesting degrees of agreement. Eight items indicate the presence of a mastery goal. Examples of these items include feeling successful *when a lesson made you think about things*, and feeling satisfied *when you were involved totally in something you were doing*. Examples of the eight items indicating the presence of a performance goal include feeling successful *when you got a higher mark than other students*, and feeling satisfied *when you received recognition or prestige*. Examples of the four items indicating the presence of an alienation goal include feeling successful *when you did almost no work and got away with it*, and feeling satisfied *when you realised you didn't have to prepare for classes*. Alpha coefficients for the achievement goal scales were .82 for mastery, .86 for performance and .64 for alienation.

Metacognitive Awareness Inventory (MAI, Schraw & Dennison, 1994). This instrument provide measures of two broad aspects of adolescents and adults metacognitive awareness: Knowledge of Cognition, including awareness of one's declarative, procedural and conditional knowledge of learning, and Regulation of Cognition, including awareness of the need for planning, information management, monitoring, debugging and evaluating. Examples of items indicating knowledge of cognition include: *I understand my intellectual strengths and weaknesses* (declarative knowledge); *I try to use strategies that have worked in the past* (procedural knowledge); *I learn more when I'm interested in the topic* (conditional knowledge). Examples of items indicating regulation of cognition include: *I think about what I really need to learn before I begin a task* (planning); *I consciously focus my attention on important information* (information management); *I ask myself questions about how I am doing while I am learning something new* (monitoring); *I ask myself if I learned as much as I could have once I finish a task* (evaluating) (Alpha). In the current study, the original 52 items were reduced to 20. Reliability estimates (alphas) for the shortened form of the MAI were acceptably high: Knowledge of Cognition: .79; Regulation of Cognition: .84

Fear of Negative Evaluation and Social Avoidance and Distress Scale (Watson & Friend, 1969). These instruments provide measures of reported levels of social anxiety. In the present study, the underlying structures of the FNE and SAD identified by Monfries and Kafer (1988; 1994) were utilised. Monfries and Kafer (1988; 1994) identified two factors within the FNE relating to self/other reactions to negative evaluation: the *Negative Expectations* (NE) sub-scale indicating an inner fear of making oneself conspicuous by an inappropriate or embarrassing social performance, and the *Negative Public Evaluation* (NPE) indicating a fear of other people perceiving a social performance to be inappropriate. Items indicating Negative Expectations include *I feel really upset when I commit some sort of error*, and *I am often afraid that I may look ridiculous or make a fool of myself*. All items were presented on a five-point Likert-type scale. Monfries and Kafer's (1988; 1994) analysis of the factor structure of the SAD revealed three distinct sub-scales: two relating to subjective evaluations of distress in familiar (DFG) and unfamiliar groups (DUG), and a third more pathological dimension of avoidance of groups (AG). Items in the SAD scales included *I often feel calm and comfortable at social situations* (reverse scored,

DFG); *I am usually nervous with people unless I know them well* (DUG); and *I have no particular desire to avoid people* (reverse scored, AG). Alpha coefficients for all scales were acceptably high (NE: .85; NPE: .77; DFG: .79; DUG: .56; AG: .77)

Need for Affiliation (Jackson, 1974). This single scale instrument is designed to indicate an individual's level of sociability. Items are expressed as true or false for the individual. Sample items include *I am quite independent of the people I know* (negative valence), *I choose hobbies that I can share with other people* (positive valence), and *Sometimes when a friend is in trouble, I cannot sleep because I want so much to help* (positive valence). The alpha coefficient for this scale was acceptable at .64.

Feelings Towards Group Work. This instrument was developed specifically for this study. The questionnaire consists of 30 items presented as Likert items based on a five point scale of 1 indicating *not at all true of me* to 5 indicating *very true of me*. Five areas of group work were included in the instrument: a general liking of groups (*I enjoy working within a group*); group composition (*I prefer working within a group of the same sex*); self-efficacy in groups (*I feel more accepted by others after working within a group*); group dynamics (*I usually make a strong personal contribution to group work*); and group organisation (*Groups should organise themselves so that the work is divided evenly*). The scale structure and reliability estimates for the questionnaire are reported in the results section of the paper. The instrument is appended to this report.

Procedures

Following the receipt of informed consent, students completed all questionnaires in normal class time.

Results

All analyses reported were conducted using the *Statistica for Windows* program (Statsoft, 1995)

Factor Analysis of *Feelings Towards Group Work* Questionnaire

Data from the pilot questionnaire were subjected to Principal Components Analysis using normalised Varimax rotation. Analysis of the scree diagram suggested either three or four factors would reflect the underlying dimensionality of the instrument. Examination of item content biased the decision towards a three factor solution. These factors are described below. Item inclusion within a scale was based upon two criteria: a factor loading of at least .40 and non-dual loading across factors.

Factor 1: Preference for individual learning. Seven items were included in the scale derived from this factor. The items intimate a strong feeling of dissatisfaction with group work, including feelings of being let down by group members, of seeing group work as confusing and less effective than individual learning, of preferring to work alone and expressing a lack of involvement and enjoyment in group situations. Reliability estimate for the seven item scale (Cronbach alpha) was .78.

Factor 2: Preference for group learning. Eight items were included in the scale derived from this factor. The items intimate a strong sense of commitment to and fulfilment in group learning situations - a sense of enhanced understanding, of enjoyment in sharing the responsibility for the workload and credit for group achievements, of a greater sense of personal contribution to learning combined with a preference for choice in group membership. Reliability estimate for the eight item scale was .71.

Factor 3: *Discomfort in group learning.* Four items were included in the scale derived from this factor. The items intimate a sense of discomfort when learning in a group context - feelings of nervousness and an inability to relax, a fear of asking for help, and difficulty in understanding the nature of group task. Reliability estimate for the four item scale was .60.

Intercorrelations between *Feelings Towards Group Work* scales.

These are included in Table 2. Overall, students reporting a preference for individual learning were more likely to report discomfort learning in a group context, while those reporting a preference for group learning were less likely to report discomfort in group learning. Not all of these relationships were stable across year levels. The dichotomising of individual versus group learning preference, for example, was only apparent Year 11 students, although non-significantly so. A preference for group learning was significantly related to lower levels of discomfort in group learning among Year 9 and Year 11 respondents only.

Intercorrelations between *Feelings Towards Group Work* scales and measures of individual differences

These are included in Table 3.

1. Cognitive Measures

Achievement Goals: Overall, students reporting both mastery goals and performance goals were likely to express a preference for group learning. These relationships were stronger amongst the Year 7 and Year 9 students. Preference for individual work was largely unrelated to either mastery or performance goals, while there was a general tendency for students reporting alienation goals to be less likely to prefer individual work. This latter relationship was significant only amongst Year 7 students. Achievement goals were unrelated to feelings of discomfort in group work.

Metacognitive Awareness: Both knowledge of cognition and regulation of cognition were significantly related to a preference for group learning across all year levels. Knowledge of cognition was also negatively related to feelings of discomfort in groups generally, although this relationship was weaker among the Year 7 respondents. There were no significant relationships between measures of metacognitive awareness and a preference for individual work.

2. Psychological Measures

Need for Affiliation: Overall the students reporting a high need for affiliation were more likely to express a preference for group learning, less likely to express a preference for individual learning, and less likely to experience discomfort in group learning. These relationships strengthened across year groups, with both Year 9 and Year 11 respondents more likely to link a low need for affiliation with a preference for individual work and discomfort in groups. The positive relationships between a high need for affiliation and a preference for group work was also confined to the Year 9 and 11 respondents.

Fear of Negative Evaluation: Neither of the FNE subscales were related to a preference for group work. The expectation of displaying socially inappropriate behaviours (negative expectations) was related to a preference for individual work among Year 7 and Year 9 students, and to feelings of discomfort in groups among all respondents.

Social Avoidance and Distress: There was a general tendency for students reporting lower levels of social avoidance and distress (across all three subscales) to express a preference for group work. Year 7 students reporting distress in familiar groups and avoidance of groups were more likely to prefer individual work, while all students reporting distress in familiar groups and avoidance of groups, and less strongly distress in unfamiliar groups, reported greater discomfort in group work.

Relative contributions of all measures of individual differences towards feelings towards group work

In these analyses, all measured individual differences (including Frequency of Exposure to Group Work, Gender, Year level, Achievement Goals, Metacognitive Awareness, Need for Affiliation, Fear of Negative Evaluation, and Social Avoidance and Distress) were entered as blocks into a hierarchical regression model for each of the three scales indicating feelings towards group work. The correlation matrix on which these analyses were based is presented in Table 4. Summaries of these analyses are presented in Table 5.

Table 2: Intercorrelations between *Feelings About Group Work* scales for the whole sample, and for Years 7, 9 and 11 separately.

Feelings about Group Work	Preference for individual learning				Preference for group learning				Discomfort in group learning			
	All	Yr 7	Yr 9	Yr11	All	Yr 7	Yr 9	Yr11	All	Yr 7	Yr 9	Yr11
1. Preference for individual learning	--	--	--	--	-01	07	-01	-22	42**	44**	45**	35*
2. Preference for group learning	-01	.07	-01	-22	--	--	--	--	-19*	-12	-21*	-39*

3.	42*	44	45	35*	-	-	-	-	--	--	--	--
Discomfort in group learning	*	**	**		19**	12	21*	39*				

Note: Decimal points removed. Sample sizes: All subjects = 290; Year 7 = 134; Year 9 = 99; N for Year 11 = 57. * $p < .05$ ** $p < .01$ *** $p < .001$

Table 3: Intercorrelations between *Feelings About Group Work* scales and measures of individual differences for the whole sample, and for Years 7, 9 and 11 separately.

Feelings About Group Work Scales

Measure of Individual Difference	Preference for individual learning				Preference for group learning				Discomfort in groups			
	All	Yr 7	Yr 9	Yr 11	All	Yr 7	Yr 9	Yr 11	All	Yr 7	Yr 9	Yr 11
Achievement Goals	1107	18*07	-0205	1812	38**	42**	45**	21	-10	-14	-17	17
Mastery Goal	-0604	-18*04	-0105	0803	36**	37**	48**	-11	-03	-04	-04	09
Performance Goal	11	12	-03	06	54**	49**	62**	55**	-21**	-12	-31**	-23
Alienation	-	13	03	06	43*	37*	55*	44*	-01	-15	07	-40*

Note: Decimal point removed. Sample sizes: All subjects = 290; Year 7 = 134; Year 9 = 99; N for Year 11 = 57. * $p < .05$ ** $p < .01$ *** $p < .001$

Table 4: Intercorrelations between all measures of individual differences for whole sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Mastery Goals	1.00	1.00	1.00	1.00										
2. Performance Goals	.50*	.21*	-.07	.63*	1.00	1.00	1.00	1.00						
3. Alienation Goals	.39*	.47*	-.01	.15	.06	.07	.27*	.28*	.79*	.21*	-.03	.38*	-.23*	
4. Regulation of Cognition	.49*	.14	-.02	.08	.09	.43*	.22*	.28*	.40*	-.02	.30*	.38*		
5. Knowledge of Cognition	.05	.03	.14*	.09	.10	-.03	.27*	.02	.50*	.25*				
6. Need for Affiliation	.16*	-.11	-.01	.10	.06	-.02	.34*							

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* $p < .05$ ** $p < .01$

Table 6: Relative contribution of all measures of individual differences towards feelings about group work

Outcome variable	Predictor variable	Semi-partial ²	Unique	Total
Preference for individual learning	Frequency of exposure	-	0.00	0.00
	Gender	-	0.00	0.00
	Year	-	0.00	0.00
	Achievement Goals	.01	2.28	1.80
	* Mastery Goals	.00	0.01	0.06
	* Performance Goals	.01	0.02	1.34*
	* Alienation Goals	.00	7.31***	9.62***
	Metacognitive Awareness	.01	2.41*	4.28**
	* Knowledge of Cognition	.10***		
	* Regulation of Cognition	.04***		
	Need for Affiliation	.02*		
	Fear of Negative Evaluation	.01		
	* Negative Expectations	.00		

* Negative Public Evaluation

Social Avoidance and Distress

* Distress in Familiar Groups

* Distress in Unfamiliar Groups

* Avoidance of Groups

Preference for group learning

Frequency of exposure		0.01	0.01
Gender	.05***	0.12	0.19
Year	.04***	0.59	0.48
Achievement Goals	.00	2.11*	18.07***
* Mastery Goals	.16***	12.21***	30.13***
* Performance Goals	.01*	0.19	4.29**
* Alienation Goals	.01	0.78	0.62
Metacognitive Awareness	.00	0.89	2.67*
* Knowledge of Cognition	.00		
* Regulation of Cognition	.00		
Need for Affiliation	.00		

Fear of Negative Evaluation

* Negative Expectations

* Negative Public Evaluation

Social Avoidance and Distress

* Distress in Familiar Groups

* Distress in Unfamiliar Groups

* Avoidance of Groups

Discomfort in group learning	Frequency of exposure	.01	0.03	0.05
	Gender	.00	0.04	0.06
	Year	.00	0.00	0.06
	Achievement Goals	.06***	0.06	0.09
	* Mastery Goals	.02*	2.63**	5.75***
	* Performance Goals	.11***	0.47	9.24***
	* Alienation Goals	.02**	6.55***	11.15***
	Metacognitive Awareness	.02**	14.17***	26.77***
	* Knowledge of Cognition	.00		
	* Regulation of Cognition	.03***		
	Need for Affiliation			
	Fear of Negative Evaluation			
	* Negative Expectations			
	* Negative Public Evaluation			
	Social Avoidance and Distress			
	* Distress in Familiar Groups			
	* Distress in Unfamiliar Groups			
	* Avoidance of Groups			

* $p < .05$ ** $p < .01$ *** $p < .001$

Significant contributions towards explaining a preference for individual learning were restricted to the psychological measures: Social Avoidance and Distress (4.28% of total variance), fear of Negative Evaluation (9.62%) and Need for Affiliation (1.34%). Contributions towards explaining a preference for group learning, however, included both cognitive and psychological variables: Metacognitive Awareness (30.13% of total variance, primarily attributable to knowledge of cognition), Achievement Goals (18.07%, including both

mastery and performance goals, but not alienation goals), Need for Affiliation (4.29%) and Social Avoidance and Distress (2.67%). Contributions towards explaining feelings of discomfort in group learning related mainly to psychological variables (Social Avoidance and Distress (26.77%), Fear of Negative Evaluation (11.15%) and Need for Affiliation ((9.24%)) as well as to levels of Metacognitive Awareness (5.75%).

Discussion

Three basic attitudes underlying secondary students' feelings towards groups were identified in the analyses: a preference for individual learning, a preference of group learning, and a feeling of discomfort in groups. These findings appear to us to be defensible at both a theoretical and empirical level. Clearly not all students express a preference for working in groups, and many students indeed report the experience of group work to be quite discomforting. What also seems important in explaining these attitudes towards group learning is that the more intuitive explanatory factors of frequency of exposure, gender and year level appear to play only minor roles. Of much greater importance were the predicted underlying cognitive and psychological factors.

The relationships between the feelings towards groups scales and measures of individual differences

suggested two clear patterns of association. On the one hand, students reporting a preference for group work were distinguished by higher levels of metacognitive awareness and more positive achievement goals. In other words, preference for group learning appears to relate primarily to cognitive rather than psychological factors. Students reporting a preference for individual learning and students reporting greater degrees of discomfort in group learning environments were distinguished by higher levels of social anxiety and lower levels of sociability, with some indication of a lower level of metacognitive awareness. In other words, discomfort in group learning appears to relate primarily to psychological rather than cognitive factors. At the more extreme level of discomfort, lack of metacognitive control would also appear important.

Both performance and mastery goals were associated with a preference for group learning. The mastery goal has been associated with a desire for achieving task-related competence, and with a willingness to invest effort to achieve this (e.g. Archer, Cantwell & Bourke, 1997). The interplay of ideas generally associated with group work may well require both task orientation and effort expenditure, and as such may prove attractive to mastery oriented students. We expected students reporting performance goals to be less attracted to group work, primarily because of the inherent risk of exposure should the individual's competence be called into question in such an intimate environment. This did not prove to be the case in the present data. It may be that for these students, group work has not been associated with unduly threatening experiences. At a more theoretical level, we may also speculate that the lack of negative valence in the performance scale may mask the attitude of performance oriented students in failure rather than success situations.

The critical role of metacognitive awareness in explaining both a preference for group learning and discomfort in group learning suggests to us that there is a strong cognitive and strategic basis to effective group functioning. Taking learning from the individual to social setting adds significant dimensions of complexity. Clearly for those students with greater degrees of awareness of their own cognitive state and processes, self-regulatory control over such complexity is possible. For those students reporting lower levels of metacognitive

awareness, the presumed lessening of self-regulatory control over complexity becomes associated with greater discomfort in group learning.

Where the cognitive aspects linked most closely to the expressed preference for group learning, psychological factors measured in this study were more strongly associated with both a preference for individual learning and feelings of discomfort in group learning. Need for affiliation as a measure of sociability was associated with both individual preference and discomfort. These associations suggest that for some students, there are basic personality factors that may well be working against participation in group based activities. The data relating to measures of social distress also indicated strong associations with feelings about group learning. Fear of displaying socially inappropriate behaviours in social contexts (the Negative Expectations subscale of the FNE) appeared a strong predictor of preference for individual learning and of distress in group learning for all participants. This contrasted with findings for the Negative Public Evaluation subscale where no significant associations were found. This may reflect an aspect of adolescent development in the sense that the NE subscale reflects internalised cognitions about the efficacy of one's own behaviour rather than the negative perceptions of other's responses to one's behaviour. To the extent that adolescent students are experiencing an Eriksonian identity crisis, negative self-efficacy judgements may well predict a lesser desire for socially based learning contexts. The data also indicated strong associations between higher levels of social avoidance and distress and a preference for individual learning and discomfort in group learning. In reference to those students preferring individual learning environments and students expressing discomfort in groups, associations were strongest with the Distress in Familiar Groups (DFG) subscale and the Avoidance of Groups (AG) subscale. There is little doubt that group work in secondary schools involves relatively intimate contact with well known individuals. Unlike interaction with less familiar individuals, contact with familiar individuals involves more complex strategic behaviours - less can be avoided through the use of social cliches and algorithms. Not surprisingly, there was a significant correlation between DFG levels and Knowledge of Cognition: the greater the (social) cognitive demands, the greater the need for metacognitive control (although it should be noted that amongst Year 7 respondents there were significant links with DUG as well, perhaps reflecting one of the problems of transition to high school).

Overall the data indicate significant roles for both cognitive and psychological factors in explaining secondary students feelings towards group work. Encouragingly, however, there is research suggesting that a number of these factors are controllable by teacher actions (e.g Fantuzzo et al, 1989). If students can be encouraged to develop more sophisticated ways of addressing complexity - in both the cognitive and social cognitive domains - and if this can be achieved in a climate encouraging the development of mastery goals, then basic cognitive and psychological impediments to effective group functioning may be minimised.

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Notes

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Feelings Towards Group Work

This questionnaire contains a number of statements about how you might feel about working in groups. If you feel the statement is very true of you, circle the "5". If you feel the statement is not true of you at all, circle the "1" If you feel the statement is partly true of you, circle the "2", "3" or "4". Remember that there are no right or wrong answers.

Please respond to all statements.

Not at all Very

true of me true of me

1. I enjoy working within a group
2. I prefer working within a group of the same sex
3. I sometimes feel nervous when I have to give my ideas or communicate within a group
4. I understand information better after explaining it to others in a group
5. I feel more accepted by others after working within a group
6. I often find it difficult to understand what the group task is
7. I like to work alone even when placed in a group
8. I think groups should take the time to set up group goals
9. I prefer to work within a group rather than work alone
10. I prefer to work in groups of mixed sex
11. Even when the group is achieving its goals, I don't really feel involved or satisfied
12. I often have a strong feeling satisfaction when I become totally involved in a group achievement

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13. It is important that other group members take responsibility for my learning as well

14. I don't like it when one member of the group takes over from everyone else

15. Groups should organise themselves so that the work is divided evenly

16. I usually make a strong personal contribution to group work

17. I am often afraid to ask for help within my group

18. I often feel less motivated to learn within a small group

19. I like group work more when we can make up our own groups .

20. I do not like to study within a group

21. Contributing ideas within a group often makes me feel better about myself

22. I can usually understand other group members' ideas

23. Even when groups are well organised, I don't believe they are a more effective way of using class time

24. It is best when each person helps each other within a group

25. I often think the work becomes too confusing when done in a group rather than individually

26. Group work is better when the teacher tells us which groups to go in to

27. I rarely feel relaxed within a group

28. I do not feel responsible for others learning in groups

29. I sometimes feel let down by other group members

30. I often feel in charge when working within a group

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