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ABSTRACT

This study established the Secondary Colleges Classroom Environment Inventory (SCCEI) as a reliable instrument for use in providing teachers in the postsecondary sector with information about the learning environment in their classrooms. The SCCEI was constructed for this study as a perceptual measure of classroom environment using scales from the Learning Environment Inventory and the College and University Classroom Environment Instrument. The study also demonstrated the suitability of the Myers-Briggs Type Indicator as an instrument for classroom research involving the assessment of teacher personality types. The associations between teacher personality type and perception of classroom environment showed considerable consistency between teacher and student perceptions. For example, extravert teachers were positively associated with classrooms characterized by high levels of student cohesion, while perceiving type preferences were associated with both student perceptions and teacher self-perceptions of informality and individualization of work in the classroom. The relationship between teacher personality type and classroom environment can be understood using social cognition theory as a conceptual model. (Contains 48 references.) (JLS)

# ASSOCIATIONS BETWEEN TEACHER PERSONALITY AND CLASSROOM ENVIRONMENT

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## THEORETICAL FRAMEWORK

Inspired by the Lewinian formula $B=f(P.E)$, much attention has been given over the last three decades to the development and use of instruments to assess the qualities of the classroom learning environment from the perspective of both teachers and students (Fraser, 1986, 1994). However, while *E* (the environment) in Lewin's formula has received close attention in classroom research, *P* (the person or personality) has been relatively neglected. Reflecting on Lewin's formula, Vroom (1970) observed: "There has, however, been a tendency for investigators in social psychology to concentrate on one or the other of these sets of variables in their explanation of social phenomena . . . . Few have investigated environmental and personality determinants of behavior simultaneously" (p. 640). Perhaps surprisingly, given the voluminous literature concerning the characteristics of the good teacher, the research relating teacher personality to the classroom environment has been sporadic.

The period up to the 1970s saw intensive interest in the relationship between teacher personality and teacher effectiveness (Barr, 1948; Feldman, 1986). Yet Getzels and Jackson (1963) observed that, despite the critical importance of the problem and a half-century of prodigious research effort, very little beyond the self-evident had been discovered about the nature and measurement of teacher personality. Flaitz (1987) noted that "the rather final-sounding pronouncement of irrelevance found in Getzels and Jackson was to virtually end research into teacher personality traits" (p. 5). He attributed the chaos in the field of teacher personality research at the time to the primitive state of affairs characterising the assessment of relevant teacher personality dimensions.

The research on personality type and classroom environment can be linked conceptually in three ways. First, Tonelson (1981) was in no doubt about the interconnectedness of teacher personality and the learning atmosphere in the classroom and suggested a mechanism whereby teacher personality can affect student learning outcomes through the psychological environment of the classroom. He argued that the character of the teacher is translated into the working social atmosphere of the classroom which influences students and this atmosphere provides the stage for learning. Second, the relationship of teacher personality to observed interpersonal behavior can be understood using the social systems model of the classroom proposed by Getzels and Thelen (1960/1972). This theoretical model proposes that personality dispositions in tension with role-expectations, and in the context of classroom climate, give rise to a transactional style. Third, social cognition theory suggests that the schema and scripts which give rise to the cognitive style of the teacher (measured by the MBTI) influence teacher self-perceptions of classroom interactional behavior. Teacher cognitive style influences teacher perceptions of and cognitions about students and classroom psychosocial environment. These perceptions and cognitions tend to give rise to characteristic interpersonal behaviors with consequences for classroom learning environments.

Flaitz (1987) declared that "after nearly 25 years of second-class status, the time would seem to be at hand to once again consider the role of non-academic indicators such as cognitive skills and personality..." (p. 13). Using contemporary personality and classroom environment measures, this study pursues this line of research.

## SIGNIFICANCE OF THE STUDY

This study provides a distinctive contribution to learning environment research in that it investigated the relationship between student and teacher perceptions of classroom environment and teacher personality. While previous studies in teacher personality were concerned with broad issues of teacher effectiveness and were hampered by lack of appropriate instruments, this study employed recently-developed measures that are specifically designed for normal populations rather than for clinical use and that are appropriate for use in the classroom setting. Furthermore, this study is centred on the secondary college sector (senior high) of education in Australia, whereas most previous research on learning environments has involved elementary, junior high school and post-secondary sectors.

## ASESSMENT OF TEACHER PERSONALITY

The most widely-used measure of personality among non-psychiatric populations is probably the *Myers-Briggs Type Indicator (MBTI)* (Myers & McCaulley, 1985). The MBTI was developed to classify the normal range of personality and is a measure particularly suited to application in teaching and learning (McCaulley, 1987). Form G of the MBTI was used in this study because it has been a frequent choice of researchers in education.

The MBTI purports to measure four dimensions of personality using the four bipolar scales of Extraversion-Introversion (EI), Sensation-Intuition (SN), Thinking-Feeling (TF) and Judging-Perceiving (JP). EI connotes an individual's preference for obtaining information either through orientation toward the outer world of people and things or the inner world of concepts and ideas. The SN index refers to ways of perceiving, either directly through sense-based empirical data (sensation), or indirectly through unconsciously generated information or hunches (intuition). The TF index measures ways of arriving at judgements, either by impersonal, logical, and analytical processes (thinking), or by personal, subjective, and evaluative assessments of information (feeling). The fourth index, JP, refers to preferences in becoming aware or drawing conclusions, either coming to closure by evaluating the day-to-day influx of information (judging), or remaining open by merely gathering and storing data for use (perceiving). The four preferences are assumed to interact in complex nonlinear ways to produce one of 16 psychological types (e.g., INTP).

The MBTI also provides a method of comparing individuals by calculating continuous scores for correlational purposes (Myers & McCaulley, 1985; Wiggins, 1989). Continuous scores are derived by converting the four bipolar scales (eight scale scores) into four continuous scale scores. The eight scales, if used separately, appear to give rise to redundant information due to the degree of item overlap (Thorne & Gough, 1991). The sample of 108 teachers in this study produced the following intrapair correlations of the dichotomous scales: E versus I -.96; S versus N, -.88; T versus F, -.88, and J versus P, -.94. These values are very similar to the negative intrapair correlations (items in paired scales are scored in opposite directions) of -.95, -.90, -.88, and -.96, respectively, found by Thorne and Gough (1991). They concluded from their figures that, for correlational work, there is nothing to be gained by use of all eight scales. DeVito (1985) suggested that the continuous score is least emphasized in practice because it is a departure from type theory, yet it is this score that is most useful in analysing research findings. In this study, the MBTI was used in multivariate analyses by treating its four scales as continuous measures and correlating them with classroom environment measures.

Reviews reporting sound internal consistency of the MBTI have been conducted by Carlyn (1977), Murray (1990), and Stricker and Ross (1963). Lorr (1991), in his review of MBTI reliability studies, cited alpha reliabilities of .82, .83, .84 and .77 for EI, SN, TF, and JP, respectively, commenting that "these findings indicate that the MBTI measures four dimensions and that keyed items measure reliably the scales the items are expected to measure" (p. 1141). DeVito (1985) summarised four test-retest reliability studies of the MBTI. He reported that coefficients from these studies were good, ranging from .48 (14 months) to .87 (7 weeks). Carlson (1985) cited test-retest reliabilities ranging from .79 (TF scale) to .89 (JP scale) for Form G in a reliability study involving a Spanish translation of the MBTI.

Tzeng, Outcalt, Boyer, Ware and Landis (1984) undertook extensive reliability studies at item level. They found positive empirical evidence supporting the MBTI item validity, and concluded that the MBTI can be used with confidence to distinguish separate personality types in terms of four dichotomous dimensions. Sipps, Alexander and Friedt (1985), in their study of item structure using factor analysis, found six factors, four of which resembled the four scales of the MBTI. More recently, the Tzeng, Ware & Bharadwaj (1991) study provided "strong empirical evidence to support the factorial and construct validities of the MBTI both at item and at preference levels" (p. 689).

The research literature on teacher MBTI types provides a detailed description of teaching style (e.g., Barrett, 1991; DeNovellis & Lawrence, 1983; Hoffman & Betkouski, 1981; Hughes & McNelis, 1987; Jensen, 1987; Keirsey & Bates, 1984; Lawrence, 1982; Lorentz and Coker,1977; Provost, Carson & Beidler, 1987). It consists substantially of correlational studies using low-inference methods, and predictive speculation based on type theory. Reviewing the literature, Kagan and Grandgenett (1987) observed that a sizeable body of empirical research – much of it using the Myers-Briggs scales – revealed consistent relationships between teachers' personality traits and their preferred instructional style.

For example, Lorentz and Coker (1977) found significant relationships between teachers' scores on the MBTI and the behavior of their students, concluding that teacher personality influenced the way in which students reacted in class. They found that, while groups of teachers classified by the 16 MBTI personality types did not differ significantly on observational measures of teacher competency, the same groups did differ significantly on the measures of competency as reflected by students.

While the MBTI is based on an extensive theory of personality – Jung's typological model (Jung, 1921/1971) – it also can be understood as a measure of cognition. Helson (1982) suggested that Jung's typology can be regarded as a theory of individual differences in information processing and exchange. She summarised Jung's position as follows: (i) extraversion and introversion tell whether attention is characteristically focused on the objective or the subjective; (ii) the perceptive functions, sensation and intuition, are data-gathering processes, differing in whether data gathered are literal or symbolic; (iii) the judgemental functions, thinking and feeling, are data-evaluation processes, differing in whether the criterion is logical adequacy and coherence or affective value. The MBTI can be understood as a measure of certain cognitive preferences or habitual modes of information processing and therefore as an indicator of cognitive style.

A number of researchers have examined the relationship between MBTI scales and established measures of cognitive style. For example, Jonassen (1981) found a significant relationship between MBTI type, cognitive style as measured by the Educational Cognitive Style Inventory, and teaching style. Ferguson and Fletcher (1987) found significant variations in cognitive style with different preferences on the MBTI. Analysis showed a positive association between Intuition and cognitive integration, and between the T-F scale and cognitive complexity. Taggart, Kroeck and Escoffier (1991) reported results which support the use of the MBTI scales as surrogates for the assessment of brain dominance. They found that Extraversion, Intuition, Feeling, and Perception were associated positively with Right dominance, and Introversion, Sensing, Thinking and Judging were positively associated with Left dominance. Carey, Fleming and Roberts (1989) found that the subscales of the MBTI correlated significantly with field dependence-independence. Perceptual and Intuitive types tend to be more field independent than Judging and Sensing types. Grinder and Stratton (1990) proposed that teachers should have sufficient knowledge of teaching styles and learning styles, as revealed by the MBTI, to enable them the intentionally match or mismatch styles as a pedagogical strategy.

MBTI classroom research provides a common measure of teacher cognitive styles, teacher teaching styles, student learning styles, and student learning outcomes. It seems likely that teacher cognition and teaching style and student learning is moderated by the related intervening variables of teacher communication style and classroom learning environment. This aspect is discussed further in the later section on links between teacher personality and classroom environment.

## ASSESSMENT OF CLASSROOM ENVIRONMENT

The *Secondary Colleges Classroom Environment Inventory (SCCEI)* was constructed specifically for this study as a perceptual measure of classroom environment using scales from the *Learning Environment Inventory (LEI)* (Fraser, 1994; Fraser, Anderson & Walberg, 1982) and the *College and University Classroom Environment Instrument (CUCEI)* (Fraser & Treagust, 1986). Though the LEI is suited for use in high schools and the CUCEI for use in higher education institutions and has been used in senior college settings, it seemed that neither

instrument was wholly suited for the purpose of pursuing the research questions of this study in Tasmanian senior secondary colleges. Therefore the SCCEI was constructed using selected scales from the LEI and the CUCEI. The SCCEI has five scales, Personalisation, Informality, Student Cohesion, Task Orientation, and Individualisation, with seven items per scale. Table 1 clarifies the meaning of each SCCEI scale (which has a common-sense meaning) by listing the five scales and providing a scale description of each.

Table 1
*Scale descriptions of the Secondary Colleges Classroom Environment Inventory (SCCEI).*

| Scale | Scale Description |
|---|---|
| Personalisation | Emphasis on opportunities for individual students to interact with the teacher and on concern for students' personal welfare. |
| Informality | Extent to which behavior inside the classroom is guided by formal rules. |
| Student Cohesiveness | Extent to which students know, help and are friendly towards each other. |
| Task Orientation | Extent to which class activities are clear and well organised. |
| Individualisation | Extent to which students are allowed to make decisions and are treated differentially according to ability, interest or rate of working. |

The scales for the SCCEI were selected from the LEI and CUCEI according to the following criteria. First, they needed to be suitable for 16-19 year old students in a secondary colleges context. The LEI is an instrument constructed to measure secondary classroom environments (Fraser, 1994) and it generally has been used in studies of high school classrooms. While secondary colleges belong to the secondary sector, "the environment in secondary colleges is very similar to that found in many tertiary institutions" (House of Representatives Standing Committee on Employment, Education and Training, 1989, p. 118). Consequently the LEI, as it stands, was considered not fully appropriate for this study. The Friction, Favouritism and Cliqueness scales, for instance, appear suited to a younger adolescent age group, especially bearing in mind that Tasmanian secondary colleges typically can have a 10 percent mature age (adult) student population. On the other hand, the CUCEI, designed specifically for use in higher education classes, appears generally well suited to assessing classroom environments of secondary colleges (Williamson et al., 1987).

Second, the SCCEI needed to measure the three basic types of climate dimensions - *Relationship Dimensions*, *Personal Development Dimensions*, and *System Maintenance and Change Dimensions* (Moos, 1974). *Relationship Dimensions* needed proportionately greater representation in the SCCEI because, being associated with the MBTI (a teacher personality measure), it needed to provide ample data on perceived teacher interpersonal behavior. The CUCEI Innovation scale, a *System Maintenance and Change Dimensions* scale, was not central to the research aims of this study and was omitted from the SCCEI.

Third, because the scales came from two separately constructed and internally validated instruments, care needed to be taken not to select scales from each which measured essentially the same perceptions, thereby creating a new instrument with low discriminant validity. For instance, both the CUCEI and the LEI contain Cohesiveness and Satisfaction scales. Following an inspection of items, where two similar scales existed in the two instruments, the CUCEI scale was generally preferred.

Fourth, economy (relative brevity) was needed to facilitate ease of administration require a minimal amount of class-time. This suggested an instrument with not more than five scales. The CUCEI already possessed seven scales, and adding Informality would have created eight.

Following these criteria, the Personalisation, Student Cohesion (two *Relationship Dimensions* scales), Task Orientation (a *Personal Development Dimension* scale), and Individualisation scales of the CUCEI, and the Formality scale of the LEI (a *System Maintenance and Change Dimensions* scale) were selected for the construction of the SCCEI. The LEI Formality items were reworded, reversing the scoring, to make an Informality scale. This was done so that all scales carried a positive connotation, informality generally being a valued feature in secondary college cultures (Collins, 1993). Items in the SCCEI are arranged in cyclic order so that the first, second, third, fourth, and fifth item, respectively, measures Personalisation, Informality, Student Cohesion, Task Orientation, and Individualisation.

## METHOD

The same teachers completed the MBTI and teacher SCCEI, and one of their classes completed the student SCCEI. Using the scales of the MBTI as the independent variable, associations with the scales of the SCCEI were computed. Both simple and multiple correlations were employed, and analyses were performed for both the individual student and class mean as a unit of analysis.

The sample in this study was comprised of 108 teachers and 1,883 students drawn from the eight government secondary colleges (Grades 11 and 12) in Tasmania, Australia. In 1992, the year when data were collected for this study, these colleges contained approximately 8,800 students drawn from an island population of approximately 457,000. The sample was representative of college teachers in terms of gender, years of experience, and teaching area, and of Grade 11/12 college students in regard to gender and age.

## RESULTS

Analysis of responses to the SCCEI revealed that each SCCEI scale had acceptable internal consistency reliability (Table 2), with alpha coefficients ranging from .68 to .85 using the individual student as the unit of analysis, and from .87 to .94 using the class as a unit of analysis.

Table 2
*Internal consistency (Cronbach alpha coefficient), discriminant validity (mean correlation with other scales), and ability to differentiate between classrooms for total sample for the SCCEI.*

| Scale | Unit of analysis | Alpha Reliability | | | | Mean Correlation with Other Scales | | ANOVA Results Eta$^2$ |
|---|---|---|---|---|---|---|---|---|
| | | Student | | Teacher | | | | |
| | | Tas [1] | Aust[2] | Tas[1] | Aust[2] | Student | Teacher | Student |
| Personalisation | Student | 0.80 | 0.74 | 0.77 | 0.60 | 0.33 | 0.21 | 0.26* |
| | Class Mean | 0.91 | 0.85 | – | – | 0.38 | – | – |
| Informality | Student | 0.68 | 0.64 | 0.67 | – | 0.11 | 0.11 | 0.24* |
| | Class Mean | 0.87 | 0.82 | – | – | 0.21 | – | – |
| Stud Cohesion | Student | 0.85 | 0.89 | 0.82 | 0.83 | 0.25 | 0.14 | 0.27* |
| | Class Mean | 0.94 | 0.95 | – | – | 0.26 | – | – |
| Task Orientation | Student | 0.73 | 0.71 | 0.74 | 0.74 | 0.28 | 0.26 | 0.28* |
| | Class Mean | 0.87 | 0.85 | – | – | 0.26 | – | – |
| Individualisation | Student | 0.73 | 0.77 | 0.78 | 0.83 | 0.25 | 0.15 | 0.33* |
| | Class Mean | 0.89 | 0.89 | – | – | 0.28 | – | – |

* $p<0.001$

The eta$^2$ statistic (which is the ratio of "between" to "total" sums of squares) represents the proportion of variance explained by class membership.

[1] From Tasmanian sample of 1,883 students and 108 teachers.

[2] Cross-validation alpha coefficients from Australian sample of 307 students and U.S. sample of 20 teachers (Fraser et al., 1986). Note: for Informality scale Australian sample of 464 students (Fraser, et al., 1982).

The ability of the SCCEI to differentiate between the perceptions of students in different classrooms was examined by performing a one-way ANOVA for each scale with class membership as the main effect. It was found that each SCCEI scale differentiated significantly ($p<.001$) between classrooms and that the eta$^2$ statistic ranged from .24 for to .33. The data reported in Table 2 suggest the form of each scale has adequate disciminant validity (using the mean correlation of a scale with the other scales in the instrument as a convenient index). The mean correlation values with other scales for the SCCEI, ranging from .11 to .38, compare favourably to those reported by Fraser (1994) for the CUCEI, with mean correlation values with other scales ranging from .34 to .47. Also included in Table 2 are the reliability figures published by Fraser et al. (1986) and Fraser et al. (1982) for these scales. A comparison of the two sets of results indicates that the results are quite similar.

The data of the relative proportion of each of the sixteen personality types in the study sample of 108 teachers are presented in Table 3 using the standard format for type tables developed by Myers and McCaulley (1985). The data also are presented graphically in Figure 1 for ease of interpretation. Table 3 reveals that the largest proportional representation of personality types in the sample is by ENTJ and INTJ teachers (each 13.9% of sample), with Thinking-Judging types (TJs) accounting for 47.5 percent of the sample. This staff profile suggests that the predominant personality types in Year 11/12 colleges value high academic standards, subject-centred teaching, orderliness, and hard work. Therefore, these values can be expected to hold a strong place in the staff cultures of these colleges.

Table 3
*Proportion of MBTI personality types in the study sample.*

| | | | |
|---|---|---|---|
| ISTJ<br>*n*=11<br>10.2% | ISFJ<br>*n*=5<br>4.6% | INFJ<br>*n*=5<br>4.6% | INTJ<br>*n*=15<br>13.9% |
| ISTP<br>2<br>1.9 | ISFP<br>2<br>1.9 | INFP<br>3<br>2.8 | INTP<br>9<br>8.3 |
| ESTP<br>2<br>1.9 | ESFP<br>1<br>0.9 | ENFP<br>8<br>7.4 | ENTP<br>12<br>11.1 |
| ESTJ<br>12<br>11.1 | ESFJ<br>1<br>0.9 | ENFJ<br>5<br>4.6 | ENTJ<br>15<br>13.9 |

McCutcheon, Schmidt and Bolden (1991) found the largest subgroup of types represented in their sample of elementary teachers was the ESFJ type (42%), and the largest subgroup represented in their sample of secondary teachers was the ISTJ type (14.3%). Hoffman and Betkouski (1981) reviewed numerous MBTI studies which examined the relationship between teacher personality, teaching style and teacher effectiveness. They concluded that the personalities of teachers as a group are different from the general population. A particular set of type preferences (E, S, F, and J) predominate among teachers. The SJ and NF combinations of type are frequently associated with teachers and together comprise about 90% of teacher ranks. The S, F, and J types were associated with elementary grades, and the I and N combination for higher grades, especially college level. Ratings of teacher effectiveness consistently favor the ENFJ teacher. The sample distribution supports the prediction of the predominance of Intuitive teachers for higher grades but necessarily Introversion.

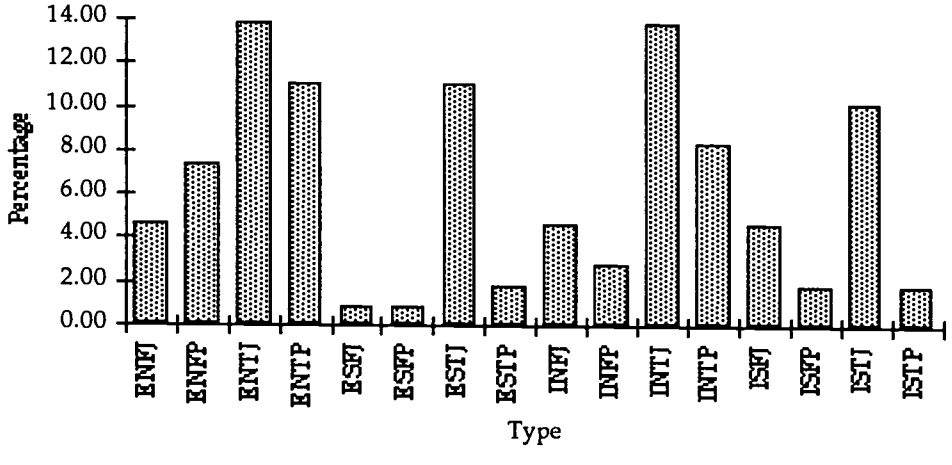


*Figure 1:* Percentage of MBTI types in study sample.

Simple and multiple correlations revealed significant associations between teacher personality and perceptions of classroom learning environment (Table 4).

Table 4
*Associations between MBTI Scale Scores with Teacher and Student SCCEI Scale Scores.*

| SCCEI Scale | Studs/ Tchrs | EI | | SN | | TF | | JP | | R | $R^2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | r | β | r | β | r | β | r | β | | |
| Personalisation | Stud | -.12 | -.12 | .03 | -.00 | .09 | .07 | .07 | .04 | .15 | .02 |
| | Tch | -.13 | -.11 | -.19* | -.27** | .10 | .13 | .08 | .13 | .30* | .09 |
| Informality | Stud | .03 | .03 | .27** | .22* | .08 | -.04 | .22* | .16 | .30* | .09 |
| | Tch | -.00 | .01 | .22* | .15 | .17 | .08 | .21* | .12 | .27 | .07 |
| Stud Cohesion | Stud | -.27** | -.26** | .05 | .01 | .04 | -.03 | .15 | .14 | .30* | .09 |
| | Tch | -.29** | -.29** | .03 | -.01 | .02 | -.05 | .15 | .15 | .33* | .11 |
| Task Orientation | Stud | .04 | .04 | -.28** | -.21* | -.16 | -.04 | -.24* | -.15 | .32* | .10 |
| | Tch | -.13 | -.13 | -.22* | -.19 | .02 | .13 | -.19* | -.18 | .31* | .10 |
| Individualisation | Stud | -.19 | -.18 | .18 | .13 | .09 | -.02 | .23* | .18 | .31* | .10 |
| | Tch | -.11 | -.10 | .19 | .12 | .14 | .05 | .20* | .13 | .26 | .07 |

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

Extraverted teachers perceived their classrooms as characterised by high levels of Student Cohesion (the extent to which students know, help and are friendly towards each other) ($p<.001$). Teachers scoring highly on Sensing perceived themselves as providing a high level of Personalisation ($p<.001$) and encouraging Task Orientation among students. On the other hand, teachers scoring highly on Intuition saw their classrooms to be characterised by Informality (behavior inside the classroom is not heavily guided by formal rules). This finding accords with that reported by Myers and McCaulley (1985) that Intuitive type teachers allow more individual student activity which results in a degree of disorder in the classroom.

Judging type teachers saw themselves as producing classrooms featuring high levels of Task Orientation, while Perceiving type teachers and their students believed their classrooms to be characterised by Informality. Previous research had found that the classrooms of Perceiving type teachers to be spontaneous, flexible, and distinguished by movement, noise, and socialising among students (Jensen, 1987, Lawrence, 1982). Perceiving type teachers also saw their classrooms to be characterised by Individualisation (the extent to which students are allowed to make decisions and are treated differentially according to ability, interest or rate of working) of instruction ($p<.05$ ).

While student perceptions were not always congruent with those of their teachers (e.g., they did not associate Personalisation in the classroom with Sensating type teachers), as seen above, generally there was agreement. Even more so than their teacher, students associated Informality, and Task Orientation with Intuitive, and Sensating teachers respectively ($p<.001$). Like their teachers, students associated classroom environments which they perceived as high in Informality, and Individualisation with Perceiving type teachers, Task Orientation with Judging type teachers, and Student Cohesion with Extravert teachers. These findings are logically consistent with, and place into a broader framework, the findings of Kent, Fisher and Fraser (1995) who found positive associations between teacher personality type and teacher interpersonal behavior in the classroom.

Multiple regression analyses indicated that combinations of Intuition and Perceiving (NP types) were significantly associated with teacher and student perception of Informality ($p<.05$), while their bipolar opposites of Sensating and Judging (SJ types) were significantly associated with both teacher and student perception of Task orientation ($p<.05$). These findings are consistent with the association found by Kent, Fisher and Fraser (1995)

between teacher personality type and teacher interpersonal behavior as measured by the *Questionnaire on Teacher Interaction (QTI)* (Wubbels & Levy, 1993). They found that the SJ teacher type and Strict Behavior and NP types and Student Responsibility/Freedom Behavior While Keirsey and Bates (1984) proposed that SJ and NFs represented a fundamental cultural divide in schools, it appears that in secondary colleges it may be rather the pedagogical differences between SJs and NPs that impacts upon perceptions of learning environments.

The relationship between MBTI and SCCEI data can be understood using social cognition theory as a conceptual model. The MBTI provides a measure of cognitive style. That is, it provides a window into teacher self-schemata, and scripts for social interaction which are associated with habitual or characteristic ways of perceiving, thinking and making judgements about interpersonal acts in the classroom context. The teacher interpersonal behavior which accompanies these self-schemata and scripts is selectively perceived and interpreted by students as a function of their prototypes of teacher behavior and their own scripts of classroom interaction. The degree of congruence between the students' scripts for classroom interaction and their perception of teacher behavior becomes an instrumental cognition in their perception of classroom environment.

## CONCLUSIONS

This study established the *Secondary College Classroom Environment Inventory* as a valid, reliable and economical instrument for use in providing teachers in the post-compulsory sector with information about the learning environment in their own classrooms. Teachers could find the SCCEI to be a valuable source of information, particularly for comparisons between their own and their students' perceptions. The study also demonstrated the suitability of the *Myers-Briggs Type Indicator* as an instrument for classroom research involving the assessment of teacher personality types. Furthermore, the study replicated certain findings from previous MBTI studies which used low-inference measures, and provided empirical support for a number of predictions of teacher behavior made by type theorists.

The relative proportions of the 16 personality types of the MBTI in the sample were determined. The largest representation of types was by ENTJ and INTJ teachers (each 13.9% of sample). Year 11/12 college teachers are heavily represented by TJ types (47.5%) which suggests that interactional strategies of teacher-centred instruction and strictness in the classroom form an important part of the staff culture..

The associations between teacher personality type and perception of classroom environment showed considerable consistency between teacher and student perceptions. Extravert teachers were positively associated with classrooms characterised by high levels of student cohesion. Perceiving type preferences were associated with both student and self-perceptions of informality and individualisation of work in the classroom. It was found that the classroom environments of SJ teachers are likely to be seen by their students as task oriented (activities are clear and well organised) while the classrooms of NP type teachers are seen as informal (not strongly guided by formal rules). These findings complement the positive associations found between the MBTI and the QTI, associations which showed that SJ teachers are seen by their students as strict and NP teachers as encouraging student self-responsibility and freedom (Kent, Fisher & Fraser, 1995).

This study suggests that the pedagogical differences between the "the realistic decision-makers" (SJs) and "the adaptable innovators" (NPs) (Myers & McCaulley, 1985) may be instrumental in the likely kinds of outcomes for students, other factors being equal. Extrapolating from the study sample, these two type combinations are likely to represent over half of the teachers in Tasmanian secondary colleges. In that case, it is possible that there is a fundamental divide among college teachers on the most appropriate teaching style and learning objectives in college classrooms.

Previous research has shown that teachers' perceptions of classroom environments frequently differ from their students' perceptions, and that the perception of students is a more accurate predictor of learning outcomes (Fraser, 1994). This study makes a contribution in showing that teachers' perceptions of classrooms are not homogeneous. Teachers present a somewhat orderly diversity in their perceptions which are in part a function of their personality type.

The relationship between teacher personality type and classroom environment can be understood using social cognition theory as a conceptual model. The MBTI provides a measure of cognitive style (a habitual or characteristic way of perceiving, thinking and making judgements, producing characteristic self-schema and classroom scripts in teachers). The behavior which accompanies these is perceived by students who, actuating their prototypes and scripts of classroom behavior, select and interpret their perceptions of the behavior of their teacher and fellow students.

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