

THE TEMPERAMENT TYPES OF LECTURERS AND STUDENTS AT A PHARMACY SCHOOL

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ABSTRACT

The personality preferences and resulting temperament types of lecturers and students play an important role in their teaching and learning respectively. The objective of this research was to compare the temperament types of pharmacy lecturers and students at a tertiary education institution. The study population included undergraduate students ($n = 603$), master's students ($n = 41$) and lecturers ($n = 35$) of a pharmacy school at a university. The results showed that pharmacy lecturers and students tend towards Sensing-Judgement temperaments, but that more students (in comparison with lecturers) have Sensing-Perception and Intuition-Thinking temperaments. These differences may contribute to misunderstandings between pharmacy lecturers and students and result in poor motivation.

OPSOMMING

Die persoonlikheidsvoorkeure en gevolglike temperamenttipes van studente en dosente speel onderskeidelik 'n belangrike rol in hulle leer en onderrig. Die doelstelling van hierdie navorsing was om die temperamenttipes van aptekertudente en -dosente aan 'n tersiêre inrigting te vergelyk. Die studiepopulasie het bestaan uit voorgraadse studente ($n = 603$), meestersgraad studente ($n = 41$) en dosente ($n = 35$) van 'n farmasieskool aan 'n universiteit. Die resultate het aangetoon dat farmasiestudente en dosente neig na 'n Gewaarwording-Oordeel-temperament, maar dat meer studente (vergeleke met dosente) Gewaarwording-Persepsie- en Intuisie-Denke-temperamente het. Hierdie verskille kan bydra tot misverstande tussen farmasiestudente en dosente en lei tot lae motivering.

Education is high on the agenda of national priorities in South Africa, as it is indeed elsewhere in the world (Rifkin, 1996; Van Zyl, 1999). Since April 1994 a new approach to education and training has been launched in South Africa when the policy of outcomes-based education and training was adopted. This policy promotes the idea that students should be critical and creative thinkers, which is in contrast with the previous educational approach, which was content-focused. In the past learners did not play an active role in the learning situation and learning was mostly memory-based (Barr & Tagg, 1995). In outcomes-based training it is important that the learner understands and transfers newly acquired knowledge and skills to different situations.

The personality preferences and resulting temperament types of lecturers and students play an important role in their learning and teaching respectively. Personality preferences are defined as reflections of habitual choices between the rival alternatives in the ways information is being received and decisions are being made (Myers, McCaulley, Quenk & Hammer, 1998). Jung's (1971) theory of psychological types and the Myers-Briggs Type Indicator (MBTI) are often utilised to conceptualise personality preferences and the effects thereof on education (Myers et al., 1998). Personality preferences refer to the way people prefer to relate to each other (either Extraversion or Introversion), the way people prefer to attend to and gather data (either Sensing or Intuition), the way they prefer to process data and make decisions (either Thinking or Feeling) and the way they prefer to organise themselves (either Judgement or Perception).

Myers et al. (1998) recommend that research should not only focus on personality preferences, but that the effect of interactions between these preferences should be studied. For the purposes of this research it was decided to study the effect of

preference interactions from the framework of temperament types (Keirse & Bates, 1984). According to Keirse (1998) personality consists of temperament and character. Temperament is a configuration of inclinations, while character is a configuration of habits. Character refers to temperament predisposition. Two of the combinations of the functions (Intuition-Feeling and Intuition-Thinking) and two of the combinations of perception and orientation to the outer world (Sensing-Judgement and Sensing-Perception) are used by temperament researchers to identify four temperament types (Myers et al., 1998). The temperaments are identified as the Sensing-Judgement temperament, the Sensing-Perception temperament, the Intuition-Feeling temperament and the Intuition-Thinking temperament (Keirse & Bates, 1984).

Researchers found that the majority of pharmacy students have Sensing-Judgement temperaments (Draugalis & Bootman, 1986; Shuck & Phillips, 1999). The problem is that preferences for Sensing and Judgement are related to resistance to change and a lack of innovative thinking, which may impact negatively on the pharmacy profession (Fudjack & Dinkelaker, 1994). Differences in temperament types between lecturers and students will cause natural and predictable differences in learning styles and in students' responses to teaching methods (Huit, 1992; Myers & Myers, 1995). These differences in learning and teaching styles may also result in misunderstandings, demotivation and poor performance.

The School of Pharmacy in the Faculty of Health Sciences at the Potchefstroom University for Christian Higher Education (PU for CHE) is the largest tertiary pharmaceutical institution in South Africa. Rothmann (1997) investigated pharmacy students' experiences of education at the PU for CHE and suggested that research on the interaction between the temperament types of lecturers and students might be beneficial. She concluded that students want lecturers to be learner-centred and that misunderstandings between them might be related to different temperament types.

Based on the above-mentioned discussion it was concluded that research on the temperament types of lecturers and students at the pharmacy school of the PU for CHE might be beneficial. The research results could be used in educational planning and optimising lecturers' interpersonal relationships with students.

The objective of this research was to compare the temperament types of lecturers and students at a pharmacy school.

Temperament types and education

Type theory (Myers et al., 1998) and temperament theory (Keirsey & Bates, 1984) are two separate systems for explaining personality that are independent of each other in origin. For example, temperament theory does not require the Extravert-Introvert dichotomy for its explanatory system. However, both type and temperament theory share a common goal of identifying, describing and appreciating individual differences in personality. Keirsey and Bates (1984) and Keirsey (1998) describe the four temperaments as follows in relation to learning and teaching styles:

- **Sensing-Perception temperament.** Sensing-Perception students prefer physical involvement in the learning process and want to try things themselves. They learn best when they are entertained, so they enjoy multimedia presentations. Sensing-Perception students tend to be competitive and often responds well to group projects, especially if the groups are involved in some kind of contest. They require a great deal of variety in the learning environment, and if this is lacking, they may become disruptive. A standard lecture format with questioning is boring to Sensing-Perception students, as is most traditional paperwork.

Sensing-Perception lecturers are usually entertaining and well loved by their students. They rarely follow a syllabus. They value spontaneity and students' involvement in the classroom, and they allow students to turn the class discussion away from the subject of the day. Sensing-Perception teachers like using multimedia presentations to teach. They are more likely to get students to learn through competition or games. Sensing-Perception lecturers are not very conscientious about grading.

- **Sensing-Judgement temperament.** Sensing-Judgement students' core needs are for group membership and responsibility. They like and need structure in the learning environment, so they prefer a sequential presentation of the material. Sensing-Judgement students do best when they have well-designed tasks assigned to them and clear directions. Sensing-Judgement students may become uncomfortable in classroom discussions unless the lecturer carefully controls them. They prefer to study facts and procedures and are often at a loss when an assignment requires them to improvise or be creative.

Sensing-Judgement lecturers have well-established classroom routines and are rarely behind with their syllabuses. A student's comment or question that interrupts the routine may be disorienting to the Sensing-Judgement lecturer. They are excellent at questioning and are well prepared for class. Sensing-Judgement lecturers provide quick and meaningful criticism of written work but are not likely to point out what the student has done right. They are not empathetic and are not likely to allow special arrangements for students with unusual circumstances.

- **Intuition-Thinking temperament.** Intuition-Thinking students tend to be independent learners and are often self-sufficient in the classroom. They want to choose their own research paper topics and would even like to have some control over the subject matter of the course. Intuition-Thinking students are comfortable with a logical, didactic presentation of the material and need few, if any, examples to follow up a theoretical presentation. They are often loners in class, especially if they also prefer Introversions. Be-

cause they prefer to have discussions with the lecturer rather than with other students, they do not perform well in group discussions or group assignments.

Intuition-Thinking lecturers are subject-oriented rather than student-oriented. They tend to be impersonal because they assume that students are eager to learn. They are usually very inspirational to the best students. Intuition-Thinking lecturers hold to rigorous academic standards and are not likely to be swayed by emotional appeals to change a grade or allow a special privilege for a student. They may often move too quickly through the material because they hate redundancy.

- **Intuition-Feeling temperament.** Intuition-Feeling students enjoy a democratically run classroom with plenty of interaction with other students and the lecturer. They enjoy group projects as long as the group works co-operatively rather than competitively. They learn best through class discussions and case studies. Because of the ease with which Intuition-Feeling students express themselves they do better in classes that require papers and essays rather than more objective means of evaluation. In addition, they value personal recognition.

Personal charisma and commitment to the students mark Intuition-Feeling lecturers. They tend to relate to each student on an individual basis. Intuition-Feeling lecturers not only care about students, they themselves want the students to care about them. They usually conduct a democratic classroom, are willing to depart from the lesson plan in response to the needs of the class and are usually behind with their syllabuses for this reason. Intuition-Feeling lecturers are more likely to bring social values into their classrooms.

Borg and Shapiro (1996) found that students with a Sensing-Judgement temperament performed very well in principles of macroeconomics, and that those with Intuition-Thinking and Intuition-Feeling temperaments performed significantly worse than their Sensing-Judgement counterparts. A student whose temperament type matched the lecturer's temperament did significantly better in class than those whose temperament type did not match the lecturer's.

Myers et al. (1998) suggest that Sensing-Perception temperaments are at an educational disadvantage because of the failure of educational environments to recognise their learning styles and competencies. The things that are valued and used as criteria of educational success seem to be opposite to the style and areas of competency of students with Sensing-Perception temperaments.

Schurr and Ruble (1986) found that the achievements of students with preferences for Judgement were the highest, while the achievements of those with preferences for Perception were the lowest. This finding may be explained by the negative correlation between a preference for Perception and conscientiousness (McCrae & Costa, 1989). Schurr, Houlette and Ellen (1986) found that the accuracy of predicted grades in an introductory English composition course were influenced substantially by differences in personality preferences of instructor and student. Tharp (1993), who studied the relationship between personality preferences and achievement in an introductory Biology course, found that students with preferences for Perception were the lowest achievers.

According to Myers et al. (1998) individuals with a preference for Judgement tend to obtain higher grades and higher scores on intelligence tests than those with a preference for Perception. It seems that the need for closure and an organised approach to external events get results, especially when the predominant lecturer's preference is also Judgement. Individuals who preferred Intuition also obtained higher scores on intelligence tests than those with a preference for Sensing.

Rezler et al. (1975) reported that pharmacy students show a strong propensity for Sensing and Judgement preferences. Lowenthal (1994) compared the personality preferences of

pharmacy students and faculty and found more Sensing, Feeling and Perception preferences in the case of students than in the sample of staff members. Schuck and Phillips (1986) found that pharmacy curricula emphasise facts and pieces of information rather than caring for the patient.

Based on the above-mentioned research of Borg and Shapiro (1996) and Shuck and Phillips (1999) the hypothesis of this research is that students' and lecturers' temperament types differ and that temperament type is related to academic success.

METHOD

Research design

A survey design was used to test the research hypothesis. The specific design is the cross-sectional design, whereby a sample is drawn from a population at one time (Shaughnessy & Zechmeister, 1997). Information collected is used to describe the population at that point in time. This design can be used to assess interrelationships among variables within a population. According to Shaughnessy and Zechmeister (1997) this design is ideally suited to the descriptive and predictive functions associated with correlational research.

Sample

The total population (N = 686) of undergraduate students in the School of Pharmacy at the PU for CHE was included in the study, although 83 undergraduate students were either unwilling to complete the questionnaires or unavailable at the time of testing. The sample therefore consists of 603 volunteer undergraduate students, 471 females and 132 males who were selected for pharmacy studies based on their Standard 10 performance and a psychometric test battery (which included aptitude, interest, personality as well as study habits and attitude tests).

The undergraduate group was further divided into a core group (n = 439) and a non-core group (n = 164). The core group included all students who passed all their prescribed subjects the previous year and who were registered for all the prescribed subjects in the current year. The non-core group included those students who did not pass all their prescribed subjects in the previous year or who did not register for all their prescribed subjects in the current year. The total population of master's students (N = 41) and lecturers (N = 35) in the School of Pharmacy at the PU for CHE were included in the research.

Measuring instrument

The MBTI was used to measure the students' and lecturers' temperament types. Form G of the MBTI consists of 126 items measuring the four bipolar personality dimensions. The internal consistencies of the MBTI sub-scales used for the purposes of this research vary between 0,83 (for Thinking-Feeling) and 0,86 (for Judgement-Perception) (n = 32 671) (Myers et al., 1998). According to Myers et al. (1998) few or no differences in internal consistency reliabilities across age, gender and ethnic groups in the United States of America were found. Furthermore, higher reliabilities were found in groups with higher average intelligence (compared with groups with lower average intelligence) and in university samples (compared with high school samples) (Myers et al., 1998).

The test-retest reliabilities of the MBTI continuous scores are satisfactory and vary between 0,59 en 0,63 after a nine month interval (Myers et al., 1998). Analysis of the test-retest agreement of dichotomies in two samples showed percentages between 75% and 87% for the sub-scales of the MBTI. A test-retest reliability of 0,92 was found in cases of clear preferences, while a coefficient of 0,81 was found in cases where preferences were unclear (De Bruin, 1996).

The scales of the MBTI are related to traits as measured by respected trait-based instruments (Deller, 1997; Frazer, 1994; Furnham, 1996). Satisfactory construct validity was found in comparison with other recognised instruments such as the Jungian Type Survey, the Million Index of Personality Styles,

the California Psychological Inventory and the NEO-Personality Inventory (Myers et al., 1998). Several large international samples, using exploratory techniques, supported the postulated factor structure of the MBTI (Ryting & Ware, 1993).

Statistical analysis

The statistical analysis was done by using the SAS program (SAS Institute, 1996). Descriptive statistics (e.g. percentages) were used to analyse the data. Because the total available population of students and lecturers was included in the study, effect sizes (which indicate practical significance) rather than statistical significance were used to assess the significance of the results (Steyn, 1999). The effect size, which is indicated by the phi coefficient (w), a special case of the product-moment correlation, was used to determine the correlation coefficients between dichotomous data (Steyn, 1999). The phi-coefficient (w) is computed as the square root of the Chi-square value divided by the total group (n) (Cohen, 1988). Cohen (1988) recommends the following guidelines for practical significance of w :

small effect: $w = 0,1$
 medium effect: $w = 0,3$
 large effect: $w = 0,5$

For the purposes of this research $w \geq 0,3$ is regarded as practically significant.

RESULTS

Table 1 shows the distribution of the four temperaments of pharmacy lecturers and students.

TABLE 1
 TEMPERAMENT TYPES OF PHARMACY STUDENTS AND LECTURERS

TYPE	US - %	UM - %	UF - %	CG - %	NCG - %	MS - %	SM - %
SJ	54,22	47,72	56,05	58,77	42,07	46,34	71,43
SP	14,93	21,21	13,13	10,93	25,61	19,52	2,86
NF	11,28	9,09	11,89	11,62	10,37	9,76	14,29
NT	19,57	21,97	18,89	18,68	21,95	24,40	11,43

US (Undergraduate students) N = 603 NCG (Non-core group) N = 164
 UM (Undergraduate males) N = 132 MS (Master's students) N = 41
 UF (Undergraduate females) N = 471 SM (Lecturers) N = 35
 CG (Core group) N = 439

Table 1 shows that 14,93% of the undergraduate students, 25,61% of the non-core group and 19,52% of the master's students have a Sensing-Perception temperament. In contrast, 54,22% of the undergraduate pharmacy students (which include 56,05% of the females), 58,77% of the core group and 42,07% of the non-core group and 46,34% of the master's students have a Sensing-Judgement temperament.

Table 2 shows the four temperaments of the undergraduate students in various years of study.

TABLE 2
 TEMPERAMENT TYPES OF UNDERGRADUATE PHARMACY STUDENTS IN VARIOUS STUDY YEARS

TYPE	CG2	NCG2	CG3	NCG3	CG4	NCG4
SJ	64,77	33,33	51,30	39,22	60,32	47,44
SP	10,23	27,27	13,04	19,61	11,90	29,49
NF	7,95	12,13	12,18	9,80	10,32	8,97
NT	17,05	27,27	23,48	31,37	17,46	14,10
w	0,30*		0,14		0,22	

CG2 (Core, second year) N = 88 NCG2 (Non-core, second year) N = 33
 CG3 (Core, third year) N = 115 NCG3 (Non-core, third year) N = 51
 CG4 (Core, fourth year) N = 126 NCG4 (Non-core, fourth year) N = 78

* Practically significant (medium effect) $w = 0,3$

Table 2 shows that most of the students in the core group of the second (64,77%), third (51,30%) and fourth year (60,32%) have a Sensing-Judgement temperament. Only 7,95% of the second-year core group, 12,18% of the third-year core group and 10,32% of the fourth-year core group have an Intuition-Feeling temperament. Although most of the students of the non-core group also have a Sensing-Judgement temperament, the percentage of students with the Sensing-Judgement temperament is less: 33,33% of the second-year non-core group, 39,22% of the third-year non-core group and 47,44% of the fourth-year non-core group. More students of the non-core group in comparison with the core group have a Sensing-Perception temperament (10,23% of the second-year core group compared with 27,27% of the second-year non-core group). A percentage of 13,04 of the third-year core group compared with 19,61% of the third-year non-core group, as well as 11,90% of the fourth-year core group compared with 29,29% of the fourth-year non-core group have a Sensing-Perception temperament.

Table 3 shows the practical significance of the differences between the temperament types of pharmacy lecturers and students.

TABLE 3
DIFFERENCES BETWEEN STUDENTS' AND LECTURERS' TEMPERAMENT TYPES

Group	<i>w</i>
Undergraduate students (2 nd year) vs. Lecturers	0,20
Non-core group (2 nd year) vs. Lecturers	0,45*
Undergraduate students (3 rd year) vs. Lecturers	0,22
Non-core group (3 rd year) vs. Lecturers	0,38*
Undergraduate students (4 th year) vs. Lecturers	0,17
Non-core group (4 th year) vs. Lecturers	0,32*
Non-core group (all years) vs. Lecturers	0,27*
Male undergraduates vs. female undergraduates	0,11
Master's students vs. lecturers	0,34*

* Practically significant (medium effect) $w = 0,3$

Table 3 shows that there are no practically significant differences between the temperament types of lecturers and undergraduate students of the core group in the second, third and fourth year of study. Undergraduate male and female students do not differ significantly regarding temperament type. Practical significant differences exist, however, between the temperament types of non-core group students and lecturers in the second year (medium effect), third year (medium effect) and fourth year (medium effect). The temperament types of master's students also differ from those of lecturers.

DISCUSSION

The results show that most undergraduate and master's students have a Sensing-Judgement temperament. They prefer a traditionally-based classroom and need structure in the learning environment. They would expect well-designed tasks assigned to them, with clear directions and they dislike long-term independent projects. Sensing-Judgement temperament students might experience the new paradigm of less structured learning as a threat. Most students might expect lecturers to control the classroom situation, especially because Sensing-Judgement temperament students might become uncomfortable with classroom discussions (Keirse & Bates, 1984).

Furthermore, it seems that the majority of lecturers have a Sensing-Judgement temperament. They may reinforce the Sensing-Judgement temperament of students by establishing classroom routines, because they do not like interruptions of routines. As they also see themselves as preserving and passing on the cultural heritage of the institution and profession, resistance to change against the new paradigm of education might be met if it is not introduced correctly. The Sensing-Judgement lecturer who is not sufficiently informed about

and trained in the new paradigm, may find the role as facilitator as well as the less structured classroom with comments, critical thinking or questions from students quite disorientating.

The results indicate that 21,21% of undergraduate male students, 25,61% of the non-core group and 19,52% of the master's students have a Sensing-Perception temperament. They prefer physical involvement in the learning process, want to be able to try things themselves through hands-on experience, require a great deal of variety in the learning environment and find a standard lecture format with questioning boring. However, few of the lecturers have a Sensing-Perception temperament, which may cause misunderstandings between Sensing-Perception temperament students and lecturers.

Fewer students in the non-core group (compared with the core group and the lecturers) have a Sensing-Judgement temperament and more have Sensing-Perception and Intuition-Thinking temperaments. While no practically significant differences were found between the temperament types of undergraduate lecturers and students, the results confirm that practically significant differences exist between the temperament types of lecturers and students in the non-core group. More non-core group students (compared with lecturers) seem to have Sensing-Perception and Intuition-Thinking temperaments. Possible reasons why non-core group students (in comparison with core group students) take longer to complete their studies or, stated differently, are less academically successful, are the following:

- The preference for Perception in the Sensing-Perception temperament may result in students being less conscientious and studying less (McCrae & Costa, 1989; Myers et al., 1998).
- Students with Sensing-Perception and Intuition-Thinking temperaments may prefer to learn in different ways than most successful students prefer to learn, and lecturers (with a Sensing-Judgement temperament) prefer to teach (Borg & Shapiro, 1996; Myers et al., 1998; Schurr et al., 1986).

The findings of this research are in agreement with a similar study amongst undergraduate lecturers and students of the Faculty of Economic and Management Sciences at the same tertiary educational institution (Rothmann, Coetzee, Fouche & Theron, 2000). However, the results differ from those obtained elsewhere in the world. Research abroad found that lecturers preferred Intuition and that there exists an equal distribution of Sensing-Judgement, Intuition-Feeling and Intuition-Thinking temperaments (Brightman, 1998; Myers et al., 1998; Schuck & Phillips, 1999).

It can be deduced from this research that the pharmacy course favours the Sensing-Judgement combination, which prefers individual prescribed tasks in a planned, orderly manner with definite goals and deadlines (Schuck & Phillips, 1999).

Recommendations

In this research it was found that pharmacy lecturers and students tend to prefer Sensing and Judgement. This finding has relevance for outcomes-based pharmaceutical education and implies that lecturers should also attend to other less developed functions (such as Intuition, Feeling and Perception). Lecturers should be sensitised to possible reasons why students with certain temperament types may be poor achievers, and the effect of interaction between their own and students' temperament types.

We do not suggest that pharmacy lecturers and students should change their temperament types, but they need to know their own and others' preferences and development areas arising from that. Pharmacy lecturers and students should be trained in MBTI terminology, so that they will be empowered to work on the development areas arising from the MBTI. In this process resistance to change among lecturers should be carefully managed, because they might

find feedback and development overwhelming. The focus should be placed on development on all of the preferences, as measured by the MBTI.

A shortcoming of this research is that it is only focused on the temperament types of lecturers and students at one pharmacy school in South Africa. The results can therefore not be generalised to other pharmacy schools.

Future research should focus on the relationship between pharmacy students' personality preferences and their perceptions of pharmacy education and practice in other pharmacy schools. Research should also be done on the effect of programmes directed at the development of personality preferences of pharmacy lecturers and students.

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