Learning style preferences of undergraduate nursing students


Abstract

**Aim** To determine the predominant learning style preferences of undergraduate nursing students.

**Method** A demographic questionnaire and Honey and Mumford’s (2000a) learning styles questionnaire were administered to a purposive sample of 136 students.

**Results** A response rate of 81% (110) was obtained. The results are congruent with UK studies, which show that the reflector is the preferred learning style of undergraduate nursing students. A ‘dual’ learning style category was also identified.

**Conclusion** A mismatch between teaching style and the learning styles of students has been found to have serious consequences. A variety of modes of teaching and learning should be used to meet the learning needs of students.

**Authors**

Goolam Hussein Rassool is professor of addiction and mental health, University of Sao Paulo, Brazil, and Salman Rawaf is director of public health, Wandsworth Teaching Primary Care Trust, London. Email: grassool@sgul.ac.uk

**Keywords**

Education; Education: methods; Education: teaching staff

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THE INCREASINGLY technological clinical environment and increased autonomy of nurses have meant further development in teaching and learning strategies and other learning opportunities within nursing curricula. Diversity has brought new challenges to the nursing profession with the widening entry gate and more diverse and mature students. Age, gender and ethnicity profiles are also changing, with greater numbers of male students entering nursing education programmes (Nursing and Midwifery Council 2005). The increasingly heterogeneous background of nursing students has resulted in different abilities, skills and experiences. These challenges need to be addressed through structured approaches to learning and teaching activities. A range of approaches has been advocated to optimise learning activities and meet the learning needs of students. The requirement to provide a range of teaching approaches has been highlighted in response to UK government reports on the impact of technology on teaching and learning (National Committee of Inquiry into Higher Education 1997).

The report of the National Committee of Inquiry into Higher Education (1997) endorsed learner-centred approaches and emphasised that learners should come to know their own learning styles. For learning tasks, the report stated that ‘an effective strategy is to guide and enable learners to be effective learners, to understand their own learning styles and to manage their own learning’ (National Committee of Inquiry into Higher Education 1997).

To provide effective learning and positive educational outcomes, nurse educators have integrated a variety of learning and teaching strategies depending on their teaching styles. Educators have known for years that learning styles affect the way students learn, and significant relationships have been identified among learning styles preference, including gender, personality, student retention, clinical education and academic achievement (Vittetoe and Hooker 1983, O’Brien and Wilkinson 1992, Nelson et al 1993, O’Brien 1994). Thus, learning style preferences influence the way in which students respond to an educational programme in relation to mastering its goals and objectives.
Background

The concepts of learning style and cognitive style are interchangeable in the literature. The term cognitive style was replaced by the term learning style in the 1970s, as cognitive style is only part of an individual's learning style (Riding and Cheema 1991). According to Blagg (1985), learning styles are the result of students’ preferred learning mode, learning-environment context, major areas of learning interests and the general mode of delivery. There are several definitions of learning style based on different approaches and schools of thought. Jonassen and Grabowski (1993) define learning styles as: ‘the learner’s preferences for different types of learning and instructional activities’. This is based on the learning-centred tradition that involved adopting strategies, interests and teaching preference. In the context of this study, a learning style is described as: ‘...a description of the attitudes and behaviour which determine an individual’s preferred way of learning’ (Honey and Mumford 1992).

Kolb (1984) showed that learning styles could be seen as a continuum running from concrete experience, to reflective observation, to abstract conceptualisation and finally to active experimentation. There are four learning styles in Kolb’s learning styles inventory (Figure 1):

- Diverger
- Assimilator
- Converger
- Accommodator

Kolb (1985) asserted that it is important for individuals to understand their learning styles so that they can improve their effectiveness as learners. In the model (Figure 1), divergers excel in concrete experience and reflective observation. Divergers are described as sensitive, imaginative and people-orientated and often enter professions, such as human resources development, counselling or nursing. They excel in brainstorming sessions. Assimilators are less focused on people and more interested in ideas and abstract concepts. They excel at organising and presenting information in a clear, logical format. In formal learning situations, individuals with this style prefer reading, lectures, exploring analytical models and having time to think things through. Convergers can solve problems and prefer technical tasks, and are less concerned with people and interpersonal aspects. Individuals with converging style are less people-oriented and often choose careers in technology. Accommodators excel in concrete experience and active experimentation and prefer to take a practical or experiential approach. They are attracted to new challenges and experiences, and to carrying out plans. They are people-oriented and active learners.

As with any behavioural model, these styles of learning are dynamic. Nonetheless, most individuals exhibit strong preferences for a given learning style. However, Kolb et al (1995) maintain that each individual’s learning style is not necessarily fixed and that in using them there is a need to avoid the danger of being stereotyped.

Honey and Mumford (1986, 1992) developed their learning styles questionnaire as a variation on Kolb’s model. The four learning styles are (Figure 2):

- Activist
- Reflector
- Theorist
- Pragmatist

Activists are dominated by immediate experiences and primarily interested in the here and now. They like to initiate new challenges and to be the centre of attention. Reflectors are observers of experiences and prefer to analyse them thoroughly before taking action. They are good listeners, cautious and tend to adopt a low profile. Theorists like to adopt a logical and rational approach.
approach to problem-solving but need structure with a clear purpose or goal. Theorists learn least well when asked to do something without apparent purpose, when activities are unstructured and ambiguous and when emotion is emphasised. **Pragmatists** are keen on trying out ideas and techniques to see if they work in practice. They are essentially practical, down-to-earth people, who like making decisions and solving problems. The four learning styles: activist, reflector, theorist and pragmatist overlap and are a product of combinations of the learning from experience stages (Figure 2).

Learning styles have been extensively investigated in nursing and nursing education, using mainly Kolb’s learning styles inventory, in the United States. Nursing students are among the most frequently studied groups of professionals with regard to learning styles (DeCoux 1990).

However, there is a dearth of recent literature in the UK on the learning style preferences of undergraduate nursing students. Studies from the UK have found that the reflector learning style is most dominant in undergraduate nursing students (O’Kell 1988, Ramprogus 1988, Sutcliffe 1993, Cavanagh et al 1994). A study of undergraduate nurses in England by Ramprogus (1988) found that students had no learning style preference. He also found that there was no relationship between learning styles and learning effectiveness or the ability to solve problems. O’Kell (1988) examined the learning style preferences of nursing students, and he used Kolb’s learning styles inventory. The results indicated that more than two-thirds of learners had concrete learning styles preferences.

A study of 119 students and 13 nurse teachers undertaken by Dux (1989) to examine learning styles preferences found that the groups sampled did not express a strong preference for any one learning style, in particular, but preferred a combination of styles.

Sutcliffe (1993) investigated whether nurses’ preferred learning styles varied according to subject area studied. The results suggested that there was a change in learning style as different subjects were studied. Other factors emerging were the importance of previous learning experience, the wish to share, to be acknowledged and the need for close links between theory and practice.

Cavanagh et al’s (1994) study of 192 undergraduate nursing students, using Honey and Mumford’s (1992) learning styles questionnaire, found that the sample had a predominant reflector learning styles preference and perceived activist as the least favourable style. Cavanagh et al (1995) repeated this study using Kolb’s learning styles inventory with the same sample of students. The findings showed that 54% of students had a predominantly concrete (accommodator) learning style while 46% were predominantly reflective. Cavanagh et al (1995) suggest the need to use a variety of delivery styles with students, given the distribution of learning styles, with an emphasis on participation and experiential learning.

Many researchers have questioned the reliability and stability of learning styles (Garner 2000, Duff and Duffy 2002). This is because they are unlikely to be accurate or correct and are not a fixed entity. Both Kolb’s learning styles inventory and Honey and Mumford’s learning styles questionnaire have been criticised on the grounds of item format, use of norms, and poor reliability and validity (Bonham 1988, Bostrom et al 1990, Duff 1997, Duff and Duffy 2002). According to DeCoux (1990), nurse researchers have been ‘economical with the truth’ in nursing literature about the lack of validity and reliability of learning style instruments to warrant their current use in nurse education.

In summary, the findings from the literature review indicate that the predominant learning style preference among nursing students is Kolb’s ‘concrete experience’, that is, the accommodator-divergent or activist-reflector in Honey and Mumford’s learning styles questionnaire. This is incongruent with the notion that nursing learning environments are both ‘people-oriented’ and ‘scientific’ (Kolb 1984).

**Aim**

The aim of the study was to determine the predominant learning styles preferences of undergraduate nursing students.
Method

A survey design was adopted and a purposive sample used. Four cohorts of undergraduate students from three educational institutions enrolled on a course leading to a diploma or BSc in nursing were identified to take part in the study. Two educational institutions were based in an urban area and one in a rural area.

A demographic questionnaire and the learning styles questionnaire (Honey and Mumford 2000a) were administered to the cohorts. In collaboration with module leaders, a schedule was developed to meet with the different cohorts to explain the purpose of the study. To ensure maximum response and to answer any questions the students had about completing the questionnaire, it was administered in the controlled environment of formal class time and under the supervision of one of the authors or a module leader.

The learning styles questionnaire (Honey and Mumford 2000a) explores an individual’s learning styles by asking 80 questions, 20 for each learning style (activist, reflector, theorist and pragmatist). For this study, the learning styles questionnaire was not piloted because the questionnaire was used with undergraduate nursing students. In addition, Honey and Mumford (2000a) have established norms for undergraduate nursing students (the range of learning styles preferences that can be expected) (Table 1), with which respondents’ scores from this study can be compared. Permission was granted by Honey and Mumford to use the learning styles questionnaire in this study.

The variables were summarised using frequency distributions and percentages. Data from the learning styles questionnaire for each respondent were scored and plotted on a grid to determine the student’s learning styles preference.

Ethical issues

The study had the approval of the institutions’ research ethics committees. Respondents were given a consent form to complete if they agreed to participate in the study with the proviso that all data collection would be confidential.

Results

The sample consisted of 136 respondents, of whom 110 completed the questionnaires giving a response rate of 81%. Non-respondents had similar demographic variables to respondents. The questionnaires were completed by 47 (43%) men and 63 (57%) women. The mean age of respondents was 32.91 (SD = 7.98) with a range of 20 to 55 years. Forty five respondents (41%) were white, 49 (45%) were black African and Caribbean and 16 (15%) were Asian and other. The educational attainment of respondents ranged from GCSE to university degrees. Forty nine respondents (45%) had GCSE O and A levels, 34 (31%) had a diploma/higher national diploma and 27 (25%) had a university degree.

Figure 3 shows the mean scores compared to Honey and Mumford’s norm for nursing students. Figure 4 summarises the distribution of the students’ dominant learning styles preference. Analysis of the frequencies of learning styles preference data revealed that the reflector group was the highest category (48, 44%), which indicates that the majority of the sample was in this single ‘dominant’ learning category. The activist category, which included 18 (16%) students, represented the second highest number in the single learning styles category, followed by theorist (6, 5%) and pragmatist (5, 5%).

The additional dual learning style category is interesting (Figure 4). Respondents whose scores were highest in two categories and classified in the strong and very strong preference were placed in the dual learning style category. Thirty three (30%) respondents were classified as having a dual learning styles preference, making this the second largest learning styles group in the sample.

Figure 5 shows the frequency distribution of respondents dual learning style. The dual learning styles category had six combinations: activist-reflector, activist-theorist, activist-pragmatist, reflector-theorist, reflector-pragmatist and theorist-pragmatist. A total of 33 students had a dual learning style. The highest category in this group was the reflector-theorist learning style (16, 48%).

Discussion

The results should be interpreted with caution because of the study limitations. A methodological consideration is the nature of the sample itself. This group of students had elected to undertake the mental health branch of the

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<th>Very low</th>
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<tr>
<td>Activist</td>
<td>0-5</td>
<td>6-8</td>
<td>9-12</td>
<td>13-15</td>
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<tr>
<td>Reflector</td>
<td>0-9</td>
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<td>14-17</td>
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<td>Theorist</td>
<td>0-8</td>
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<tr>
<td>Pragmatist</td>
<td>0-9</td>
<td>10-11</td>
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<td>15-16</td>
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(Honey and Mumford 2000b)
nursing programme. This 'self-selected' group of students may be different in personality, interest and motivation compared with those following other specialist branches of nursing. Thus, generalising the results to other undergraduate nursing students is limited. Honey and Mumford’s (2000a) learning styles questionnaire was not tested for reliability in this study as the authors reported internal consistency reliability coefficients of 0.89. However, any discrepancies in reliability would affect the validity and, therefore, the generalisability of the results. In addition, the collection of data during formal attendance at a wider educational programme, student motivations and assignments may serve as potential limitations.

The results from this study that the reflector is undergraduate nursing students preferred learning style is consistent with results from previous studies (Alonso 1992, Cavanagh et al 1994). A more recent study of undergraduate nursing students found that students had a high preference for the reflector learning style followed by the theorist learning style (Perez et al 2005). Studies with medical practitioners using the Honey and Mumford (2000a) learning styles questionnaire found that the reflector was the preferred style (Lesmes-Anel et al 2001, McCall et al 2005). These results reflect those of the present study. Therefore, nurses and medical staff may have similar learning styles preferences.

Cavanagh et al (1994) found the lowest mean scores for the activist learning styles preference. In the present study, the activist learning styles preference also had the lowest mean scores compared to the other learning styles preferences (Figure 3). In addition, there is some degree of consistency with the norm nursing data of Honey and Mumford (2000a) and Cavanagh et al’s (1994) study. The activist and pragmatist mean scores are observed to be lower than that of the normed data, while the reflector mean scores appear higher. This may suggest that the demographic profile of the students was different from the normed data. Despite the differences in nature of the sample, time between the various studies reported and educational and psychosocial contexts, similar results to Cavanagh et al’s (1994) study were obtained in this study.

The dual learning styles preference was an unexpected finding as this preference was not well documented in the literature. The phenomenon of dual learning styles preference was documented in only one nursing study (O’Brien and Wilkinson 1992), using Kolb’s learning styles inventory. Thirteen per cent of the sample was identified with this dual characteristic. In a study with physical therapy students, Olson (2000) found that about one-third of the sample were categorised as having a
dual learning styles preference. Studies with GPs have also observed the dual learning styles preference, mainly the reflector-theorist preferred style (Lesmes-Anel et al 2001, McCaill et al 2005).

Dual learning styles may be attributed to the nature and characteristics of the undergraduate nursing student sample in this study. Age-mature nursing students may have learned to be adaptive in their teaching and learning experiences and developed skills to meet the demanding requirements of the course. The results of the dual learning styles preference group may also be congruent with the contention that nurses are both people-orientated (reflector) and scientific (theorist). The results of this study also support Kolb’s (1984) claim that no single learning environment is orientated towards just one of the four learning modes.

Kolb (1984) stated that an effective learner is able to apply skills from each of the learning modes in whatever combination the learning situation requires. The integration of all four modes of learning into an individual’s repertoire, however, is a developmental growth process (Kolb 1984). It is apparent from the data in this study that, given the fact that the mean age of the sample was 33 years, some of the students may have integrated their learning styles or reached the ‘integration’ stage of their development. The understanding of students’ learning styles preferences would enable, if possible, a match to be made between their learning styles and the teaching styles of teachers. This would make instruction more effective.

**Conclusion**

This study identified that the preferred learning styles preference of undergraduate nursing students was reflective but a high occurrence of dual learning styles, particularly the reflector-theorist combination, was also observed. This has implications for teachers and students. The divergence of learning styles provided more evidence that a variety of modes of teaching and

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learning should be used in meeting the learning needs of students. A mismatch between the teaching style and the learning styles of students has been found to have serious consequences. Students tend to be uninterested, do poorly on tests, become discouraged about the course, and may conclude that they are not good at the subject and give up (Smith and Renzulli 1984, Felder and Silverman 1988, Oxford et al 1991). In addition, understanding the learning style preferences of students can enhance learning for those who are under-performing in their academic studies. Those who are ‘at risk’ may be provided with supplementary learning programmes can be devised and initiated.

Teachers also need to assess their learning and teaching style preferences so that they are aware of their unconscious bias towards particular teaching and learning strategies. This self-awareness may enable teachers to diversify their teaching and learning activities depending on the learning environments, that is, classroom, clinical or laboratory-based. However, further research is needed in nursing education to identify if any particular teaching style, or a variety of teaching styles, is more or less effective for learners with a diversity of learning styles. Above all, more reliable and valid instruments need to be developed to assess the learning styles of nursing students NS.

IMPLICATIONS FOR PRACTICE

- Students may have major differences in learning styles. This has important implications for the use of a variety of teaching and learning activities.
- Teachers should also determine their own teaching and learning styles as their teaching strategies may be based on these dominant styles.
- Dual learning style preference may have an important role in the development of skills. Further research is needed to explore the role of learning styles preference in the application of theory to clinical practice.


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