



Nursing students at a university – A study about learning style preferences



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ARTICLE INFO

Article history:
Accepted 3 April 2014

Keywords:
Campuses
Learning preferences
Nursing education
PEPS
Semesters

SUMMARY

Background: In most adult education, teachers use methods that assume all students learn in the same way. But knowledge of students' learning style preferences highlights the importance of adequate teaching and learning adaptation.

Objectives: The aim of the study was to describe and compare final year nursing students' learning style preferences in two campuses during three semesters. A further aim was to identify differences between learning style preferences and personal characteristics.

Design: A descriptive cross-sectional study using the Productivity Environmental Preference Survey (PEPS) questionnaire was conducted at a Swedish rural university. Three semester groups with 263 nursing students participated in 2012–2013.

Results: The majority of the students were 'flexible' in their learning style preferences and had none or few strong preferences. Students with strong preferences preferred high structure (75%) and an authority figure present (40%). About a third were highly auditory, tactile and/or kinesthetic while 8% were highly visual. Few significant differences were revealed between the groups of campuses and the groups of semesters or between learning style preferences and upper secondary school and care experience. There were no significant differences between learning style preferences and age and assistant nurse graduation. More women than men were highly motivated, auditory, tactile and kinesthetic and preferred structure and mobility.

Conclusions: The PEPS questionnaire provides nursing students with self-awareness regarding their strengths and shortcomings in learning and teachers with a valuable and practical basis for their selection of adapted individual and group teaching methods. The findings suggest the need for wide variation and interactive teaching approaches, conscious didactic actions between cooperating teachers and conscious learning strategies for nursing students.

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Introduction

Adult education assumes that students at universities and colleges have developed efficient study skills and have acquired appropriate learning strategies to adapt their learning to the lessons and tutoring methods used by teachers. But this does not apply to all students. Studies show the importance of teachers' adapting pedagogy and didactics to students' preferences. When nursing students have studied with strategies congruent to their learning style preferences they have been motivated, felt responsibility and achieved high grades (Billings and Cobb, 1992). Furthermore, nursing students' satisfaction, anxiety and anger with teaching methods have significantly been related to teachers' reflections on students' perceptual preferences (O'Hare,

2002). Since earlier research with different questionnaires has shown that learning styles vary widely between different groups of medical students (Samarakoon et al., 2013), teaching students (Boström, 2011), teaching and nursing students (Boström and Hallin, 2013) and rural and metropolitan nursing students (James et al., 2011), it is of great interest to find out if nursing students differ to the same extent at the end of their education. The question is important as university teachers, who collaborate within and across disciplines, mostly design teaching and learning strategies from one year to another without deeper knowledge about individuals and groups.

Background

Learning style theories assume that all may learn, though in different ways and at different levels. There are theories and models which focus on aspects such as talents, sensory modalities, cognitive and/or learning and thinking processes (Evans and Waring, 2012). Kolb's Learning Style Model (Kolb and Kolb, 2005), for example, is used for viewing how

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students process information, while the Dunn and Dunn Learning Styles Model (Dunn et al., 2000) views how students acquire information. Because of its practical usefulness, the Dunns' model is selected for this study. The model is unique in the sense that it is built on multidimensional and instructional preferences that cover several proportions of learning and teaching with practical and methodological support in the research (Dunn and Griggs, 2007; Johansen, 2007). Fifty years of worldwide research, both quantitative and qualitative, has shown that it is widely used with children, adolescents and adults, and is very applicable to the education of health professionals (Dunn and Griggs, 1998).

The model consists of the Productivity Environmental Preference Survey (PEPS) questionnaire, where the mean of the preference is an individual's strengths and needs in learning new and difficult material (Dunn and Dunn, 1999). The term 'learning style' defines 'the way each learner begins to concentrate on, process and retain new and difficult information' (Dunn et al., 1994, p. 12). The model categorizes the areas that may influence a person's learning style into elements of the environment and elements of emotional, sociological, physiological and perceptual strengths (Dunn and Griggs, 2007). Since the PEPS covers many preferences and provides information about patterns through which learning occurs, teachers will have a concrete basis for pedagogical and didactic choices. At the same time students can work on their own, providing a basis for lifelong learning.

About 400 doctoral dissertations and more than 500 scientific articles indicate that the PEPS questionnaire is widely used, at over 130 universities worldwide. But in Western settings and nursing students few studies on the Dunns' model have been published since 2002. Just one study has focused on Swedish nursing students; a comparative study which confirmed significant differences in learning style preferences between groups of teaching and nursing students (Boström and Hallin, 2013).

Because students in higher education are usually heterogeneous in terms of personal characteristics, it is interesting to use the PEPS questionnaire to investigate learning style preferences in different groups of nursing students at the same academic level. This study starts with final year students, those with great experience of teachers' efforts to design teaching and learning plans for specific professional aims.

Methods

Aim

The aim of the study was to describe and compare final year nursing students' learning style preferences in two campuses during three semesters. A further aim was to identify differences between learning style preferences and personal characteristics.

Design

A descriptive cross-sectional pilot study was conducted with the PEPS questionnaire and nursing students in two campuses at a Swedish rural university during three semesters in 2012–2013. The study was part of a larger project involving nursing students and high-fidelity patient simulation at the end of education.

Participants and Settings

Convenience sampling was used and a total of 263 nursing students participated in the study, 209 women and 54 men. The students were recruited from three semester groups at each of two campuses. The respondent rate was 88.9%. All students were in their final semester of a three-year bachelor of nursing program and studied with the same curriculum. During nursing education the students had used various teaching methods, such as lectures, tutorials, computer-based methods, individual and group works, case studies and practical exercises, but with a predominance of lectures.

As shown in Table 1, which summarizes the students' characteristics, most participants were young; 80.6% were 21–30 years old and 19.4% were 31–48 years old. Concerning upper secondary school nearly half (46.4%) had a pre-university program; e.g. natural science, humanities or social program. Fewer (28.9%) had a vocational program: e.g. health and care, child and recreational or hotel and tourism program. About a quarter (24.7%) had a specially designed program for the individual. Students with an assistant nurse graduation (22.1%) undertook either a three-year vocational program in upper secondary school or a one-year course after upper secondary school. The students' care experience before the nursing education varied: 19.5% had no health care experience, 17.5% had less than one year's experience, while 63.0% had 1–28 years' care experience (Table 1).

Measurements

Two questionnaires were used; the PEPS for adults to identify learning style preferences (Dunn et al., 2000) and a questionnaire to identify personal characteristics. The PEPS consists of 100 questions relating to 20 distinct learning style elements, each with a five-item Likert-type scale ranging from 1 (never) to 5 (always). The elements provide students and teachers with information about different areas of preferences:

- Environmental preferences: sound, light, temperature, and furniture design.
- Emotional preferences: motivation, responsibility, conformity, persistence, need for externally imposed structure or opportunity to do things independently.
- Sociological preferences: authoritative persons present, variation, learning alone, in pairs or as a part of a team.
- Physiological preferences: perceptual strengths such as auditory, visual, tactile or kinesthetic, time-of-day energy levels, need for intake and/or mobility.

Auditory learners prefer hearing material and verbal instructions related to practical examples while visual learners enjoy reading and written information, observation, pictures, flashcards and videos. Tactile learners prefer hands-on-learning and write notes when they are interested, while kinesthetic learners prefer the learning-by-doing approach and learn best through practical sessions, case studies or computer simulation (Beischel, 2011; Hedin, 2006).

The PEPS is valued for having good reliability and validity (Griggs et al., 1994). The reliability coefficients for each element typically fall into the .75 to .88 range (Dunn et al., 1995), and a variety of construct validity evidence has been revealed in qualified international research (Dunn et al., 1995; Nelson et al., 1993).

Procedure

All information was given both in written and verbal form by teachers, and data were collected when the students were in the classroom. It took the students about 40 min to complete the two questionnaires. Those who were not present were informed individually and were invited to submit the answered forms to the current teacher. After data collection and result analysis the participants were e-mailed a copy of the outcomes of the PEPS supplemented by a manual on how the results should be interpreted. Although they were in the final stage of their education, they should be able to use the results in further studies.

Data Analysis

The responses of the PEPS were computer processed to obtain scores for each individual on each subscale. The individual profile showed an average for each question on a 60-point scale and marked each student's values as low (average 20–40), flexible (average 41–60) and high (average 61–80). These values were calculated at the individual level and

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