



The Internet Journal of Allied Health Sciences and Practice

A Peer Reviewed Publication of the College of Health Care Sciences at Nova Southeastern University

Dedicated to allied health professional practice and education

<http://ijahsp.nova.edu> Vol. 12 No. 1 ISSN 1540-580X

Using Learning Style Preferences to Enhance the Education and Training of Allied Health Professionals

Thomas Sinnerton, BSc¹

Laurence Leonard, MSc²

Katherine M.A. Rogers, PhD, BSc(Hons), PGCHET³

1. Clinical Training Officer, Northern Ireland Ambulance Service, Regional Ambulance Training Centre, Belfast, Northern Ireland
2. Lecturer, School of Nursing and Midwifery, Queen's University, Belfast, Northern Ireland
3. Lecturer, School of Nursing and Midwifery, Queen's University, Belfast, Northern Ireland

United Kingdom

CITATION: Sinnerton T, Leonard L, Rogers K. Using Learning Style Preferences to Enhance the Education and Training of Allied Health Professionals. *The Internet Journal of Allied Health Sciences and Practice*. Jan 2014. Volume 12 Number 1.

ABSTRACT

Paramedics-in-training enter the service from a variety of academic backgrounds; this is similar to a pattern observed in the training of other allied health professions such as nursing. Given the diverse academic backgrounds of these students, the purpose is to investigate how an educator's awareness of learning style preferences could help students to engage more deeply with the training material and reduce the pattern of shallow learning sometimes observed in these students because of the protocol-nature of certain aspects of the paramedic (and other allied health) courses. By encouraging paramedic trainers and allied health educators to become aware of the various tools available to assess learning style preferences, it is hoped that they would use a variety of teaching strategies when delivering their courses to encompass the many learning style preferences existing among their students. The hope is that by employing these strategies, educators can help students to study according to their learning style preferences, engage more deeply with the course content, and hence improve overall student outcomes for paramedics-in-training and all students in allied health programmes.

INTRODUCTION

In a changing health care context, there is an increased demand to provide quality education that produces a knowledgeable and skilled workforce who delivers quality and evidence-based care to patients and clients. The Regional Ambulance Training Centre for Northern Ireland is responsible for the training and education of ambulance professionals across the province. Participants on these programmes come with varied and diverse life experiences. As with many allied health professions (such as nursing), the educational backgrounds of paramedics-in-training vary considerably. Some have primary degrees, others have progressed to paramedic level through their service, and some may have had diverse and varied occupations prior to entering the training programmes. This diverse range of academic experiences may affect the study habits of students.

At our school, the authors are involved in training paramedic instructors from the Northern Ireland Ambulance Service (NIAS) in appropriate teaching methodologies that should be employed when teaching allied health professional courses within higher education institutions. This has prompted the authors to gain insight into how knowledge of learning styles and how approaches to teaching allied health professionals, such as paramedics, can be enhanced when being aware of the learning style preferences within our student cohort. The rationale for this report is based on a preliminary study which suggested that having an understanding of learning styles can result in improved student outcomes both clinically and academically.¹ Most students do not have a clear idea of their learning style, and many have inefficient learning methods with poor study techniques and learning habits.² This paper aims to encourage educators in allied health courses to gain a greater understanding and appreciation of the

impact that learning style preferences may have on their students. It has been suggested that there is no single best way to teach, but teachers who cater for the different needs of students by using a variety of teaching approaches are rewarded with improved learning.³ It is hoped that when educators in allied health courses are aware of the impact of learning style preferences on students' performance, they will be encouraged to use a range of teaching methods to encompass the variety of learning style preferences that exist among students. The ultimate goal of this approach is to improve the learning experience and academic performance of students through a better understanding and use of study methods most suited to the student's preferred learning style.

LEARNING AND TEACHING APPROACHES

In response to national and local directives, the requirement to provide a range of teaching approaches in allied health profession courses has been highlighted. The UK Professional Standards Framework for teaching and supporting learning in higher education acknowledges the need to know how students learn and supports the use of appropriate learning technologies as part of core knowledge for professional values.⁴

The Health Profession Council (HPC), in consultation with education providers, professional bodies and associations, health regulators, health and education policy makers, commissioners, and other stakeholders produced the document that states that the range of learning and teaching approaches used must be appropriate to the subject and highlights the importance of equality and anti-discrimination in relation to learning and teaching.⁵ Hence, there is a need for educators to understand learning styles, to be aware of the difficulties that learners may encounter, and to consider this knowledge when planning and delivering the curriculum.

A learning style has been defined as a description of the attitudes and behaviours that determine an individual's preferred way of learning, and that most skills are acquired through experience, but that personal competence can be improved by understanding the process of our individual learning habits.^{4,6} Early work on learning styles identified four stages of learning that require different characteristics.⁷ These can be outlined as 1) concrete experience – characterised by an experience-based, involved approach to learning; 2) abstract conceptualization – characterised as a conceptually based, analytical approach to learning; 3) active experimentation – an action based, active approach to learning; and 4) reflective observation – an observation-based, impartial approach to learning.⁷ An understanding and awareness of personal learning styles enables educators to using a range of teaching methods to encompass the variety of learning style preferences that exist among students; it also enables students to use study techniques best suited to their learning style preference.

ENHANCING TEACHING TO ENCOMPASS THE VARIETY OF LEARNING STYLE PREFERENCES AMONG STUDENTS

Background to Learning Style Preferences

It is well known that people learn in different ways; therefore, every individual has an innate preference for a distinct type of learning experience. An individual learning style results from a combination of the four basic learning abilities:⁵

Diverging – this learning style prefers observation and concrete experience. These people like to work in groups, listen with an open mind, and receive feedback;

Assimilating – this type of learner prefers a concise, logical approach. This style prefers reading, lectures, and exploring analytical models;

Converging – this group prefer technical tasks, experimenting with new ideas, and working with practical applications;

Accommodating – this style prefers a “hands-on” practical and experiential approach. They have a preference to work in teams to complete tasks, trying different ways to achieve the aim.

Various tools are available to measure learning styles such as “The Learning Styles Questionnaire” (which is based on the four stages of learning outlined above) and the “VARK” questionnaire.^{6,8} Many studies exist in nursing, but currently, no known research specifically targets attitudes to learning styles of paramedics.⁹⁻¹⁰ Further research is needed to identify the most applicable instrument to use for a specific discipline. It has also been suggested that there are as many tools available to evaluate learning styles preference as there are models of learning style, and there is no consensus as to the most suitable tool.¹¹⁻¹²

A team from the UK's Learning and Skill Research Centre examined 13 models of learning styles. The Learning Style Inventory and the Learning Styles Questionnaire were stated as the most widely known and used tools in the UK. The document concludes that some of the best known instruments have serious weaknesses such as low reliability and poor validity.¹³ Reliability refers to the consistency with which an instrument measures the attribute, and validity is the degree to which an instrument measures what it is supposed to be measuring.¹⁴ Despite the limitations in the validity and reliability of learning style tools, many research

studies have demonstrated the positive benefits of assessing student learning styles and adapting teaching methods in response to those styles to enhance student learning. Reported benefits include better student participation, enhanced engagement with course material, and improved student satisfaction and overall performance in course assessments.^{1,9-11,15}

The VARK Questionnaire

Fleming and Mills developed a modal preference questionnaire to empower students to reflect on their own sensory preference and modify their study methods accordingly.⁸ This is known as the VARK questionnaire – V for visual, A for aural, R for read/write, and K for kinaesthetic. The VARK questionnaire is a learning preference survey tool linked to sensory modalities. Visual, aural, reading/writing and kinaesthetic sensory modalities determine the different ways of receiving information.⁸ Visual learners prefer the use of diagrams and symbolic devices such as flow charts, models, graphs, and arrows that represent printed information. To explain a concept to others, this learner prefers to draw a picture or diagram. Visual learning is broken into a second category read/write. This type of learner prefers printed words and text as a means of information intake. The read/write learner prefers lists, glossaries, text books, lecture notes, or handouts. The preference is to arrange lecture notes into outlines, paraphrase classroom notes, and study old multiple choice examinations. Aural learners concentrate on what lecturers say; they prefer to listen rather than take notes. After lectures, they may choose to discuss presented topics with colleagues as a means of clarifying their understanding. Kinaesthetic learning is a multimodal measurement employing a combination of sensory functions; this type of learner prefers to learn through experience and practice.

When students complete the VARK questionnaire, their preferred learning modality is identified and supportive strategies are provided with the tool to assist the student in modifying their learning behaviours. Using this information, it is hoped that students will refine their study skills, based on their learning style preference identified by the questionnaire, and ultimately improve their academic performance. Some students may have multimodal preferences of learning which means they have 2 or more preferences.³

The VARK questionnaire has been widely used in research studies.^{1, 9-10, 16-17} One of the main strengths of the questionnaire is that the questions are based on real-life situations so that users can easily relate to them.¹ A study addressing nurses' learning styles found that visual or kinaesthetic learning was the most common mode of preference.⁹ This mirrors what was observed in paramedic students at the authors' school. Findings from a study based on first year nursing students reported they preferred kinaesthetic modes of information presentation, with only a small percentage of students in this study preferring the aural method (an example of this method being the classic lecture).¹⁰ Another study found that the largest percentage of students preferred read/write learning with the kinaesthetic approach to learning as the second highest mode.¹⁷ Within all the studies, learning style preferences were not confined primarily to a single mode of learning, meaning some students had multimodal preferences of learning styles. The varied findings from these studies reinforces the idea that allied health educators need to expand their teaching beyond the traditional lecture format and engage with students, for example, by using clinically relevant examples in their teaching and using videos, case studies, or role play. This should help students to relate academic theory (for example anatomy and physiology) to real-life situations they may encounter in their chosen field.

The Use of Learning Style Preferences in Education of Health Professionals

The HPC is responsible for standards of education and training for paramedics. A change to current course curriculum and delivery of education is in progress. The NIAS acknowledge the need to meet the changing dynamics of ambulance education, training, and development.¹⁸ Reflecting on the current evidence base and direction from the HPC, it seems timely to introduce a means of assessing learning styles and addressing the format of teaching to encompass the various learning style preferences in the student body. As current paramedic training is primarily protocol driven, the necessity for multiple teaching methods and techniques need to be employed to facilitate individual learning styles of our students. The VARK questionnaire has been used in several research studies and it could be a valuable, useful, and cost effective tool for paramedics-in-training to introduce them to the concept of learning style preferences and to help students gauge their own individual learning style in a manner that is quite easily understood since it poses questions that are easy to relate to and interpret.

Teaching Strategies for Paramedic Education to Encompass Various Learning Styles

Assessment of learning within the NIAS is undertaken in the form of multiple choice questions, true/false questions, examination, and assessment of simulated patient experience. Therefore it is essential for students to know and understand the protocols to undertake assessment. Multiple methods of teaching are used and delivered via a range of techniques such as formal lectures, group work, and practical assessment in a simulated environment. Fleming and Mills found that many students attributed their learning problems to the form in which course material was presented.⁸ Some students had difficulty learning in situations where the course material was only presented orally, while others reported similar difficulties when the material was primarily in written form. It was noted that learners had different yet consistent ways of responding in the learning situation, so educators must aim

to facilitate students in their learning activities by using a range of engaging teaching methods targeted to the various learner types. Another report suggested that teachers may be so concerned with covering the subject material that they overlook how much of the material is actually conveyed.¹¹ The material needs to be delivered in a multifaceted manner, such as using clinically relevant examples (mentioned earlier), to suitably convey the information to the range of student learning styles.

Biggs and Tang describe the concept of deep and superficial learning and acknowledges that the engagement of learning can vary between individual learners from high to low. Low level learning is determined by simply memorising unrelated factual information.¹⁹ A very high level of engagement is when the learner applies the information and can theorise about the information linking this into other situations.¹⁹ Paramedics-in-training must learn lots of protocols, and therefore, there is the danger that students may engage in surface or superficial, low-level learning. The aim of the educators should be to facilitate deeper learning with the result that students understand the operational workings of protocol and the impact on life and well-being in the clinical setting. This could be achieved by encouraging students to study according to their learning style preference, which could enhance their study skills and promote better engagement with the material and deeper learning.

The traditional lecture (which suits aural and read/write learner types) is a common method to teach protocols to paramedics-in-training. Within lectures, minor adaptations can easily be made to accommodate the other learner types, such as using coloured MicroSoft PowerPoint presentations with diagrams (may aid the visual learner), while practical coursework, such as drawing diagrams, would engage kinaesthetic learners. Providing handouts for students with strong aural tendencies and facilitating discussions post lecture and case studies would be beneficial and aid the aural learner. The read/write learner could benefit from lecture notes and access to books or journals on the related topic. Providing the kinaesthetic learner with the opportunity to work with models may help the process of learning (for example, using models of the lungs or cardiovascular system and simulation mannequins). Facilitating group work, providing case studies, and simulating patient experience scenarios are additional teaching strategies used to accommodate various learning styles. Rogers experienced positive outcomes when multiple methods of teaching were used.¹ However, Fleming and Mills conclude that if one assumes that the matching of presentational styles and learner styles is a desirable objective, teachers face an incredibly demanding task.⁸

CONCLUSION

In conclusion, encouraging educators in allied health programmes to improve their understanding of learning styles may have a positive impact on the teaching and learning process. Irrespective of the country of training, empowering students in allied health courses to become actively involved in their learning process (in line with local and national directives) may enhance student engagement with learning material, promote deeper learning, and provide an overall improvement in student outcomes.

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