

BRINGING THE BODY TO LIFE: USING MULTIPLE INTELLIGENCE THEORY IN THE CLASSROOM



It is proposed that the learning experiences of sport massage/sports therapy students can be optimised by harnessing the power of 'multiple intelligences' (MI) (1) in the classroom. A case study of an under-graduate anatomy course will be reviewed and pedagogy inspired by MI theory (1,2) will be highlighted. By teaching to all types of learners, it is proposed that students' engagement, enjoyment, retention and understanding will be enhanced. In the workshop, participants will experience a variety of learning activities eg. building muscles in clay, working with an interactive computer system and much more.

BOX 1 - TYPES OF INTELLIGENCE

Gardner (7) suggests that there are eight or possibly nine types of intelligence. He outlines these as being the following:

- Linguistic intelligence - the intelligence of a writer or orator
- Logical mathematical intelligence - the intelligence of a mathematician or scientist
- Musical intelligence - the capacity to create, perform and appreciate music
- Spatial intelligence - the ability to create mental images and build or manipulate them
- Bodily-kinaesthetic intelligence - the capacity to solve problems using the body (athletes, actors, craftspeople, body workers, surgeons)
- Interpersonal intelligence - understanding the moods, motivations and intentions of others
- Intrapersonal intelligence - the capacity to understand oneself
- Naturalistic intelligence - the ability to make accurate classifications in nature
- Gardner is also suggesting the presence of a ninth intelligence which is termed existential intelligence. This is the capacity to ask the 'big questions' eg. when we ponder death, love, conflict, the future of the planet.

By Fiona Holland, MA, PGCE

Research indicates that some students thrive academically in situations where theory is applied in highly practical and relevant ways. In comparison to traditional lecture-based teaching methods, problem-based scenarios have been utilised successfully with sports students and show increased levels of engagement, enjoyment and application of knowledge (3). Studies incorporating experiential activities (such as building musculature in clay on scaled-down skeletons) as opposed to traditional anatomy teaching strategies also demonstrate promising results (4,5).

It is proposed that the learning experiences of sports therapy students can be optimised if academics harness the power of the 'multiple intelligences' (1) and understand how to incorporate a variety of learning activities into their courses. By utilising different styles of instruction inspired by Howard Gardner's Multiple Intelligence (MI) theory (1,2), sports massage and sports therapy students may benefit greatly as learners and as practitioners.

TRADITIONAL VIEW OF INTELLIGENCE

Traditional views of intelligence (eg. IQ) favour the logical and linguistic types of intelligence, common in many higher education institutions. Barrington (6) states that: 'Traditionally, higher educational institutions tend to focus mostly on just two intelligences – the verbal/linguistic and logical/mathematical and teachers essentially teach, test, reinforce and reward these intelligences.'

Gardner (7) proposes that as human beings, we have a complex range of intelligences, with some dominant and others more recessive and each relatively independent of the others.

Theory suggests that restricting the focus of educational programmes to just one or two of the intelligence types eg. the traditional linguistic and mathematical intelligences, the more this undermines the importance of other forms of knowing and learning. This leads to the risk that students who don't learn as well through these methods, are likely to be held in

LEARNING INFORMED BY MI THEORY

Teaching and learning that is informed by MI theory is:

- inclusive in nature
- takes a broad view of intelligence
- and works towards teaching and assessing students using more than the two traditional styles of intelligence.

lower esteem and this in turn may impact their life outside the classroom (8). Needless to say it also means that the teaching institution may not be achieving the best it could achieve.

Offering wider learning opportunities allows students to utilise the intelligences that are most natural to them and which they are best at. As the diversity of students increases with people coming from a variety of social and cultural back-

grounds, an multiple intelligence approach is likely to become increasingly useful in embracing learners with strengths and weaknesses (6).

FROM THEORY INTO PRACTICE – TEACHING ANATOMY UTILISING MI THEORY

Taking a case study of sports students enrolled on a musculoskeletal anatomy course, a continuum of learning experiences is more than likely to exist.

These will be influenced by many factors such as the teacher's preferred delivery style, experience and the institution's resources. At the most traditional end of the continuum, students may learn solely via lectures, note taking and individual research (linguistic intelligence). In addition to lectures, some courses include lab time. These may include activities such as palpation and movement (body/kinaesthetic intelligence), the study of models, skeletons and diagrams (spatial intelligence) and have students working both individually and in groups thus positioning them somewhere mid-way on the continuum.

By using MI theory to inspire teaching in the classroom, the number and variety of activities are expanded so that the choice given to the students is increased. More emphasis is placed on the students understanding their learning preferences and accepting self-responsibility to navigate their way to achieve the learning outcomes.

Utilising clay

Two of the teaching tools highlighted in Table 1 may be new to educators in the UK. The first of these involves students

TABLE 1: OUTLINE OF IDEAS THAT COULD BE USED WITHIN AN ANATOMY CLASSROOM BASED ON GARDNER'S PROPOSED INTELLIGENCES.

Intelligence	Activities in the anatomy classroom
Linguistic	<ul style="list-style-type: none"> ■ Writing up a report or reflective journal ■ Reading textbooks and academic journals ■ Discussions ■ Presentations on a chosen system, joint, injury ■ Use of mnemonics to assist with memorisations
Logical mathematical	<ul style="list-style-type: none"> ■ Creating index cards to assist with studying ■ Ordering information into tables, flow charts ■ Critical thinking, diagnostics, developing hypotheses
Musical	<ul style="list-style-type: none"> ■ Use of background music while engage in study activities ■ Use of rhythm or songs to assist with memorisation
Spatial	<ul style="list-style-type: none"> ■ Building the musculature on a mini-skeleton in clay ■ Taping 'anatomy trains' (9) onto a skeleton ■ Mind mapping, visualisations
Bodily-kinaesthetic	<ul style="list-style-type: none"> ■ Moving the body to anchor the kinesiology of the body ■ Using palpation and massage techniques to review surface anatomy ■ Drawing musculature on the body with face paints
Interpersonal	<ul style="list-style-type: none"> ■ Group work- enjoying the social aspect of teaming up with others to accomplish a learning activity eg. manikin building. ■ Discussion and study groups.
Intrapersonal	<ul style="list-style-type: none"> ■ Working individually on projects eg. using computer software as a three dimensional learning tool from home computer. Self reflection. ■ Developing self-study strategies.
Naturalistic	<ul style="list-style-type: none"> ■ Taking the work out into a natural setting - using movement outside eg. reviewing kinesiology during yoga or running activities. ■ Using classification as a skill eg. classifying muscles via origin, insertion and action.
Existential	<ul style="list-style-type: none"> ■ Reading about the wonder and miracle of the body eg. Dean Juhan's book, 'Job's Body', the mind-body connection and psychoneuroimmunology (15).



Photo for Maniken (R) is with permission from Jon Zahourek

building musculature (and/or fascia, nerves, blood vessels) on scale model skeletons in modelling clay. This learning tool has been used in the US in massage curricula and anatomy based courses with promising initial results (4, 9).

Computer aided visualisation

The second tool utilises technology to assist students with the understanding of the complexity of the human body. Students see the relationships between the muscles, skeleton, organs, nerve and blood vessels and they can manipulate the layers of tissue as well as rotate the model. Research (10) has shown that computer-assisted learning has many benefits including:

- flexibility and convenience
- ability to present subjects that are visually intensive, detail-oriented and difficult to contextualise
- ability to personalise learning which helps learners with differing learning styles and prior knowledge of the material
- economy once the initial set-up fees have been paid
- potential to give the institution a competitive advantage for recruiting students
- potential to link people into learning communities.

The adoption of computer based learning tools within the sports therapy field supports the increasingly flexible, modular based and individually tailored curriculum. Although students certainly cannot learn hands-on techniques via distance learning, some integration of technology for self-study would be beneficial for the increasingly technologically adept generation of students seen in classrooms today.

ASSESSING STYLES OF LEARNING

Students can be encouraged to explore many ways of engaging with the information. Mind mapping (11) and other brainstorming techniques can help students organise information and find ways through the content that helps them to anchor it.

Teachers may benefit from identifying their students MI profiles via a paper and pencil or online test such as Shearer's (12) Multiple Intelligence Development

Assessment Scale (MIDAS™) (see the Practical Resources box for a link to take a learning test). A cautionary note should be made; profiles such as these should not be used to categorise students into one dominant intelligence or 'pigeonhole'. It must be stressed that we all have a mixture of these intelligences and their sub-components. The ones that are dominant may be subject-specific or influenced by many aspects of life, therefore students should be exposed to a variety of learning strategies that enable all aspects of their intelligence to shine at different times.

This concept of 'teaching around the cycle' (13) supports students in accessing their stronger learning styles and strengthening their weaker ones so they become more well-rounded learners. The danger lies in teaching solely to what is identified as students' strengths, thereby limiting the development of their other intelligences and risking the one-sided nature of the continuum to be perpetuated, albeit with potentially new intelligences being the ones in favour.

There is a dearth of academic research on MI applications in HE. Denny's (14) study with nursing students indicates that further work in this area is valuable to both students and educators alike. Pilot studies evaluating these teaching practices in HE classrooms are beginning at the University of Derby.

In conclusion, it is hoped that educators will take the challenge of meeting the needs of the diversity of learners and, by looking at the learning styles and multiple intelligence theories, find creative and engaging ways to bring the body to life.

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WHAT DOES THIS MEAN IN PRACTICAL TERMS?

■ If you're responsible for delivering education generally, the more types of intelligences you can deliver to, the more effective your teaching is likely to be to a much wider audience

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PRACTICAL RESOURCES

Sites where you can take free Multiple Intelligence tests to work your learning style or get your students to take it, to identify their style:

- 1) www.bgfl.org/bgfl/custom/resources_frp/client_frp/ks3/ict/multiple_int/index.htm
- 2) <http://www.businessballs.com/howardgardnermultipleintelligences.htm>

www.anatomyinclay.com