

Integration of basic and clinical sciences - AMEE 2008

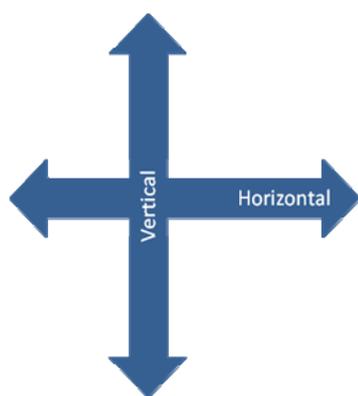
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What is integration?

Integration in modern medical curricula means abandoning the traditional discipline based discreet segmentation and isolation of teaching and learning activities within "concrete" silos. Integration seeks to break down the barriers between subject areas in order to provide students with better learning opportunities that will facilitate the development of knowledge that is relevant and meaningful to clinical practice, is deep and retrievable and which is amenable to alteration, updating and development as a part of an ongoing process of lifelong learning.

Figure 1. Vertical and horizontal integration



Vertical: bringing together basic and clinical science

- Early clinical experience
- Clinician-scientist partnerships
- On-going incorporation of science in later years

Horizontal: bring together the disciplines, topics, subjects

Integration is described as both horizontal and vertical. Horizontal integration refers to the provision of learning within the structure where individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner. By this process and links are made between the different subject areas and that learning is enriched by the connections and interrelationships being made explicit. Vertical integration refers to combination of basic and clinical sciences in such a way that the traditional divide between preclinical and clinical studies is broken down. Therefore, basic science is represented explicitly in the curriculum within the clinical environments during all the years of undergraduate education and beyond into postgraduate training and continuing professional development. Likewise aspects of clinical learning and early clinical experience are brought back into the early undergraduate years, traditionally associated with just basic sciences learning. This means that the learning of basic science is placed in the context of clinical and professional practice and is seen to be more meaningful and relevant to students. Curriculum integration usually involves both horizontal and vertical integration and is the pattern that is becoming widespread throughout the world.

Why do we need integration?

Integration is needed to avoid the information overload that is associated with the traditional curriculum where learning was delivered as a series of discipline blocks over concerned with detail and with little recognition of the links between subject and topic areas that are required to make the knowledge created available for use and application in new situations. Integration deals more with principles and concepts which can be used to explore and understand novel problems and allow new solution to be achieved. Furthermore changes to the clinical environment, the expectation of patients, the accountability to stakeholders and the understanding of learning and its theoretical

basis demand new, effective approaches to the learning and the preparation of learners in order to be fit for purpose.

What are the benefits of integrated learning

- Improved motivation and satisfaction
- Professional socialisation
- Enhanced self reflection and self appraisal
- Reinforced and deep learning
- Prepares for life-long learning
- Improved understanding of biological principles, mechanisms & basic concepts
- Heightened relevance of learning
- Facilitates curriculum review
- Promotes co-operation between staff members from different disciplines
- Enhances clinician reflections on the scientific basis of practice
- Enhances basic scientists reflections on clinical applications and research

What's needed to achieve integration?

- Effective management of change
- Requires in-depth review the curriculum
- Commitment of faculty, departments, individuals
- Agreement on degree of integration
- How much horizontal and vertical integration to be achieved
- Develop teams and structures to support planning and implementation

What else is needed beyond integration?

Beyond the adoption of the principles of horizontal and vertical integration significant planning and implementation of curriculum reform is needed. Models of curriculum can be utilised to guide this change. These will inevitably impact on the framework within which various educational strategies will be employed to provide efficient and effective learning opportunities supported by e-learning and other initiatives to promote both collaborative and independent learning.

Against this background it should now be considered an imperative that medical education should embrace best evidence and research based approaches and that educational theory should underpin on-going development and research in the field.

Further reading

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