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Developing large-group teaching in child and adolescent psychiatry to undergraduate medical students

Aaron K. Vallance,[1] Victoria Hill,[1] Cornelius Ani,[1] Alex Doig,[1] Elena Garralda[1]

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[1]Academic Unit of Child and Adolescent Psychiatry, Imperial College London

Correspondence to Aaron Vallance (a.vallance@imperial.ac.uk)

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Aims and method We developed material for a lecture hall teaching programme in child and adolescent psychiatry for medical students. Although lecture hall settings are not traditionally seen as conducive to exploring concepts, debating positions and encouraging higher-order thinking, we aimed to integrate these processes into the programme alongside educational theory and teaching strategies. We evaluated student and teacher perception of the new material through questionnaires before and after the introduction of the teaching package.

Results Six 1.5-hour teaching sessions were prepared. The evaluation study received 133 student and 4 teacher questionnaires on the previous teaching package, and 99 student and 7 teacher questionnaires on the new material. The questionnaires showed that the redesign resulted in significant improvements in various predefined measures, such as clarity and interactivity of the material.

Clinical implications A vivid and memorable teaching programme is essential in shaping students' understanding of the concepts in child and adolescent psychiatry as well as potentially making the specialty more attractive to medical undergraduates.

Declaration of interest None.

The Royal College of Psychiatrists and the General Medical Council (GMC) identify teaching as a key competency and attribute of professional medical training and practice.[1] Teaching child and adolescent psychiatry to undergraduates, however, poses certain challenges. The specialty calls for clinicians to consider complex biological, psychological and social processes, all in the context of child development. Learning child psychiatry therefore does not just involve memorising facts but also developing certain skills and attitudes, and acquiring a broader understanding through integration of concepts ranging from neuroscience to psychology and social anthropology. A certain amount of teaching and clinical exposure would therefore be required for students to gain a useful understanding of the specialty.

Child psychiatry teaching: current issues

Medical schools vary significantly in the degree to which the specialty features in the curriculum.[2] Often lying betwixt and between two departments – psychiatry and paediatrics – child psychiatry can be at risk of being overlooked as the poor relation. Inadequate undergraduate exposure to the specialty may, however, carry repercussions downstream. First, graduates may have a limited appreciation or understanding of child mental health. This is particularly

consequential in specialties with a significant exposure, such as general practice, where 38% of 13- to 16-year-olds attending general practice may have had psychiatric disorder in the previous year,[3] but where child psychopathology often goes unidentified. Second, studies show that, despite initial interest, students are put off psychiatry during medical school.[4–6] This may be further exaggerated in child and adolescent psychiatry, where poor exposure may reinforce a view that the specialty is unattractive or unimportant, with negative consequences on recruitment.

It therefore becomes particularly incumbent on course designers and teachers to make the best use of the time and space available. At Imperial College London, medical students spend only one morning at a child and adolescent mental health service (CAMHS) clinic, but this is compensated by a significant lecture hall programme. Although large-group teaching is seen as an efficient means of transferring knowledge to large groups,[7] it is not traditionally regarded as an ideal setting for exploring concepts, airing attitudes, debating positions and facilitating deep learning.[8] Yet these are the very elements of the learning experience we identified as necessary for learning about child psychiatry, a position also supported by medical students[9] and the GMC's *Tomorrow's Doctors*.[1] The challenge was to incorporate these elements to deliver effective teaching on child and adolescent psychiatry despite the limitations of the lecture hall setting.

This paper outlines a project – a revision of an existing teaching package – undertaken to develop and optimise large-group teaching in child and adolescent psychiatry for medical students. Eliciting feedback from both students and teachers played an integral role in developing the teaching.

Method

Study setting

At Imperial College London, child and adolescent psychiatry is primarily taught in the psychiatry course, with an additional component within the paediatric teaching, in the penultimate year of medical school. The former (psychiatry course) largely occurs as a standardised lecture hall teaching package and is taught by a rota of consultants in child and adolescent psychiatry. This original teaching package consisted of preconstructed MS Office PowerPoint presentations complemented by clinical video material of children and parents describing the child's condition. We updated this package by integrating educational theory with practice, developing clear learning outcomes and restructuring the lectures based on key concepts. In addition, we incorporated numerous activities to maximise student and teacher interactivity and discussion, and actively encouraged the teachers to embellish the material with their own clinical anecdotes and examples. We compared student feedback before and after the revised package was introduced. The project team received an educational development grant from Imperial College London.

Defining learning outcomes

The first step was to identify and construct relevant and attainable learning outcomes, focusing on what students will achieve rather than what teachers will do.[10] Bloom's taxonomy[11] advises on vocabulary to be used in constructing learning outcomes; we were particularly mindful that outcomes needed to target the ability to understand, explore and debate important underlying concepts, as well as capturing the ever-evolving knowledge and evidence base pertaining to child psychopathology. Outcomes also need to be aligned with those in other courses, so that the teaching usefully builds on what is learnt elsewhere.

The next stage was to distribute the outcomes between six teaching sessions, each session devoted to one key concept (Box 1).

This emphasis on concepts rather than disorders aimed to build knowledge on first principles, promote a deeper understanding, and help students apply knowledge in a more flexible way. For each seminar, the concepts could be explored, links made with other topics, and examples used to consolidate understanding.

Developing the content

With learning outcomes and course structure in place, the content was then developed and displayed on preconstructed slides, underpinned by a balance of behaviourist, cognitivist and social constructivist approaches. These theoretical models have been applied in the field of psychiatry, for example in the development of models of behavioural, cognitive and family therapies respectively. Likewise, they have also influenced educational theory.[12] Behavioural models advocate the application of operant and classical conditioning in learning, as well as the utility of repetition. Cognitivist models propose building on previous knowledge and helping the student understand key concepts, which can then be applied flexibly to different situations. Social constructivist models meanwhile stress the role of social interaction and the sharing of ideas, attitudes, experiences and perspectives as a means for learning.

These theories informed on the various strategies which we used to redesign the teaching material. Furthermore, as research has shown that students' concentration can wane after 15–20 min of a traditional lecture, we incorporated a variety of different activities to help maintain attention.[7,13] PowerPoint slides are optimised for visual impact and include visual aids such as diagrams, animations and cartoons.[14] Explicit slides are inserted to

Box 1 Key concepts

In the redesigned teaching package, sessions were divided according to key concepts:

- assessment and formulation
- family influences
- child and adolescent development
- behavioural disorders and concepts underpinning intervention
- neuropsychiatry and the relationship between biology, psychology and psychopathology
- comparing psychiatry in childhood *v.* adulthood.

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signpost '5-minute breaks'; other slides ask students whether they have questions. Finally, a multiple-choice quiz helps consolidate learning at the end of each session.

Peer interaction was integrated into the material to encourage deep learning.[15] Although such methods are not traditionally associated with the lecture hall setting, they can still be applied to enhance the learning experience.[16] Specific slides signpost 'discussion tasks': teachers divide students into 'buzz groups', impromptu groups of two or three students to discuss and debate the topic, for example, 'Should conduct disorder be seen as a psychiatric or social problem?'. This process helps students generate ideas first in the intimacy and informality of a small group, making it easier to then share views with the wider group.

Other slides pose questions to the whole group, leading to a dialogue between the group and the teacher: this helps students think about the concepts and informs the teacher on students' current knowledge and perspectives. Other interactive tasks include an '*in vivo*' neuropsychological frontal lobe function Stroop Task experiment to help students understand the relationship between neurophysiology, neuropsychology and psychiatric disorder, more specifically in relation to attention-deficit hyperactivity disorder.

Using video material as teaching aids

Video material has long been recognised as a powerful tool in teaching child and adolescent psychiatry.[17] We integrated video footage liberally throughout the package, serving a variety of functions. Many clips are from well-known television programmes, which can be shown under Education Recording Agency licensing (www.era.org.uk). The internet website YouTube.com also provides a rich source of video footage that can be applied for educational purposes. Such clips are frequently used as 'ice breakers', light-hearted material to relax the mood and create an atmosphere conducive to later interaction. They frequently introduce or conclude a topic, or provide mental breaks within seminars. In addition to being educational, they act as memorable visual aids juxtaposed alongside the other teaching materials. Some television clips, for example on child psychiatric disorder, have direct educational value. Other clips are more indirect, for example asking students to consider the place of family therapy after watching a scene from a well-known television sitcom demonstrating gross anomalies in intergenerational family function. Such use of humour also aims to evoke a positive affective response and create a memorable learning experience.

Using well-known television programmes may have significant educational value. As noted by Ventura & Onsman,[18] whose study evaluated the use of film clips to teach pharmacology: 'Popular culture hits nerves with undergraduate students and films are especially good at motivating students into believing that a topic is important in society' (p. 662). Relating the topic to real life may not only improve retention of knowledge by giving it a context, but it helps students appreciate that the impact of the topic may be far reaching. Engagement with the characters or stories can open up the student to new perspectives; comparing these with their own current knowledge or attitudes may help facilitate learning and change.

In addition, video clips help negotiate a major constraint of the child psychiatry teaching: the lack of experiential learning through clinical attachments. Our unit had already developed video clips with patients, who had formally given their consent; these clips illustrated various child psychiatric disorders and aspects of assessment. They were edited further to increase applicability to the revised package and specific tasks were devised to accompany each clip to enhance student learning, for example asking students to assess mental state.

Training the teachers

Supporting teachers is an integral part of the process. In addition to departmental meetings, teachers are offered a training session and a course manual. These give an overview of where the teaching package sits in the overall curriculum, explain the rationale of the redesign, suggest practical advice on delivering the material (e.g. on delivering the discussion slides, on operating video clips, on pacing the material), and describe how to get technical support if necessary on the day. Many slides are accompanied with 'presenter notes' to give teachers real-time prompts on factual information and interactive suggestions, or to highlight a particular educational point. Arrangements are also made for new teachers to shadow experienced teachers before taking on sole teaching sessions. These processes also help to standardise the delivery of the teaching material. Teachers also have access to general teacher training provided by Imperial College's Educational Development Unit.

Course evaluation

Finally, the course material was evaluated through purpose-developed questionnaires containing ten-point Likert-style questions (Tables 1 and 2). Approval was given by Imperial College London in accordance with the local governance protocol for course evaluation. The questionnaires were specifically designed to measure the key objectives for redeveloping the materials and focused on students' and teachers' perception of the educational experience, rather than effects on students' academic performance. The questionnaires were distributed to students and teachers before and after the new teaching package was implemented. Space was ensured for qualitative comments and feedback from both teachers and students. Questionnaires were distributed for all the course teaching sessions for both cohorts in the study: those working with the old material *v.* those using the new material.

Results

Six 1.5-hour teaching sessions were developed and implemented, using the strategies discussed earlier. The evaluation study involved the completion of 133 student and 4 teacher questionnaires on the previous teaching package, and 99 student and 7 teacher questionnaires on the new material. Overall student response rate was 31%, as calculated against the total number of students in the cohort, rather than actual course attendees. As not all

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Table 1 Results from student questionnaires containing ten-point Likert-style questions.

	Old teaching package			New teaching package			Two-tailed
	N	Mean (s.d.)	Median (IQR)	*N*	Mean (s.d.)	Median (IQR)	Mann–Whitney *P*
How clear were the learning outcomes?	133	7.77 (1.49)	8.0 (7.0–9.0)	96	8.95 (0.84)	9.0 (8.0–10.0)	***
Was content explored in sufficient detail?	133	7.77 (1.03)	8.0 (7.0–8.0)	99	8.46 (1.2)	8.5 (8.0–9.5)	***
How clear were learning points in videos?	116	7.46 (1.30)	8.0 (7.0–8.0)	99	8.78 (1.18)	9.0 (8.0–10.0)	***
How engaging and interactive?	129	7.74 (1.18)	8.0 (7.0–9.0)	98	8.39 (1.68)	9.0 (8.0–10.0)	***
Overall?	132	7.71 (0.97)	8.0 (7.0–8.0)	99	8.22 (1.48)	8.5 (8.0–9.0)	***

IQR, interquartile range.
***$P<0.0001$.

Table 2 Results from teacher questionnaires containing ten-point Likert-style questions.

	Previous teaching package		New teaching package		
	N	Mean (s.d.)	*N*	Mean (s.d.)	*P*
How would you rate the overall content?	4	6.50 (0.58)	7	8.64 (0.75)	0.001[a]
How up to date is the content?	4	5.0 (0)	7	9.0 (1.0)	<0.001[a]
How would you rate the design of the slides?	2	6.0 (0)	7	8.0 (0)	0.028[b]
How much does the material ensure that students are engaged in an interactive way?	4	6.50 (0.58)	7	8.57 (1.13)	0.008[a]

a. Two-tailed *t*-test.
b. Two-tailed Mann–Whitney test.

students attend the lectures, attendee response rate would be significantly higher, but the figure is not available. Overall, the new material resulted in significant improvements on each measure in the student (Table 1) and teacher (Table 2) questionnaires, indicating better clarity of learning outcomes, content, and use of video and interactive techniques. As well as the questionnaires, anecdotal evidence indicated that teachers found the interactivity useful for delivering the teaching and enjoyable too.

Discussion

We have revised a large-group teaching package for medical students in child and adolescent psychiatry based on educational theory and recommended practice. The evaluative study demonstrates a more positive attitude towards the new material from both teachers and students on all the factors measured. These results need to be interpreted with some caution. First, not all students completed the questionnaire; it is likely that those motivated to do so may hold views of a relatively more extreme nature and thus bias the sample. Nevertheless, there is no reason to suggest that such a bias, if present, would be particularly in favour of the revised package. Second, although the newly developed questionnaires were specifically designed to target the material rather than qualities in the teacher, it is possible that subtle differences in teachers' presentation style could have influenced the results. Incidentally, teachers of the new material were not all the same as those of the old, although there was considerable overlap.

Although lecture hall settings are traditionally viewed as only useful for transmission of factual knowledge, we used educational theory and teaching strategies to create a vivid and memorable account of the complex specialty of child and adolescent psychiatry. At the same time, large-group teaching is time-effective for busy consultants: instead of numerous resource-intensive, small-group teaching sessions throughout the year, students are taught 'in bulk' using a fraction of overall consultant time.[7] Although the development of such material package does require initial time and effort, much can be done (including subsequent minor updating) by enthusiastic specialist/academic trainees, whose own learning and development would also be enhanced by conducting such a project. Interested clinicians are also generally prepared to develop teaching without additional payment, as part of their own professional or continuing professional development activity.

Not only does the package ensure a level of standardisation, which can be difficult to achieve in small-group teaching, it also gives teachers leeway to utilise their own particular skills and recount their clinical

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experiences to maximise the educational experience. Students' and teachers' feedback suggest that the new teaching strategies were positively received. However, it remains to be seen whether or not the improved teaching material can attract more students to the specialty or improve the long-term appreciation of child and adolescent psychiatry in those who pursue other career paths; this would merit further research.

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About the authors

Aaron K. Vallance is Clinical Education Fellow, Imperial College London, and Consultant Child and Adolescent Psychiatrist, Surrey and Borders Partnership NHS Foundation Trust. **Victoria Hill** is Consultant Child and Adolescent Psychiatrist, East Kent University Hospitals NHS Foundation Trust. **Cornelius Ani** is Honorary Clinical Senior Lecturer, Academic Unit of Child and Adolescent Psychiatry, Imperial College London, and Consultant Child and Adolescent Psychiatrist, Bracknell CAMHS (Berkshire Healthcare NHS Foundation Trust). **Alex Doig** is Honorary Clinical Lecturer, Imperial College London, and Consultant Child and Adolescent Psychiatrist, Hounslow CAMHS (West London Mental Health NHS Trust). **Elena Garralda** is Professor of Child and Adolescent Psychiatry, Academic Unit of Child and Adolescent Psychiatry, Imperial College London.

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