

# Applying the Principles of Adult Learning to the Teaching of Psychopharmacology: Overview and Finding the Focus

By Stephen M. Stahl, MD, PhD, and Richard L. Davis

## NEW TREND IN PSYCHOPHARMACOLOGY

Medical education in psychopharmacology can be designed according to modern principles of adult learning. The goal is to go beyond merely exposing learners to novel content, to the documentation that learning has occurred and that behaviors have changed, namely the upgrading of skills in clinical practice. The many aspects of this approach to medical education are discussed in overview here. Future installments of "Trends in Psychopharmacology" will periodically deal with specific aspects of the best practices for medical educators outlined here only in brief. This article considers whether the focus of medical education instructors should be the medical content they present, the medical educator that does the presenting, or the learner. The perspective here is that the focus of medical education should be the learner, and that the content should be structured and executed in a manner that facilitates learning instead of inhibiting it.

## INTRODUCTION

In medical education, there is plenty of attention given to "what is said" but often little consideration given to "how it is said." Evolving principles from communications science now inform us that such an approach can needlessly compromise the potential benefit of any educational effort for those it is intended to inform.<sup>1-5</sup>

What a paradox that a field whose goal is to communicate science to its practitioners would not apply communication science in doing it. It is also illogical to expect those tasked with delivering the education to do so with little to no exposure to the science that would empower them to do it in the most effective manner. A misplaced focus on content to the exclusion of the learner often lies at the heart of ineffective medical education. Shifting that focus to the learner can bring about much needed improvement in medical education from the learner's perspective.<sup>1-5</sup>

Specific principles of communication science do exist and can be powerful agents in helping an instructor develop best practices in medical education.<sup>1-6</sup> Many of these are outlined in the Table. Others will be addressed in future installments of "Trends in Psychopharmacology." This article considers what the focus should be for medical education and provides an overview of the principles of communication science.

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## SHOULD CONTENT BE THE FOCUS OF MEDICAL EDUCATION?

The explosion of information in medicine and the sheer volume of data cause the focus of most medical education programs to be content. Some estimates are that every year, trillions of statistical graphics are printed.<sup>6</sup>

Content often flows from carefully constructed curricula and is chosen to foster the development of experts by exposing participants to the best,

the most up-to-date, and the most important content. This is done by giving participants the greatest breadth and depth of content exposure, limited only by the time available.

If it is all about the content, then, the more content, the better. However, poorly designed graphics often distort the data, leaving the wrong impression. Cramping too much content into slides and too many words into a rapid-fire lecture can cause audience frustration due to

**TABLE.**  
**Tips for Applying Learning Principles to Increase the Impact of Medical Presentations**

### ***Previews and Reviews***

- Storyboarding
- Preview facilitates learner achievement by acting as a roadmap to alert audiences about important topics to come
- Repeated reviews help learners consolidate and ensure that messages are clearly delivered by providing a second chance for learning and for clarification of outstanding issues

### ***The Rule of Small Multiples***

- Information presented in small multiples gives learners manageable packets of data
- Helps learners see differences as well as similarities between conditions

### ***Visual Additions***

- The majority of audience members are visual learners
- Adding relevant images and figures can increase learning impact
- Knowing how to do this can provide provide visual cues without distractions or data decorations

### ***Multimedia***

- Present information in auditory and visual channels
- Eliminate interference from text
- Present related information in close spatial and temporal proximity
- Eliminate extraneous information

### ***Seven Principles of Adult Learning***

- Ideally, before new information is presented, gain and control attention
- Describe expected outcomes
- Refer to previous learning
- After new information is presented, impact is heightened by offering guidance for learning
- Appraising performance
- Giving feedback
- Providing for the transfer of knowledge into clinical practice

### ***Seven Classical Conditions of Learning***

- Involve learners
- Get them to invest in their own learning
- Challenge their knowledge
- Provide support within a structured format
- Generate feedback
- Supply opportunities for practical application
- Help learners integrate their knowledge with new information

### ***Feedback***

- Helps learners assess their own learning
- Audience-response keypad systems can provide appropriate feedback
- Small portable systems linked to PowerPoint do not require a technician
- Properly designed and executed, audience-response questions can increase learning, generate interactivity, and measure progress

### ***Novel Lecture Tactics***

- Working with a second medical instructor
- Team teaching
- Tandem teaching
- These tactics can make an educational event more engaging for the audience and help accommodate attention spans

### ***Rarely Used but High-Impact Adult Education Formats***

- Learning formats are available that have higher impact than lectures
- Educational formats that are more active and less passive result in the learners' greater understanding, longer retention, and increased enjoyment

### ***Exploiting Small-Group Learning Tactics***

- One learning format with demonstrated superior efficacy is the workshop/discussion group
- Workshops involve putting content into the hands of the learners and asking them to examine and contribute to the material
- In order to create a more effective learning environment, workshops must be managed by an effective facilitator
- Workshops can elevate the audience's perception of both the instructor's competence and the presentation's value

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the participants' inability to process or retain the vast volume of information presented.

One creative solution to the problem of too much information was witnessed by one of the authors recently. He arrived at a large hall, expecting to give a guest lecture in basic pharmacology to a class of 150 medical students. But only a dozen students were in the audience. One prominent audience member sat in the middle of the front row with an MP3 recorder and a horde of handouts. When asked, the student said that the class had determined that the most important aspect of the lecture was the handouts because they formed the basis of exam questions. Students believed that lectures were generally given too fast and in too disorganized a fashion for effective learning. Thus, they had determined that the option of being able to play back some lectures at a later time, after previewing the relevant handout, and with the ability to replay important points at one's own learning pace, was the best way to learn the material. So they all took turns recording lectures and procuring handouts, allowing them the freedom of spending the lecture time more productively studying by themselves.

This may be an extreme example but it could cause a medical educator to wonder whether less content is, in fact, actually more in terms of learning and whether content should be the focus of medical education.

The question is then: If content should not be the focus, what should be?

### **SHOULD THE INSTRUCTOR OR PRESENTER OF THE CONTENT BE THE FOCUS OF MEDICAL EDUCATION?**

Some medical education programs have a "presenter focus." That is, they allow the expert to choose the topic and the manner of presentation. Content-matter experts in medical topics are rare, busy, and highly sought after. This solution is sometimes the only way to cajole these experts into giving a lecture. In academic medicine, education is often neither respected nor richly rewarded. Some say that in medicine, research flies first class, clinical care and administration fly coach, and education is often just cargo. Perhaps this is also the basis of the adage, "Those who can, do; those who can't, teach."

A presenter focus to medical education can work well if there are enough experts with natural teaching skills available, but it can also yield some

off-beat presentations. The expert may enjoy the ease of preparation but the curriculum and the learners may not be well served.

Such presenter-focused experts may assume that others learn in the same way they do, and thus, they will teach the same way they learn. There are serious flaws in this rationale, since in a typical audience, many have learning styles that differ from those of the presenter.<sup>1,4,5</sup> Although essentially all medical educators communicate scientific information and data because they are recognized content-matter experts, many medical educators are not necessarily experts in the scientific principles of adult learning because, in medicine, most experts are not taught how to teach, *per se*. Thus, they may well be unaware of the many different learning styles, especially those that differ from their own.

"See one, do one, teach one" is the basic tenet. "Understand first, then as an expert, one can be understood as a teacher" is the classical notion in medical education. Many effective medical educators simply follow personal instincts and thus design educational programs intuitively while adapting the educational style and principles of mentors who were influential in their own careers. This approach works for many, especially those with natural talents and charisma. However, there exist numerous scientific principles based upon data from educational research studies that, if applied, can raise the effectiveness of any teacher (Table).<sup>1-6</sup> These principles point to having the focus of medical education being the learner or participant.

### **SHOULD THE LEARNER OR PARTICIPANT BE THE FOCUS OF MEDICAL EDUCATION?**

If the purpose of medical education is not only exposure to content but also learning and using the content, then a "participant focus" could be the best option. This means there is more work to be done after the content has been selected. The presenter will also have the task of organizing the content to maximize the number of learners in the audience who will learn the material, retain it, and apply it.

Ironically, successful presentations designed with a participant focus are likely to be even more content-focused and presenter-focused than presentations designed from only one of those perspectives. What good is exposure to content if it is not remembered? What is the value of a pre-

sender who designs lectures that are easy and interesting for the lecturer but fail to convince a participant to use the information? How successful is a presenter who is unable to assist a participant to develop a new skill or to change and upgrade clinical practice behaviors? In the participant-focused presentation, all three aspects can come together for greatest effectiveness.

To create a participant-focused presentation, a presenter can apply the general principles of adult learning to the overall design of presentations (Table).<sup>1-6</sup> This includes such tactics and including specific tweaks to slides, such as visual optimizations, that can enhance learning, using audience-response keypad systems to document learning, and adapting highly effective but rarely used educational formats, such as converting lectures into workshops or team teaching.

## CONCLUSION

Principles of adult learning can be applied to medical education programs to increase their effectiveness, especially in terms of learning, retention, and application of what is learned. The excitement that comes from new levels of understanding and the increased proficiency associated with putting that understanding to work are benefits both the medical presenter and the audience will share. **CNS**

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