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Introducing Blended Learning to Medical Students in a Clinical Training Environment

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Introducing Blended Learning to Medical Students in a Clinical Training Environment

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Opportunity

Third year medical students typically learn through supervised patient interaction in a clinical setting, often based in academic or hospital-based training sites. As one of the five medical schools in the Philadelphia area, PCOM strives to find the best training sites for its students in a number of specialties. Due to the increasing number of students in the region as well as a decreasing number of available training sites (as a result of reduced hospitalization rates and lengths of stay), finding suitable training sites for students has been a challenge.

In order to better meet the academic needs of our students, new educational models are required. These models need to address a number of key challenges.

1. Inconsistent clinical exposure to patients whose demographics and presenting problems vary by site.
2. Inconsistent training and quality of clinical preceptors at each of the clinical sites.
3. Insufficient clinic training sites to accommodate expanding class size.

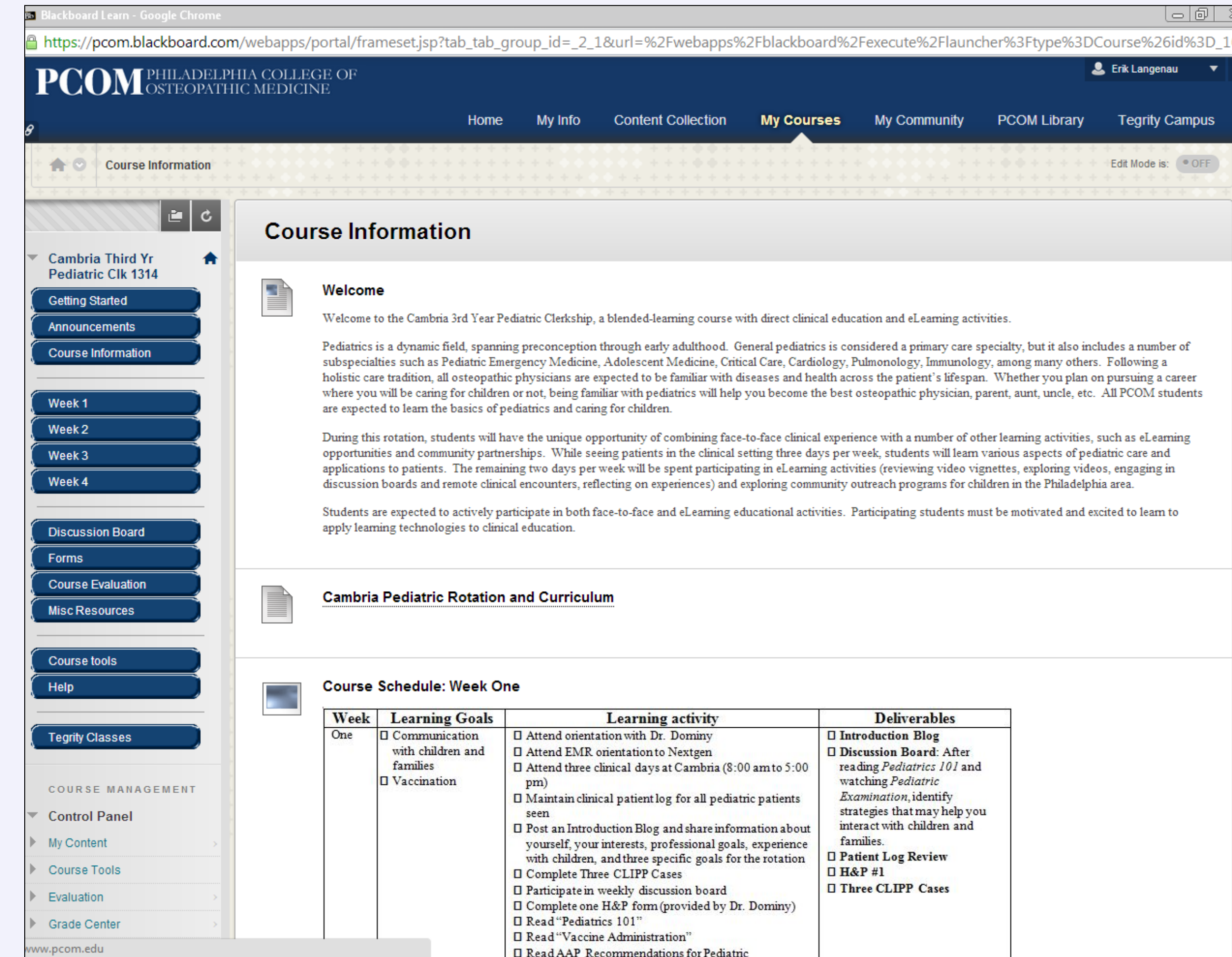
Solution

A four-week blended-learning program for third-year medical students at PCOM has been created in order to combine an online collaborative learning experience with face-to-face clinical instruction supervised by a PCOM faculty preceptor.

Pedagogical Approach

- **Problem Based Learning (PBL).**¹ Students are presented with a “problem” (such as “I have chest pain”) and work together in small groups (6-10) with a “tutor” to clarify the question, research, discuss solutions, and acquire knowledge through discovery and problem solving.
- **Constructivism.**² Learners build upon previously acquired knowledge. Not only does this allow learners to take advantage of previously acquired knowledge and experiences, but it also fosters deeper learning.
- **Connectivism.**³ Learners advance knowledge by making connections between varying fields, ideas, concepts and perspectives.
- **Online Collaborative Learning (OCL).**² Learners engage, challenge, and learn from one another in a online collaborative environment.

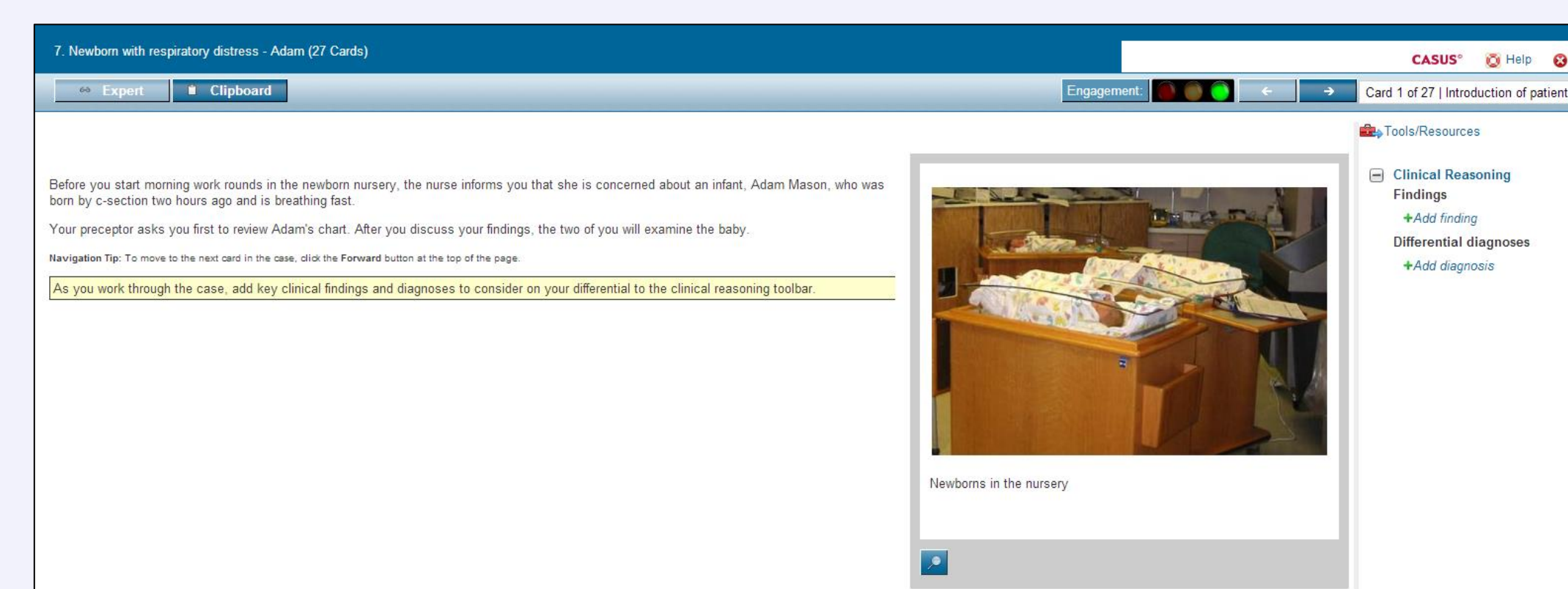
Course



Face-to-face components	Examples and Notes
Clinical teaching (3 days per week)	Clinical precepting with the pediatrician
Direct observation evaluation (two)	Formative assessment completed by the pediatrician preceptor
Oral presentation (one)	Students present to other students and faculty
Case log	Students maintain a log of patients seen during the rotation
History and physical forms (four)	Students submit four H&P forms for patients for specified ages
E-learning components	
Discussion Boards (four)	“After watching the video, <i>Pediatric Examination</i> , identify strategies that may help you interact with children and families.”
Blogs (two)	“Post an introduction blog and share information about yourself, interests, professional goals and experience with children; note three specific goals you want to achieve for this rotation.”
Virtual patient encounters (12-32)	Pediatric Computer-Assisted Learning in Pediatrics Program (CLIPP) ⁴
Website Links	Centers for Disease Control and Prevention (CDC). Vaccine Administration ⁵
Video demonstrations	American Academy of Pediatrics (AAP). View Through the Oscope ⁶
Narrated presentations	Faculty create Power-Point presentations for students to review
Articles and resources	A number of articles, clinical guidelines and references are posted
Community resource summary	Students identify a Philadelphia-based community resource for patients, write a summary and post in on the course site
Case write-up	Students prepare a formal case write-up and share it with students on the course site
Podcasts	Orientation and summary of learning objectives are presented as podcasts for each week of the course
Online training modules	California Vaccines for Children. EZIZ Vaccine Administration Online Training. ⁷



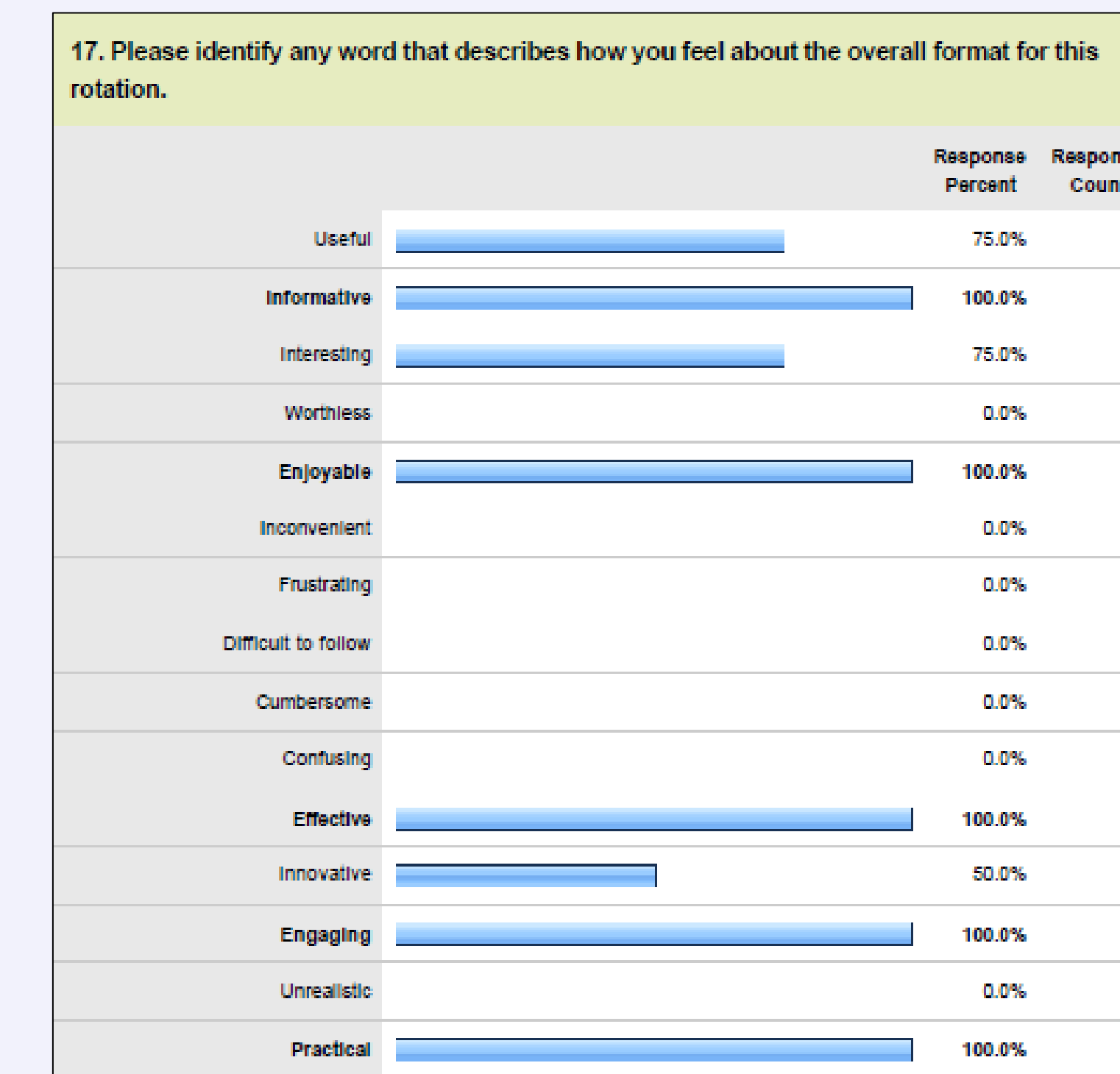
Online training from EZIZ
California vaccines for Children⁷



Virtual Patient (VP) encounters and simulations from
Med-U CLIPP program⁴

Assessment

- A 51-item survey has been administered to the first two groups of students who completed the program.
- Responses have been overwhelming positive with regard to overall format, discussion boards, blogs, direct observation, CLIPP virtual patient encounters, case write-up, oral presentation, community resources review, and fulfillment of learning objectives.
- 100% Strongly Agreed or Agreed “I prefer this hybrid learning format (eLearning combined with face-to-face clinical education) to traditional face-to-face rotations.”
- 100% Strongly Agreed “I was satisfied with the overall learning experience.”
- 100% Strongly Agreed “I would sign up for another hybrid course like this in the future.”



Written comments included:
 “The combo of clinic and eLearning was awesome. Really gave me some time to learn the information and process what I was learning”
 “This may sound extreme, but I believe, due to the combined nature of this course and the committed investment of the preceptor, that I have learned more on this rotation than almost any other so far.”
 “I wish there was more of a patient load, but I appreciated all the resources for learning we were provided with”

Lessons Learned

As a pilot, medical students are responding well to this blended-learning program. Clinical education, particularly in the third and fourth years of medical student training, seems well-suited for blended learning, combining the best aspects of both face-to-face and online collaborative learning.

References

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- ⁴CLIPP Pediatric Cases. <http://www.med-u.org/clipp>.
- ⁵Centers for Disease Control and Prevention. Vaccine Administration. http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/d/vacc_admin.pdf
- ⁶American Academy of Pediatrics. A View Through the Oscope: Distinguishing Acute Otitis Media from Otitis Media with Effusion. Available at <http://www2.aap.org/sections/infectdis/video.cfm>.
- ⁷California Vaccines for Children. EZIZ Vaccine Administration Online Training. <http://eziz.org/eiz-training/>