JoVE: An Imperial Perspective

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My Challenge

Design a pre-sessional online course on laboratory techniques

• Mastering Laboratory Skills
  • Common molecular biological techniques
  • Western Blotting
  • Polymerase Chain Reaction
  • ELISA
  • Flowcytometry
  • Tissue Culture
  • Nucleic Acid Separation Techniques
• Health and Safety
• Handling techniques
My Challenge: learning objectives

Design a pre-sessional online course on laboratory techniques

- Theoretical knowledge
- Visual appreciation of the technique

Options

Design, script and film
My Challenge

Design a pre-sessional online course on laboratory techniques

Design, script and film

Time consuming

Sound quality
Design a pre-sessional online course on laboratory techniques

“I’m getting in touch as I’m the library representative for the of Journal of Visualized Experiments (JoVE) and I wanted to see if there was any help or advice I could offer regarding the potential use of JoVE as part of your ‘Mastering laboratory skills’ course.”

Elizabeth Killeen
Life Sciences Librarian
How many of you have heard of and used JoVE in your teaching?

Please go to www.menti.com and use the code 36 72 46
What is JoVE?

JoVE is the world's leading producer and publisher of scientific video resources with the mission to increase the productivity of research.

JoVE publishes high quality, highly engaging scientific video demonstrations in our:

- **Journal** – peer-reviewed, designed for scientists and researchers
- **Science Education** - video library, designed for faculty and students
ES cells were maintained in serum-free culture without feeder cells. ES cells were plated onto gelatin-coated plates in N2B medium and were passaged every 2–4 days. Dissociated cells were harvested in N2B medium, pelleted, resuspended in N2B and replated directly.

Reproducibility: ability to repeat (reproduce) a published experiment
Position the metaphase spindle at 3 o’clock and hold it with holding pipette. Apply piezo pulses to penetrate the zona pellucida. Touch the metaphase plate with the enucleation pipette. Aspirate the spindle and withdraw the pipette.

Visualization improves knowledge transfer of how-to (methods)
Peer-Reviewed

Indexed in PubMed and Medline

13 Dedicated Sections

Impact Factor: 1.2

Prestigious Editorial Board

7,000 Published Articles 100+ New Articles Published Monthly
Science Education (SE)

- Laboratory Fundamentals
- Simple, Easy to Understand Video Demonstrations
- Engaging Animations
- 600+ professionally produced core videos with over 80 hours of tutorial content
- 15 videos per collection
- Video content maps directly to classes
- Flipped Classroom Tool
- JoVE Quiz Testing Tool
SE Volumes & Collections

- Advanced Biology
- Basic Biology
- Chemistry
- Clinical Skills
- Environmental Sciences
- Physics
- Psychology
- Engineering
Sensitive topics in research require careful planning to uphold ethical behavior—the moral standards that guide decision-making.

Designing studies in an ethical manner requires a balancing act between the benefits of the research and the costs or risk of harm to participants.

This decision process is referred to as a cost-benefit
Review your JoVE Test 📚

Ethics in Psychology test, on Ethics in Psychology Research

1. Cost-benefit analysis refers to…
   - A) the cost of the research and the benefits to the participants.
   - B) the cost of the research and the cost or risk to the participants.
   - C) the benefits of the research and the benefit to the participant.
   - D) the cost or risk to the participants and the benefits of the

Choose file: No file chosen

2. What is the hypothesis of the experiment conducted?

4. Which of the following is NOT a beverage that was used in the experiment?
   - A) vinegar + water
   - B) water
   - C) salt + water
   - D) hot sauce + water

Choose file: No file chosen

5. A recent study found that when video game players lost a game they were...
# Test Results

**Ethics in Psychology test**

Below is a list of all students that were sent invitations about this test, as well as information about their scores, if they have taken the test:

**Revision #1: Invitation Date 11/27/2017**

<table>
<thead>
<tr>
<th>Email</th>
<th>Test Taken</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
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</thead>
<tbody>
<tr>
<td><a href="mailto:roman.lyashenko@jove.co">roman.lyashenko@jove.co</a></td>
<td>11/27/2017 at 10:16AM</td>
<td>2/5</td>
<td>Gray</td>
<td>Green</td>
<td>Green</td>
<td>Gray</td>
</tr>
<tr>
<td><a href="mailto:dan.marin@jove.com">dan.marin@jove.com</a></td>
<td>11/27/2017 at 10:20AM</td>
<td>1/5</td>
<td>Yellow</td>
<td>Green</td>
<td>Gray</td>
<td>Gray</td>
</tr>
</tbody>
</table>
Michigan State Labs

Dr. Carrie Northcott and Dr. Brian Jespersen from Michigan State University utilize JoVE as a teaching tool and save resources & time.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solution</th>
<th>Results/Benefits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>For <strong>costly surgical procedures</strong> such as catheter implantation, how can instructors <strong>increase the success rate</strong> for new students learning the technique?</td>
<td>• Publish procedure with JoVE to get a concise and professional <strong>video to expedite transfer of knowledge</strong>&lt;br&gt;• <strong>Reduce</strong> wasted time and cost of materials</td>
<td>• <strong>Success rate</strong> increased from 40% to 90%&lt;br&gt;• Increase <strong>consistency</strong> of procedure&lt;br&gt;• Michigan state labs save <strong>$13,660 annually</strong></td>
</tr>
</tbody>
</table>
Case Studies / Testimonials

JoVE Saves University of Washington Lab $40,000

“Visualizing the experimental techniques greatly decreases the time it takes to perform a new technique with high efficacy.”

- Dr. Mary Wallingford, University of Washington

Results/Benefits:

• By watching and learning from a JoVE video, Wallingford was able to improve dissection techniques so successfully that it saved the university from hiring extra help in the lab. This added position would have been salaried at ~$40,000.

• Wallingford now uses JoVE to train new students in the lab, to learn techniques related to her own research field, and to learn methods from other fields pertinent to her work.

JoVE Helps University of Helsinki Neuroscience Researchers Learn Technique 96% Faster

“...in other words, a 96% increase in efficiency in time use.

• The Khroug Lab has published 4 articles with JoVE. Their first publication has received 26,000 views and has been cited 7 times in other journals.

- Dr. Leonard Khroug, University of Helsinki

Results/Benefits:

• Khroug and his lab on-boarded a new surgical technique in 2 weeks with the use of JoVE that would have taken a year to learn without it— in other words, a 96% increase in efficiency in time use.

• The Khroug Lab has published 4 articles with JoVE. Their first publication has received 26,000 views and has been cited 7 times in other journals.
DeSales University, Pennsylvania

- 94 Molecular Biology students, 2 labs
- Group 1: Watched videos twice before lab and read the hand-out
- Group 2: Just read the hand-out

Clemson University, South Carolina

- 252 Biology students
- Group 1: Watched videos twice before lab and read the hand-out
- Group 2: Just read the hand-out

Study performed by TERC, Cambridge MA; STEM Education Evaluation Center
JoVE videos improve STEM students’ performance

- 89% of students felt more confident during lab
- 92% of students felt they understood how to conduct the lab better
- 96% of students found the SDS Page video was helpful in explaining the core scientific concepts

- Students who watched the JoVE Plasmid Purification video scored 100% higher - performed twice as well - on the pre-lab test compared to the control group.
- Students scored 76% higher on the test after both groups had conducted the lab.
How do I use JoVE?

Design a pre-sessional online course on laboratory techniques
Benefits

Students are able to watch a technique and visualise the methods which they are expected to use in the lab.

Students can undertake tasks with greater confidence.
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  • Students are able to watch a technique and visualise the methods which they are expected to use in the lab.

• Students can undertake tasks with greater confidence.
Our Challenge

• How can we utilise JoVE to design more inclusive curriculum, more reflective of the way our students process knowledge and information?

• I would like to challenge everyone here to think of ways in which we can use this to enhance our curriculum

Please go to www.menti.com and use the code 36 72 46
Thanks for listening

Questions?

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