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Journal of Visualized Experiments (JoVE)

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ADVISOR REVIEWS—STANDARD REVIEW

Journal of Visualized Experiments (JoVE)

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Composite Score: ★★★ 3/4

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Pricing Options

The Journal of Visualized Experiments (JoVE) <http://www.jove.com/> publishes video-based articles in the life sciences. The first few seconds to minutes of all videos are freely viewable. For most videos, a subscription is required to view the rest of the video content. The subscription price for institutions is determined by institution type. The annual subscription fee for the journal is $2,400 for Ph.D.-level institutions, $1,600 for Master-level institutions, and $1,000 for small colleges. Consortium discounts are available. For consortia of over 20 universities, the discount rate is 25 percent. Individuals can purchase $9 daily, $29 monthly, and $99 yearly subscriptions, as well as obtain free, one-day trial access.

Some video-articles in JoVE are Open Access and free. Two years after publication, all video-articles become freely viewable and downloadable in PubMed Central <http://www.ncbi.nlm.nih.gov/pmc/>.

Product Description

The Journal of Visualized Experiments (JoVE) is a monthly online video-based journal that publishes methodology articles in the life sciences. Launched in December 2006, JoVE is the first online video-journal for life science research. It utilizes online streaming videos to illustrate complicated biological and biomedical experimental procedures and attempts to solve

> two of the biggest challenges faced by today's life science research community: i) low transparency and poor reproducibility of biological experiments and ii) time and labor-intensive nature of learning new experimental techniques. (<http://www.jove.com/index/About.stp>)

As of April 2010, JoVE has released 588 video-based articles in neuroscience, cellular biology, developmental biology, immunology, microbiology, plant biology, bioengineering, medicine, and other fields.

JoVE is overseen by an Editorial Board consisting of scientists from leading academic institutions including Harvard, MIT, Princeton, Cornell, and NIH. Video-articles are peer-reviewed and indexed in PubMed <http://www.ncbi.nlm.nih.gov/pubmed>. It is a unique and valuable resource for life science researchers, graduate students, and undergraduate students in biological and biomedical sciences. Currently, more than 127 institutions subscribe to this journal.

To access JoVE content, users can go directly to its Web site <http://www.jove.com/> or search in PubMed and follow the JoVE link on PubMed article records. According to a correspondence with Moshe Pritsker, CEO and editor-in-chief of JoVE, the journal attracted 91,304 unique visitors in March 2010—mostly academic scientists and students. About 20 percent of users are return users.

Critical Evaluation

CONTENT

JoVE, an alternative to traditional text-based experimental protocols, provides a collection of videos that illustrate research techniques in life sciences. JoVE videos are several minutes long to over 20 minutes long. Anyone can freely view the first couple of seconds to minutes of all videos. Each video is complemented by a text-based article. For non-Open Access videos, which represent most of the journal's content, a subscription is required to view the rest of the video content and the written article. Most video-articles are authored by scientists from research universities and institutions. Industry laboratories also publish video-articles that are often free and available in one or more foreign languages.

As far as Section 508 compliance goes, JoVE videos are not captioned. Although each video is accompanied by a text-based article that provides an alternative for the video content, JoVE still may be considered to be not 508 compliant. State institution libraries in states that require all content to be section 508 compliant may have problems with acquiring this journal.

JoVE is archived in PubMed Central (PMC) <http://www.ncbi.nlm.nih.gov/pmc/> with a two-year embargo. Once articles are open in PubMed Central, both the text and the video are downloadable. To prevent readers from reposting the videos on other Web sites, videos from the JoVE Web site are viewable, but not downloadable.

USER INTERFACE

The interface design is clean, simple to use, and generally follows standard Web design conventions. All pages have a consistent main navigation bar across the top containing four tabs: Home, Browse, For Authors, and Subscribe. Each tab has subtabs displayed below the main tab to provide further navigation options within each section. A prominent search box is located at the top of every page for a quick content search. The footer provides quick links to popular pages of the Web site.

The main landing page features recent articles in the content area, with auto-played videos that look attractive and give readers a sense of the content. A subnavigation bar on the left side of the page shows the browse options. In the right column, the landing page displays sponsored articles, featured articles, and more.

Video content requires Adobe Flash Player 9 or over. A troubleshooting page <http://www.jove.com/index/Page.stp?name=Troubleshooting> is available for users with video display problems. The reviewer tested the Web site on both PC and Macintosh computers with Adobe Flash Player 10 installed, and in three internet browsers: Firefox 3, Internet Explorer 7, and Safari 4. No video display problem was found. Ac-

cording to the publisher, computers that can show YouTube can generally play JoVE videos too; as of May 2010 JoVE has not received any complaints about video display problems.

There is still room to improve the user interface. For instance, the Browse tab has three layers of tabs and the third-level subtabs have the same color as the content area. A different background color could make the third-level subtabs more distinguishable from the content.

SEARCHING AND BROWSING

JoVE offers both a simple Search and an Advanced Search option. The quick Search box located at the top of each page searches the full text of articles and comments. It supports AND and OR Boolean searches but does not work with NOT. Boolean operators (AND and OR) must be entered in uppercase letters.

The Advanced Search option is embedded below the Browse tab. A link to the Advanced Search could be put next to the quick Search box to make the Advanced Search more visible, as in Google, PubMed, and other search engines. Users can search by title, author, keywords, abstract, or publication date. Contrary to the general practices of most search engines, the Advanced Search does phrase searching, so users need to put in the exact phrases shown in JoVE articles including punctuation and spacing. Otherwise, articles containing the search terms will not be retrieved. For example, a title search on "human brain" (two words entered in the search box without quotation marks) did not find the article entitled "Neuronal Nuclei Isolation from Human Postmortem Brain Tissue"; a title search on the worm "C elegans" (two words entered in the search box without quotation marks, the initial "C" not followed by a period) returned zero articles as opposed to four articles when entered as "C. elegans" (two words entered in the search box without quotation marks, the initial "C" followed by a period). This problem hinders users from effectively retrieving contents from JoVE.

For subject indexing, JoVE uses "keywords" as subject terms that are tagged to each article to facilitate searching. The keywords come from author-provided keywords and subject terms assigned by JoVE. However, there are problems associated with keyword searching and indexing. On the Advanced Search page, the Keywords search box only searches the keywords assigned to each article, but most users would think it can search keywords in titles, abstracts, keywords, and other fields. Moreover, the subject thesaurus at this moment is relatively small and lacks consistency. For example, articles using the worm Caenorhabditis elegans (C. elegans) as the experimental material have different keywords assigned. As of April 2010, four articles are tagged with "Caenorhabditis elegans", while three different articles are tagged with "C. elegans". Therefore, users need to use synonyms and related terms to do comprehensive searches. These problems with keywords searching need to be solved to improve discovery.

JoVE is also browseable. Users can browse article titles, issues, categories, or keywords by using the Browse tab in the main navigation bar. The various browsing options are also shown on the left side of the home page.

WEB 2.0 AND PERSONALIZATION TOOLS

JoVE has embraced Web 2.0 tools to enhance the user experience. Users can receive new video updates via email, RSS feeds, or Twitter and share an article through social bookmarking tools(Figure 1). It is noteworthy that users can track comments posted on a specific article and get e-mail notifications if they register a personal account Figure 2). Users can also save notes to a specific article when they are logged in to their account.

STRENGTHS

Video-based protocols help address the problems of written protocols. Traditional biological experimental protocols are written in text with or without picture illustrations. Modern biological experiments are so complicated that fine details cannot be fully reflected in text. Most biologists, especially lab neophytes, have struggled with not being able to reproduce an experiment by following a text and picture-based protocol. Well-funded laboratories sometimes send researchers to other places or even other countries just to learn new techniques. All of these issues have caused a significant waste of money and time in life sciences research.

FIGURE 1 A Sample Article Page Showing Important Features

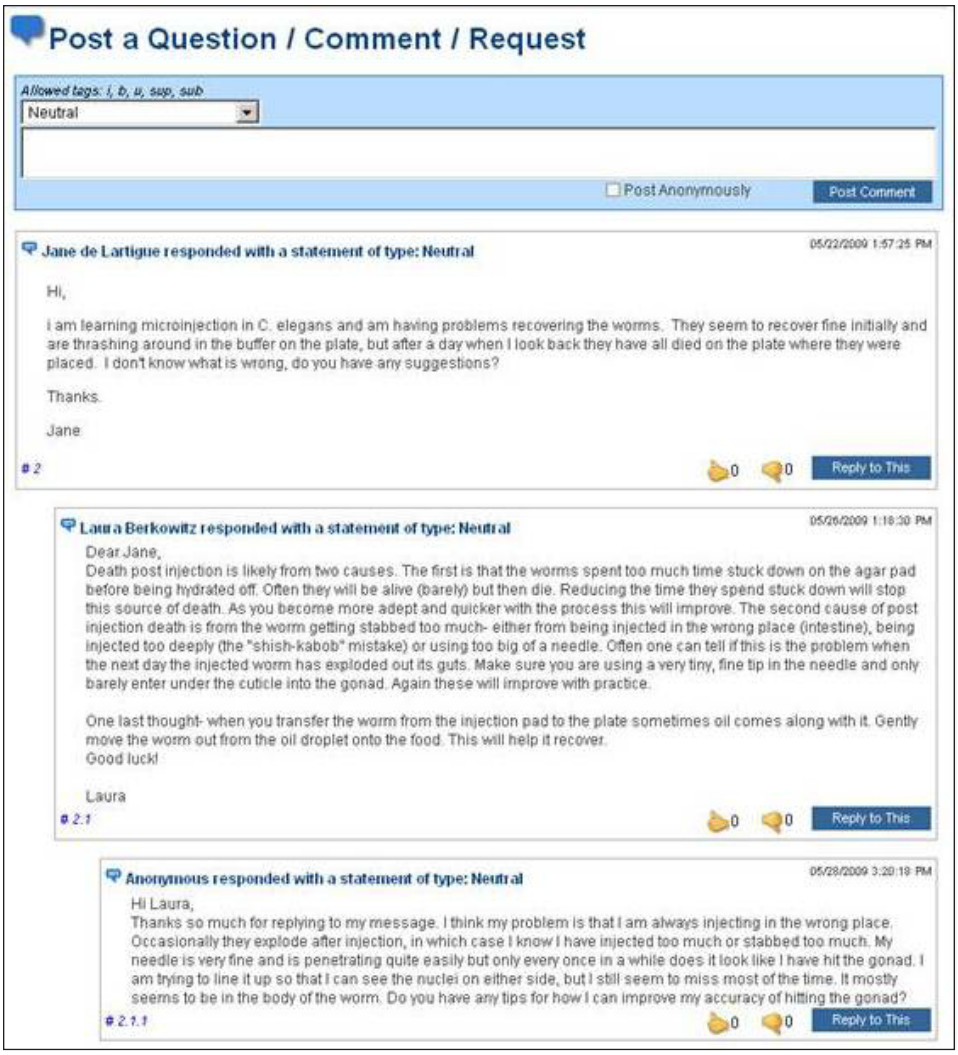

FIGURE 2 Registered and unregistered users can post comments on a specific article's interactive space; tracking comments requires opening a personal account with JoVE.

JoVE is designed to solve the shortcomings of traditional written protocols. Essentially, it is a biomedical methodology journal that publishes methods' articles or protocols. The value and uniqueness of JoVE is that it takes advantage of the digital video technology and presents biological experiments in video format, which significantly improves transparency and reproducibility of biomedical research. It also makes cutting-edge research techniques more accessible. Scientists can watch experiments online without traveling. So far, JoVE has been the only video-based scientific journal indexed in PubMed.

Videos are professionally produced, informative, and easy to follow. Users can pause or rewind a video to view the details of a step of interest. Each video is accompanied by a written article describing the experiment. The written article's format is similar to a traditional methodology article.

Due to the technical difficulties many scientists face in producing high quality videos, JoVE offers professional filming and editing service in limited areas to help scientists publish with JoVE and ensure video quality.

Each article has a discussion space for questions and clarifications. JoVE creates an interactive space on every article's Web page for questions, comments, or requests (Figure 2). Both registered and unregistered users can post comments or questions. Authors are automatically notified of new comments through e-mail. Readers can track comments by creating a personal account with JoVE. The discussion forum is very popular. A significant number of articles have questions posted by readers and then answered by authors or vendors.

Continually updated article-level traffic statistics. Each article has its own traffic statistics on the article Web page—a valuable tool that helps both libraries and users determine the value of an article. Traffic statistics include data on publish date, views, and comments (Figure 1). JoVE also allows libraries to track their own usage statistics of the whole journal. At present the data are not COUNTER compliant, but making them so is under consideration.

WEAKNESSES

Still expanding and growing content. As JoVE is still a young journal, its content is far from comprehensive. Although it publishes methods articles from almost all areas of life sciences, about half of current articles fall within the categories of neuroscience and cellular biology; there are relatively few articles in the other covered areas. According to Moshe Pritsker, JoVE intends to expand in medicine, psychology, and other areas in life sciences.

Also, JoVE covers specialized methods more than basic methods. Lab neophytes often face more challenges in basic methods and may not find appropriate videos in JoVE. As JoVE is rapidly growing and expanding some of these issues may be addressed soon.

Search functions to be improved. The Advanced Search does exact phrase searching and only retrieves articles where the search phrase, including punctuation, is found. Even Boolean operators are treated as part of the search phrase, not search operators. Therefore, users cannot perform Boolean search in the Advanced Search. Word searching should be provided for users to combine search terms. In the meantime, consistent and advanced subject indexing is needed to empower search capabilities. According to Moshe Pritsker, they are working on using MeSH, the controlled vocabulary used in PubMed, to improve the subject indexing.

Limitation on Interlibrary Loan. As Interlibrary Loan services are based on the traditional static print format, online videos in JoVE cannot be delivered via ILL. Only accompanying text descriptions can be obtained through Interlibrary Loan; consequently, the advantages of the video format are lost.

Journal of Visualized Experiments (JoVE) Review Scores Composite: ★★★ 3/4

The maximum number of stars in each category is 5.

Content: ★★★★ 1/2

The content in this journal is not only valuable, but also unique. Using digital video technology to present methods articles significantly improves transparency and reproducibility of biomedical research and makes cutting-edge techniques more accessible. All articles are peer-reviewed and indexed in PubMed. It is highly recommended to universities, colleges, and research institutions with life science programs.

User Interface/Searchability: ★★★

The search interface is clean and simple to use with options to search and browse. The Advanced Search needs to allow users to combine search terms. Subject indexing also needs to be improved.

Pricing: ★★★★

Pricing is in line with commercial science journals. Consortium discounts are available. The price for individual subscriptions is affordable.

Contract Options: ★★★ 1/2

The contract is not uncommon. There are some issues in the contract that libraries may need to negotiate with the publisher.

Relatively high publication and production fees. The cost of video-based publishing is higher than traditional text-based publishing. JoVE started as an Open Access journal, but it could not survive using this model due to the costs of production and operation. In April 2009 JoVE moved to a paid subscription model. Now it depends on institutional subscriptions and author payments to cover publication and production costs. Currently, the journal charges authors $2,400 per article with video production services ($850 without). The journal also offers Open Access options. Authors can pay $3,500 to make the article with video production services freely available to readers ($2,000 without). The high publication fees might discourage academic laboratories from publishing with JoVE.

Moreover, currently the filming service is limited to roughly 40 areas in 8 countries: the U.S., Canada, the U.K., Germany, Israel, Sweden, Australia, and Japan. Scientists from other geographical areas do not have access to JoVE's professional filming services, so its author base is restricted.

JoVE is still very new. Although it has various issues related to its content, search functions, publishing cost, and contract, its presentation of scientific research methods is creative and has a great potential to improve scientific scholarly publishing and scientific research. Institutions with life science programs should keep a close watch on this product.

Contract Provisions and Authentication

The license agreement can be found at <http://www.jove.com/resources/docs/JoVE_library_license_agreement.pdf>. The contract does not seem to be uncommon. Upon termination of the license, the publisher shall provide perpetual archival access to that part of the licensed materials that was published and paid for within the subscription period. Potential buyers should be aware of some potential issues in the contract: the venue may need to be changed from the Commonwealth of Massachusetts to the location of the subscribing library; prior written permission must be obtained before any part of the licensed materials can be incorporated in coursepacks or electronic reserves; binding arbitration may be unacceptable to many institutions; and the hold harmless and indemnify section should be carefully reviewed. The publisher does not insist on many of the terms of the contract, therefore libraries should negotiate with the publisher and make modifications to the contract as needed.

Access to JoVE is available for subscribers via IP address authentication or User ID/password. Library walk-in visitors can access the journal within the library building.

About the Author

Yun Zhang is a Science Librarian at Georgia State University Library. She has a master's degree in Library and Information Science from the University of Illinois at Urbana-Champaign and a master's degree in Horticulture from China. Prior to her librarianship career, she worked as a molecular biology researcher at the National Center for Molecular Crop Design in China and as a patent engineer at Linda Liu and Partners in China. ■

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