

Journal of Young Investigators

Impact Survey Summary

Fall, 2002

Introduction

The Journal of Young Investigators, or JYI, (<http://www.jyi.org>) is an online, peer-reviewed, undergraduate science journal dedicated to the presentation of undergraduate research in science, mathematics, and engineering. The Journal of Young Investigators began its innovative approach to publishing undergraduate papers and articles in 1997. Two years later, the National Science Foundation awarded a seed grant to fund JYI as an educational pilot project. Today, JYI has grown into a successful organization, ready to convert from a prototype to a self-sufficient organization with sustainable impact.

Currently over 3,200 unique visitors read JYI articles each month free of charge. This translates into tens of thousands of impacted students, professors, and members of the general public each year. Web search results support the notion of JYI's wide availability and suggest that it is accessed often at academic, medical and research-based institutions, while also serving a broad readership. Additionally, over 600 students have directly participated in JYI programs – either as staff editors or as authors.

JYI has not only reached far with its efforts, but also wide, as reflected by the diversity of its audience. Both anecdotal feedback and frequency of Web site hits suggest that JYI is used for a wide range of purposes, and that the journal provides resources and services that are particularly valuable in education and research enterprises.

JYI participants come from a balanced number of state and private institutions, with 15% from small liberal arts colleges. JYI participants are international too, coming from countries such as Australia, Canada, France, Germany, Japan, Russia and the United Kingdom. Women scientists wrote 49.5% of JYI-published manuscripts, five times that of professional journals, and account for 55% of JYI membership. Minority representation is also strong; 15% of JYI's leadership has been African American or Hispanic.

In August and September 2002, 175 feedback surveys were distributed to JYI staff, published authors, and submitting (unpublished) authors. Eighty-seven responses were received (~50% response rate). These responses, in broad terms, indicate that:

- Students confidently recommend participating in JYI to their peers.
- JYI increases students' ability to communicate science.
- In many cases, student involvement in JYI translates to greater academic achievement. Only 15 respondents indicated that their academic achievements had not changed through participating in JYI.
- Many staff respondents found that working with JYI increased their skills for working as part of a team.

Web Presence

From 4 August to 11 August 2002, web searches were conducted for “Journal of Young Investigators” primarily using the search engine Google. The search was

conducted as a preliminary investigation into the extent of JYI's web presence. The results of this search are as follows:

- Fifteen articles were freely accessible online that either mentioned or were about JYI.
- Links to the following JYI feature articles were found on a variety of pages: *How to Choose an Undergraduate Research Mentor*; *Gleevec – Highlighting the power of rational drug design*; *Betwixt and Between – A Semester in Turkey*; and *How It Works: The Charged-Coupled Device, or CCD*.
- Fourteen universities or university systems list JYI in their library electronic journal databases, including Princeton University, Stanford University, the University of California (entire system), and others.
- Forty-one links from academic institutions (in addition to library Web pages) were found, in thirteen countries.
- Twenty-five links from non-academic sites were found. These sites included hospitals, the National Institutes of Health, Biosis literature service, and others.
- Web sites that contain links to JYI originated in the following countries: Australia, Canada, China, Denmark, England, Finland, Germany, Italy, India, Poland, Sweden, Switzerland, Taiwan, and the United States of America.

While these results are not a comprehensive representation of JYI's web presence, they do suggest that the journal is generally well-regarded and widely read and used.

Web Statistics

The JYI Web site receives between 12,000 and 14,000 hits per week on average (August/September 2002). Of these, approximately 1,200 to 1,500 (roughly 10%) are unique (new) hits. Due to vagaries in the web statistical systems, this number may be somewhat inflated. Still, the relatively high number of new visitors to the JYI Web site per week may indicate that people use the resource for a wide range of purposes (Mercer 2002). The broad variety of entities linking to the JYI Web site supports this possibility, as does anecdotal feedback concerning JYI. Not only has JYI received e-mail asking advice for presenting at undergraduate conferences, the journal has also received thank-you notes for helping readers to (of all things) fix their washing machines!

High use further implies that a site is successfully providing access to the resources its audience needs. High use of this undergraduate science journal may indicate that it provides resources and services that are particularly valuable in the education and research enterprise, and that the resources and services should be expanded (Wonsik *et al.* 2001).

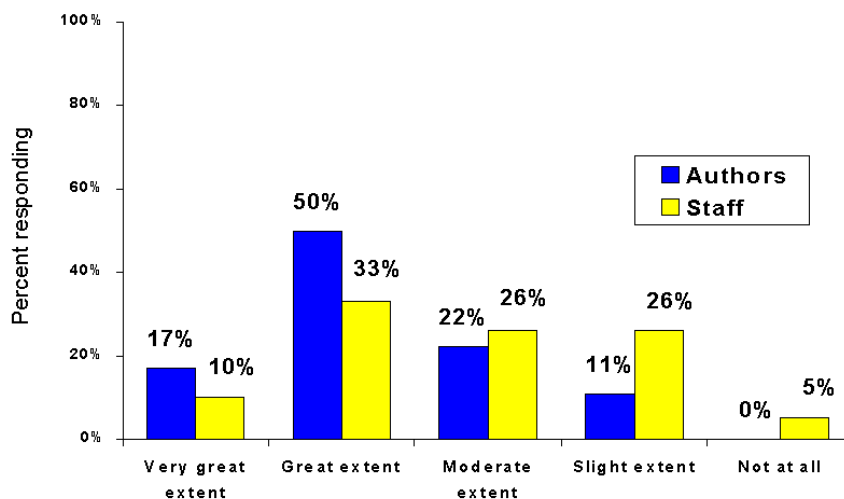
Online journals have at least one advantage over print journals in this electronic age – superior distribution. Since electronic resources have become more widely available than their print counterparts, providing materials to customers anytime and anywhere (Mercer 2002), it follows that JYI may be accessed with greater frequency than print undergraduate journals, which are usually confined to a single institution. This assumption is supported by the number of weekly hits to the JYI Web site (~13,000) compared to the number of times a print journal of undergraduate research is accessed per week (presumably much lower).

Staff and Author Surveys

To assess the extent to which JYI's review process helps students to improve their communication skills, both authors and JYI staff were asked the following question: **“To what extent did the JYI review process help you to improve your science communication skills?”** Non-published author responses (number = 4) were not included in this summary.



Review Process Helped Improve Science Communication Skills



n = 36 Authors, 47 Staff

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Over two-thirds (67%) of authors and close to half (43%) of JYI staff said that their science communication skills had improved to a great extent or very great extent. For staff, 10% improved to a very great extent, and 33% improved to a great extent. A little over one quarter of staff reported that their science communication skills had improved to a moderate extent (26%) or slight extent (26%).

Almost one-fifth (17%) of JYI authors improved their science communication skills to a very great extent, and half (50%) improved to a great extent. Nearly one quarter (22%) said their science communication skills had improved to a moderate extent.

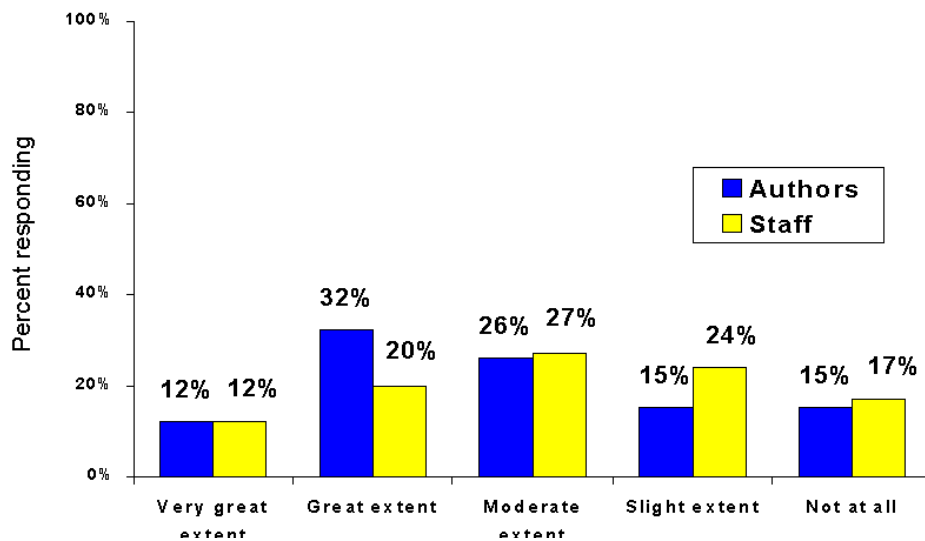
To assess the extent that writing for JYI has been integrated into undergraduate academic activities, authors were asked the following question: **“To what extent did the preparation of an article for JYI help you with your academic achievements?”** Staff members, who may not have prepared an article for publication, were asked **“To what extent did the participation in JYI help you with your academic achievements?”**

Almost three-fourths (70%) of authors and three-fifths (59%) of staff reported that participation in JYI had at least a moderately positive impact on their academic

achievements. For authors, over two-fifths reported that the extent of help was very great (12%) or great (32%), and one-fourth (26%) reported a moderate extent of help. For JYI staff, one-third reported that the extent of help was very great (12%) or great (20%), and over one-fourth (27%) reported a moderate extent of help.



Participation in JYI Helped with Academic Achievements



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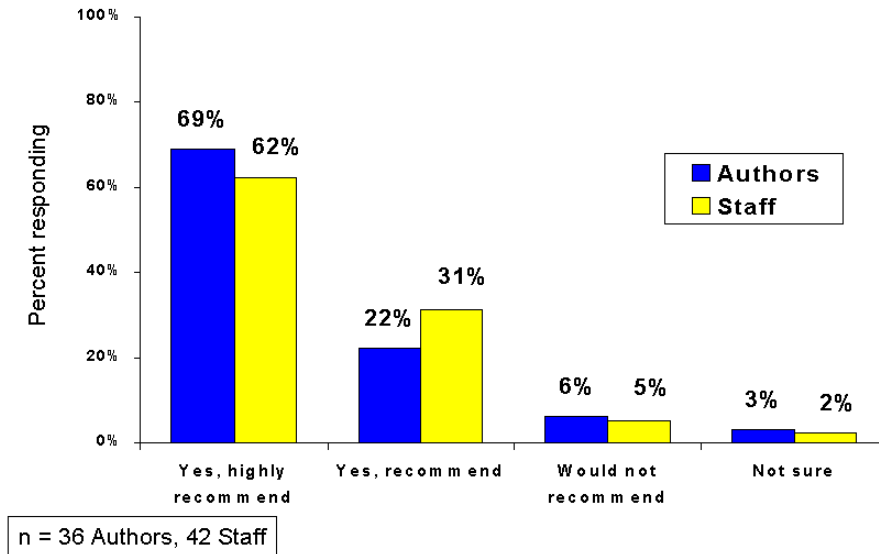
10 Nov 2002 Figure 1

To assess participants' regard for the journal, authors were asked, **“Would you recommend that others (with academic backgrounds similar to yours) prepare an article for publishing with JYI?”** For staff, who may not have prepared an article for publication, the question was modified to read, **“Would you recommend that others (with academic backgrounds similar to yours) participate in JYI?”**

Over nine-tenths of authors (91%) and staff (93%) indicated that they would highly recommend (69% for authors, 62% for staff) or recommend (22% for Authors, and 31% for Staff) that their peers participate in JYI.



Recommend Others (with Similar Background) Participate in JYI

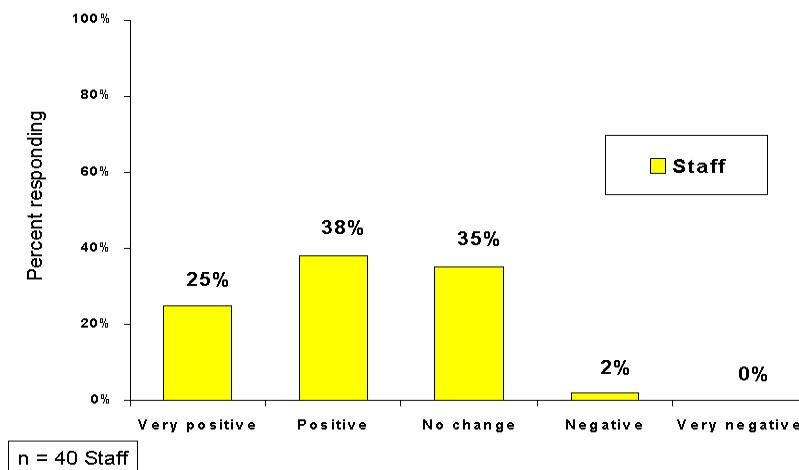


To assess the impact of participation on skills for working as part of a team, JYI staff were asked: **“What impact did participation in JYI have on your skills for working as part of a team?”**

Nearly two-thirds (63%) of staff indicated that participating in JYI had very positive (25%) or positive (38%) impact on their skills for working as part of a team. A little over one third (35%) indicated that participation had not changed their skills for working as part of a team.



Impact of Participation on Skills for Working as Part of a Team



Staff and authors were asked, **“What influence has your experience with JYI had on your future academic plans? (please describe)”** to determine what, if any, longer-term influence JYI has had on participants’ academic plans. Respondents were free to respond to this question in any way they chose, including not answering it, especially if they had already answered it previously on either a staff or author survey.

Responses were not expected to reflect that JYI has had a significant impact on the future academic plans of undergraduates publishing in the journal. Students often answered this question tangentially, however. For example, while one quarter of authors indicated that preparing articles for publication in JYI had not influenced their academic plans, another 25% indicated that publishing with JYI had better prepared them for graduate studies. Many of the remaining responses described other ways in which publishing with JYI influenced – or might potentially influence – their future academic careers. These responses often touched on themes such as “helping to define career goals”, and “gaining greater confidence in writing skills”.

Staff answered this question in similar tangential fashion. Their responses often touched on themes such as “will use skills gained through JYI in future career”, “made useful contacts,” “helped to define career goals,” and “increased desire to enter academia”.

The final question asked of both staff and authors, **“Any other thoughts or comments on your experience with JYI?”** was asked to give respondents a way to voice any yet unarticulated information that might be useful or insightful. Responses varied immensely; with just a few examples given below:

“I plan to have a career in research science, and the ability to communicate ideas in a written format is of paramount importance. The opportunity to explore writing, and particularly writing about science, has been a tremendous opportunity for me.”

Amanda Redig
University of Arizona
Class of 2003
JYI Science Journalist, 2001- present

“JYI has been a wonderful way for me to learn more about what type of work my peers are doing. I have learned a great deal about various areas of scientific inquiry simply by reviewing other people's manuscripts. It has allowed me to make connections between concepts learned in my coursework that I don't think I would have otherwise made.”

Dave Chokshi
Duke University
Class of 2003
Associate Editor (Biological and Biomedical Sciences), 2000- present

“Publishing a manuscript in JYI helped develop my scientific writing skills. It is definitely a very valuable tool that gives young authors a chance to present their data and go through the review process. There is not enough emphasis put on, or training for, scientific writing at the undergraduate level. Many undergrads miss the chance to contribute to the writing of papers even though they may have had a significant impact on the research going on in their laboratory.”

Paul Rack (not on staff)
University of California at Riverside
Class of 1997
Author, "Further Characterization of NMDA Receptor Channels on Cultured Supraoptic Neurons"
Journal of Young Investigators, Issue 5
October 2001

“Students are the authors, the reviewers, the journalists, the management, and the support. They run the entire show! There is simply no substitute for such an experience! Where else do students get to write up the entire manuscript as the first author and lead that manuscript through the entire review process, answering reviewers' comments and shaping up their manuscripts? Where else can students learn how to review manuscripts and what the publication process is actually like? And where can students write science feature-type articles and get advice from professional science writers? Very few places, if any. Yet, all along the way quality is maintained by faculty members and professional science journalists who mentor these students as they do all this. I think that the system is certainly ingenious and works quite well!”

Courtney Peterson
Georgetown University
Class of 2002
Marshall Scholar, 2002
Department of Applied Mathematics and
Theoretical Physics
Cambridge University
Associate Editor, Biological and Biomedical
Sciences, 1998 - 1999
Chief Financial Officer, 1999 – 2000
Chief Technical Officer, 2000
Editor-in-Chief, 2000-2002
Chief Executive Officer, 2002- present

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