Student peer review decisions on submitted manuscripts are as stringent as faculty peer reviewers

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Navalta JW, Lyons TS. Student peer review decisions on submitted manuscripts are as stringent as faculty peer reviewers. Adv Physiol Educ 34: 170–173, 2010; doi:10.1152/advan.00046.2010.—The International Journal of Exercise Science uses a unique manuscript submission and peer review process; thus, on manuscripts in which a student is the first author, two like-level students are asked to serve as peer reviewers along with one professional, or faculty, reviewer. In addition, peer reviewers are asked to assess the manuscript. Given the available literature, opportunities to carry out peer review evaluations as students or early in one’s professional career may enable an individual to return higher-quality reviews at an earlier point.

To our knowledge, the International Journal of Exercise Science (IJES) uses a unique manuscript submission and peer review policy. The IJES only receives and considers manuscripts that include students in the authorship and prefers students as the primary author. The journal strives for a true peer review process; thus, on manuscripts in which a student is the first author, two like-level students are asked to serve as peer reviewers along with one professional, or faculty, reviewer. For example, upon graduate student first author submissions, two graduate student peer reviewers and one faculty reviewer are asked to review the manuscript. On the other hand, on papers submitted by a faculty scholar, two faculty peer reviewers are asked to assess the manuscript. Given the nature of our distinctive peer review process, we wanted to determine if a difference existed between student and faculty reviewers. Therefore, the purpose of this research was to receiving training identified more major errors compared with the control group and that, when evaluated against the control group, the self-taught group returned higher qualities of reviews. However, upon a followup at 6 mo, the benefits of training for the intervention groups were no longer evident (14). While short-term training appears to have short-term effects with regard to manuscript review, Benos et al. (2) stated that the majority of reviewers attain their training not through instruction but rather by actually completing reviews. Given the available literature, opportunities to carry out peer review evaluations as students or early in one’s professional career may enable an individual to return higher-quality reviews at an earlier point.

The peer review process associated with manuscript submission has the purpose of maintaining a high level of quality for scholarship in a particular field (3, 12). Within each area of interest, this peer review process helps to assure that the information being disseminated is accurate and based on sound research practices. However, peer review as a process does have limitations (19), such as relying on expert reviewers, who typically perform evaluations out of professional courtesy rather than monetary compensation (8). Because of this, journal editors often have difficulty in securing the important services of reviewers who are charged with maintaining quality control in their area of expertise.

In addition, the question of whether a peer reviewer has sufficient expertise is a legitimate issue. Many journals provide tutorials on the process to aid reviewers (2, 10, 13, 15). Schroeter et al. (14) completed an investigation to determine if various forms of training had an effect on the quality of reviews returned by peer reviewers. Deliberate major and minor errors were introduced into already published papers and given to 190 reviewers, who were partitioned into 3 groups. One group received a full day of face-to-face training and was provided with written instructions on appraisal techniques, another group received a self-taught training program, and the final group served as controls. It was reported that both groups

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determine whether graduate students returned similar decisions compared with faculty reviewers who evaluated the same manuscript. In addition, the decisions of faculty evaluators reviewing graduate student- versus faculty-submitted manuscripts were compared.

METHODS

For the purposes of this study, all graduate student (n = 33) and professional (n = 12) manuscripts submitted to IJES between July 2007 and November 2008 were evaluated. Undergraduate student-submitted manuscripts were not assessed in the present study due to the small number of submissions received during this period (n = 4). The authors had the opportunity of submitting a manuscript and being classified as a student if they were presently pursuing an academic degree or if the work was completed during the time in which they were still a student. Undergraduate students are considered to be individuals working toward either an associate or baccalaureate degree, whereas graduate students have earned an undergraduate diploma and are endeavoring to complete masters or doctoral programs. Faculty authors have completed a terminal degree (typically a PhD).

Regardless of the manuscript submission type (student or professional), IJES reviewers have three possible options when rendering a decision. Manuscripts that are scientifically sound, well written grammatically, and significantly add to the existing literature in the field may have an “Accept with minor revisions” decision returned. If the manuscript displays merit in the view of the reviewer but lacks critical components, the reviewer may opt to return a “Major revisions required” decision. Finally, a reviewer can return a “Reject” decision if the manuscript has significant shortcomings that are unable to be remedied with a major revision.

Table 1. Review decisions by faculty and student reviewers evaluating student-submitted and professionally submitted manuscripts to the International Journal of Exercise Science between July 2007 and November 2008

<table>
<thead>
<tr>
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<th>Total Number of Reviewers</th>
<th>Number of reviewers that agreed</th>
<th>Percentage</th>
<th>Number of reviewers that agreed</th>
<th>Percentage</th>
<th>Number of reviewers that agreed</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty reviewers that evaluated student-submitted manuscripts only</td>
<td>33</td>
<td>12/33</td>
<td>36</td>
<td>17/33</td>
<td>52</td>
<td>4/33</td>
<td>12</td>
</tr>
<tr>
<td>Student reviewers (who only evaluated student-submitted manuscripts)</td>
<td>66</td>
<td>24/66</td>
<td>36</td>
<td>32/66</td>
<td>49</td>
<td>10/66</td>
<td>15</td>
</tr>
<tr>
<td>Faculty reviewers that evaluated professionally submitted manuscripts only</td>
<td>22</td>
<td>5/22</td>
<td>23</td>
<td>9/22</td>
<td>41</td>
<td>8/22</td>
<td>36</td>
</tr>
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RESULTS

All results are expressed in terms of “code units” as means ± SD. Graduate students (2.21 ± 0.69 code units) and established reviewers (2.24 ± 0.66 code units) returned similar decisions on manuscripts submitted by primary authors who were graduate students (P = 0.84; Fig. 1). Of the 33 student-submitted manuscripts evaluated, all reviewers (i.e., the faculty reviewer as well as both graduate student reviewers) returned the same decision 18% of the time (6 of 33 reviewers agreed). The faculty reviewer and one of the two student reviewers had a similar agreement on manuscript decisions 73% of the time (24 of 33 reviewers agreed), whereas both students differed from the established reviewer on nine occasions (27%). Table 1 shows the percentages at which student and faculty reviewers returned decisions to reject, require major revisions, or accept with minor revisions. Table 2 shows selected qualitative examples of the comments made by student and faculty reviewers.

Faculty decisions on manuscripts submitted by a professional primary author (1.86 ± 0.77 code units) were not different compared with established reviewers who evaluated student manuscripts (P = 0.06; Fig. 2). However, as shown in Table 1, established reviewers tended to return a greater percentage of reject decisions and a lower percentage of revise decisions (both major and minor revisions) on peer-submitted manuscripts compared with those submitted by students.

DISCUSSION

The purpose of this investigation was to evaluate whether graduate student peer reviewers and faculty evaluators returned similar decisions on manuscripts submitted by students. Based
on 1 yr of manuscript submissions to IJES, our findings revealed that graduate students are just as stringent in the peer review process as established reviewers. In addition, we wanted to determine if faculty peer reviewers returned similar decisions on student-submitted manuscripts compared with work in which a professional was the primary author. We found that whereas established reviewers statistically evaluated manuscripts that were less stringent compared with faculty reviewers evaluating the same manuscripts. As detailed above, graduate students and faculty reviewers returned decisions on manuscripts that were similar (graduate student peer reviewers = 2.21 ± 0.69 code units and faculty peer reviewers = 2.24 ± 0.66, \( P = 0.84 \)).

There are a number of possible explanations for the results presented in the present study. The journal has a set of published guidelines detailing the review process for an original research article (15), and this resource is freely available to all students. In addition, we ask that each student who reviews a manuscript for the journal have a faculty mentor that can guide him or her through the process. In recent years, there has been an emphasis on teaching the peer review process in the classroom and simulating the journal review experience (7, 9, 11). It is possible that the incorporation of teaching strategies aimed at exposing students to the peer review process, along with tangible opportunities such as are provided by IJES, are enabling students to be better prepared when performing scholarly assessments.

While students may be better prepared and have greater resources to complete the peer review process, an examination of the faculty reviewers who performed reviews of student-submitted manuscripts is also warranted. It is possible that established reviewers and students were of the same peer review ability, and this led to the similarity between scores. The faculty reviewers who reviewed student-submitted manuscripts might not have been afforded similar mentorship, instruction, or early peer review opportunities compared with current students. Another possibility is that with the requirements of their academic positions, faculty reviewers took less
time to perform a thorough review of a manuscript, for which they were not being compensated. Finally, it is possible that with the student-focused nature of the journal, faculty reviewers were unwilling or less likely to return reject decisions to students whose work merited such a response. This may have inflated the overall established reviewer score in the present evaluation of IJES reviewer decisions.

It is interesting to note that when we compared faculty reviewers who evaluated student-submitted manuscripts with faculty reviewers who assessed professionally submitted articles, there was a near statistical difference ($P = 0.06$). In this case, established reviewers tended to return more stringent decisions when evaluating manuscripts submitted by a professional (i.e., reject more often). There are two possible reasons for this observation. It may be that faculty reviewers were more sympathetic to students who submitted and, therefore, were more likely to return a decision for major revisions considering that it could be a learning experience for the student, where they would not necessarily extend this option to a fellow professional. Another explanation could be that the actual manuscripts that were submitted by established authors were of poorer quality compared with student submissions. If this was the case, faculty reviewers would naturally return a reject decision more often on professionally submitted manuscripts than on student-submitted work. It should be noted that as our analysis returned a statistically insignificant result, this trend should continue to be monitored.

While there is an abundance of literature on the peer review process (1, 4, 5, 16, 18), to our knowledge, the present study is the first to compare student and faculty reviewers. Tangentially, there are reports (6, 17) that have evaluated the effect of peer assessment of homework or assignments in the classroom. The consensus of these reviews are that students are capable of performing valid and reliable assessments of their peers and that, in many cases, the quality is equal to or better than teacher evaluations. The findings of the present study indicate that this phenomenon can be extended to the journal peer review process. Students are just as stringent in their evaluation and final decisions on manuscripts submitted by their peers as established reviewers.

**REFERENCES**


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