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 is the only student-centered peer-reviewed journal in its field. Upon graduate student first author submissions, two student reviewers and one faculty reviewer are asked to review. On professionally submitted papers, two faculty peers are asked to assess the manuscript. The purpose of the present study was to determine whether graduate students returned similar decisions compared with faculty reviewers who evaluated the same manuscript. In addition, decisions of faculty peers reviewing graduate student- versus faculty-submitted manuscripts were compared. Mean comparisons between groups were evaluated using independent t-tests with significance at $P \leq 0.05$. Graduate students (2.21 ± 0.69) and faculty peers (2.24 ± 0.66) returned similar decisions on student-submitted manuscripts ($P = 0.84$). Faculty decisions on manuscripts submitted by a professional primary author (1.86 ± 0.77) were not different compared with faculty peers reviewing student manuscripts ($P = 0.06$). Statistics revealed that graduate students are just as stringent in the peer review process as established reviewers. Additionally, faculty reviewers evaluated manuscripts equally regardless of submission type.

manuscript evaluation; peer review process; student appraisal; student versus faculty comparison
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>
<th>Reviewer Type</th>
<th>Total Number of Reviewers</th>
<th>Minor Revisions</th>
<th>Major Revisions</th>
<th>Reject</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Number of reviewers that agreed</td>
<td>Number of reviewers that agreed</td>
<td>Number of reviewers that agreed</td>
<td>Number of reviewers that agreed</td>
</tr>
<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>
</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>
</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>
</tr>
</tbody>
</table>

Fig. 1. Comparison of 33 student-submitted manuscripts reviewed by graduate peers (\(n = 66\)) and faculty evaluators (\(n = 33\)).

To assist with the quantification of reviewer responses, and to allow for a statistical comparison between graduate student and faculty reviewers, decision types were assigned a numerical value. If the reviewer’s decision was to “reject” the manuscript, it was coded using the number 1. The number 2 was used to code reviewer decisions that were returned as “major revisions required,” and the number 3 was used to code “accept with minor revisions” decisions.

To assess the purpose of the present study, two comparisons of interest were performed. First, the decisions of graduate student and faculty reviewers who evaluated graduate student-submitted manuscripts were compared. Next, decisions of faculty reviewers who evaluated graduate student-submitted manuscripts were compared with decisions by established reviewers on manuscripts submitted by peer professionals. Mean comparisons between groups of interest were evaluated using independent \(t\)-tests with significance accepted at \(P \leq 0.05\).

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 equally regardless of submission type, there was a tendency to be more stringent on professionally submitted manuscripts.

To our knowledge, the peer review process that IJES uses is unique in that like-level students are asked to evaluate student-submitted work. The present policy of the journal is that one established reviewers is also asked to review student-submitted manuscripts. The policy was enacted at the inception of the journal to maintain scientific integrity, as the ability for students to perform peer review was uncertain. The results of the present study are somewhat unexpected. It was hypothesized that student peer reviewers, as novices, would return decisions 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.

**DISCLOSURES**

No conflicts of interest, financial or otherwise, are declared by the author(s).

**REFERENCES**