

The Peer Review Process: Perspectives of Reviewers

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Abstract

*The peer review process is important for substantiating the quality of research. In this study, we examine the experiences of peer reviewers in agricultural education. The research presented in this article is part of a larger study that also examined the perspectives of researchers about peer review. We used a survey to collect data from a random sample of researchers who had published in seven different journals related to agricultural education. Data presented in this study are from a subset of the total respondents who self-identified as peer reviewers (n = 64). On average, participants had published 46 articles in their careers. They reviewed six journal articles and nine conference submissions in the last 12 months. They reviewed for four or more journals, with the *Journal of Agricultural Education* and journals outside our narrow discipline being the most common. Participants were more internally motivated to review. There was quite a bit of agreement amongst the peer reviewers in our study about the process they use to review an article. In order, the most important parts were (a) methodology, (b) purpose, objectives, research questions, (c) introduction/problem statement, (d) findings/presentation of results, (e) contribution to the field, and (f) theoretical/conceptual framework. Participants also described four fundamental errors that could not be addressed through revisions and thus would automatically warrant rejection. These include (a) methodological issues, (b) ethical concerns, (c) poor writing quality, and (d) lack of novelty or relevance issues. We offer several tangible suggestions for reforming our practices.*

Introduction

As journal editors with experience spanning across the *Journal for Agricultural Education*, *Journal of International Agricultural and Extension Education*, and *Advancements in Agricultural Development*, we know the critically important role that peer reviewers play in advancing the research of our profession. Peer review is equated with quality assurance (Kelly et al., 2014). A publication that has been peer-reviewed is held in higher esteem than one that has not. However, from first-hand experience as editors, we also know the challenges of finding qualified peer reviewers who consistently provide good reviews in a timely manner. We also know the struggles as authors. For example, the peer review process for this article took 10 weeks and required asking 5 different potential peer reviewers to get two reviews completed (B. Lawver, personal communication, July 6, 2025).

Peer review is widely considered a service. Few publications pay their reviewers (Kelly et al., 2014); specialized journals like most of ours in agricultural education cannot afford to, and large publishers often lack incentives for reviewing. Individuals must find motivation beyond pay to perform as peer reviewers. A global study of peer reviewers by Mulligan et al. (2013) found that 86% of respondents enjoyed reviewing, though that percentage decreased modestly as age increased. When respondents chose to decline review requests, it was most commonly because the topic was outside their area of expertise. Other motivations include a sense of professional obligation and reciprocation, personal relationships with editors,

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learning about the latest scientific advancement, and career advancement (Kelly et al., 2014). However, academics are increasingly engaging in public discourse about peer review as a service activity, particularly for for-profit publishers, and recruiting peer reviewers is becoming exponentially more difficult (Flaherty, 2022). The historical model of peer review as unpaid volunteerism may not be sustainable.

Questions about the workload of reviewers have been asked for decades. A 1990 study of reviewers for public health journals by Yankauer found the reviewers served a median of 3.6 journals and spent a median of 2.7 hours on each review; over 3,300 hours of “uncompensated labor” (p. 1339) was required to meet the needs of one journal. The challenge of finding willing peer reviewers led Tite and Schroter (2007) to examine why peer reviewers decline to review (and, conversely, what motivates them to accept a review invitation). Conflicts with other workload responsibilities, which Tite and Schroter operationalized as a lack of time, were the most important factor influencing a decision to decline a review. Reviewers were most likely to agree to review based on their perceptions of the manuscript’s contribution to the subject area and the opportunity to learn something new. They tended not to be motivated by factors such as monetary payment or academic reward.

More recently, Aczel et al. (2021) estimated what it costs for researchers to spend their time on peer review using publicly available data. Globally, they found that over 100 million hours were estimated to have been spent on peer review in 2020, while U.S.-based researchers donated \$1.5 billion in labor to various journals. Aczel et al. (2021) recommended reforms, including strategies to reduce the number of reviews needed per manuscript, including cascading peer review in which prior reviews are shared with other journals, due to the tendency for manuscripts to be reviewed by more than one journal before finding acceptance. Secondly, they recommended reform to expand the reviewer pool to include individuals who can be trained to conduct quality control on specific aspects of manuscripts (e.g., checklist items), reducing the need to ask senior faculty/highly recognized experts to devote time to these tasks and increasing their ability to review the most important manuscript aspects faster. AI tools may be an additional strategy for implementing this reform; Elsevier (2025) is an example of a publisher that has implemented AI-assisted technologies for screening manuscripts and identifying reviewers.

It is imperative for us to take a closer look at our profession’s peer reviewer practices, particularly from the perspectives of peer reviewers. How much service do we ask of our colleagues as peer reviewers? What motivates their engagement in the process? How committed are they to conducting quality reviews and serving the profession? Finding the answers to these questions can inform the development of strategies that increase the likelihood that peer review fulfills its ideal role in the publication of research.

Theoretical Framework

Peer reviewing can be conceptualized as a job; at the very least, it is a component of many faculty jobs. Herzberg et al.’s (1959) Motivation-Hygiene theory is often used to examine the extent to which individuals experience job satisfaction and dissatisfaction. Motivating factors such as the nature of the work being performed, opportunities for growth and advancement, and recognition and achievement are associated with job satisfaction. These are also called intrinsic motivators. Conversely, hygiene factors include working conditions, policies, and salaries; they are described as extrinsic motivators and influence job dissatisfaction. Bassett-Jones and Lloyd (2005) found that Herzberg’s theory on motivation continues to have value based on motivational factors. Lindner (1998) found that based on interesting work as a function of work being performed can be a motivating factor. Based on Motivation-Hygiene theory, journal publishers should seek to maximize positive motivating factors and minimize negative hygiene factors to improve peer reviewers’ experiences. Seeking to make the review process interesting may be key to motivating reviewers.

Purpose

The purpose of this study was to explore the perspectives of peer reviewers in agricultural education journals. The objectives of the study were to:

1. Describe the research and reviewing experiences of peer reviewers.
2. Describe reviewers' attitudes about reviewing.
3. Describe the process used by reviewers when conducting a review.
4. Describe reasons that reviewers reject articles.

Methodology

This research is part of a larger study that also studied researchers' experiences with the peer review process (Roberts et al., 2025). Sampling, instrumentation, and data collection are the same for both these papers by design. The methods sections of both papers are similar. For the purpose of this and the larger study, we broadly defined agricultural education research as encompassing studies focused on education, extension, human capacity building, diffusion of innovations, leadership, and communication in the realms of food, agriculture, and natural resources.

Population and Sample

The population for this study consisted of authors and coauthors of articles published in 2019-2023 in *Advancements in Agricultural Development*, *Journal of Agricultural Education*, *Journal of Agricultural Education and Extension*, *Journal of International Agricultural and Extension Education*, *Journal of Extension*, *Journal of Human Sciences and Extension*, and the *NACTA Journal*. The final stratified random sample consisted of 340 researchers. Data presented in this study are from a subset of respondents who self-identified as peer reviewers ($n = 64$).

Instrumentation

The instrument was based on existing literature (Mulligan et al., 2013). The instrument was divided into two sections. The first section of the instrument, which is a part of the larger study, focused on the experiences of authors with the peer review process. The second section, presented herein, focused on (a) reviewer experiences, measured with six items; (b) review process, measured with four items; (c) reasons for reviewing, measured with 17 items on a five-point scale (strongly disagree, disagree, neither disagree or agree, agree, strongly agree); and (d) professional demographics, measured with ten items. Interpretations of the scale are based on Lindner and Lindner (2024); 1.00 to 1.50 = strongly disagree, 1.51 to 2.50 = disagree, 2.51 to 3.50 = neither disagree or agree, 3.51 to 4.50 = agree, 4.51 to 5.00 = strongly agree; and 1.00 to 1.50 = strongly dissatisfied, 1.51 to 2.50 = dissatisfied, 2.51 to 3.50 = neither dissatisfied or satisfied, 3.51 to 4.50 = satisfied, 4.51 to 5.00 = strongly satisfied. True limits and interpretations of scaled items were based on Lindner and Lindner (2024). Reliability was based on a simulated test-retest reliability estimate (Field, 2017). No statistical differences were detected in attitudes toward the peer review process ($t = .76, p = .45$), attitudes toward reasons for reviewing ($t = .35, p = .36$), timeliness with the process ($t = .35, p = .37$), and overall satisfaction ($t = .99, p = .16$), providing evidence of reliability. Face, content, and construct validity were established by a review of the instrument by seven experienced agricultural education researchers. Minor adjustments were made based on feedback from these experts.

Data Collection

Data were collected using a Qualtrics-based questionnaire in the spring of 2024. Early versus late responses were compared to control for threats to the external generalization of findings (Lindner et al.,

2001). No statistical differences in early versus late responses were found. Therefore, the findings of the study are generalizable to the study population.

Data Analysis

Quantitative data were analyzed using descriptive and correlational statistics using SPSS version 30. Relationships among variables were described using Pearson (r) correlations. Interpretations of statistically significant correlations were made based on Davis' (1971) convention. For select non-scaled items, data were collected at the interval level and categorized for analysis and presentation. (e.g., the number of journal articles reviewed in the past 12 months was an open-ended response and recategorized into four categories to aid in analysis and presentation).

Qualitative data were analyzed inductively. We used Microsoft Co-Pilot to conduct the initial thematic analyses using prompts based on the steps outlined by Zhang et al. (2024), using the prompt below. We then used axial coding to organize themes (Saldaña, 2021).

You are an experienced qualitative researcher. The data you will analyze provides participants' responses to the prompt "Please describe any deficiencies/errors that you believe should result in a rejection of an article with no option for revisions and resubmission." Please read the entire data set first. The first column provides the participant number. The second column provides the answer to the prompt. The response for each unique participant is in the same row. The task is to conduct a thematic analysis to determine deficiencies/errors that participants believed should result in the rejection of an article with no option for revisions and resubmission. Provide a summary of each theme with a description of the rationale used to create themes. Please provide three to four examples from the participants for each theme. Please present the output as a table. Data is in the uploaded file.

Findings

Experiences of Peer Reviewers

Our first objective focused on understanding the experiences of peer reviewers related to conducting research and engaging in the peer review process. Given that the range of articles published ranged from 1 to over 100, data is presented in quartiles. Table 1 shows that participants published more than 46 journal articles ($M = 46.43$, $SD = 52.01$) in their careers.

Table 1

Number of Journal Articles Published in Career

Number of Articles Published	<i>f</i>	%
Up to 10	13	20.6
11-20	14	22.2
21-50	16	25.4
51 or more	20	31.7

Note. $M = 46.43$, $SD = 52.01$

As shown in Table 2, participants reviewed, on average, just over six manuscripts in the last 12 months ($M = 6.65$, $SD = 12.98$). Given the broad range of the number of papers reviewed, from one up to twenty-five, quartiles were computed for discussion. Over 50% of participants indicated that they reviewed four or more journal articles during the past 12 months. The journals they reviewed are listed in Table 3, with "other" being the most frequent response.

Table 2*Number of Journal Articles Reviewed in the Past 12 Months*

Number of Articles Reviewed	<i>f</i>	%
Up to 2 reviews	15	24.2
3 reviews	12	19.4
4 – 5 reviews	16	25.8
More than 5 reviews	19	30.6

Note. $M = 6.65$, $SD = 12.98$

Table 3*Journals Reviewed for Past 12 Months*

Journal	<i>f</i>	%
Other	53	82.81
<i>Journal of Agricultural Education</i>	26	40.63
<i>NACTA Journal</i>	14	21.88
<i>Journal of Human Sciences and Extension</i>	12	18.75
<i>Advancements in Agricultural Development</i>	11	17.19
<i>Journal of International Agricultural and Extension Education</i>	9	14.06
<i>Journal of Agricultural and Education and Extension</i>	7	10.94
<i>Journal of Extension</i>	7	10.94
<i>Journal of Applied Communications</i>	5	7.81
<i>Journal of Leadership Education</i>	3	4.69

Note. Participants could choose all that applied.

We also wanted to understand the timeliness of conducting peer reviews. Table 4 shows the amount of time between when participants received an invitation to review the article and when they submitted the review, which was almost four weeks ($M = 3.79$, $SD = 2.54$). On average, participants spent almost 120 minutes, or two hours ($M = 117.75$, $SD = 100.45$), reviewing an article (see Table 5).

Table 4*Weeks Between Receiving an Invitation to Review and Actual Submission of the Review*

Weeks	<i>f</i>	%
1 or less	5	8.2
More than 1 up to 2	15	24.6
More than 2 up to 3	11	18.0
More than 3 up to 5	16	26.2
5 or more	14	23.0

Note. $M = 3.79$, $SD = 2.54$

Table 5*Number of Minutes Devoted to Last Review*

Number of Minutes	<i>f</i>	%
50 or less	11	18.0
51-100	20	32.8
101-149	17	27.9
150 or more	13	21.3

Note. $M = 117.75$, $SD = 100.45$

As shown in Table 6, on average, participants declined the invitation to review an article almost three times over the past year ($M = 2.98$, $SD = 3.95$). The reasons given by participants were *too busy doing my job responsibilities* ($f = 34$, 53.13%), *the paper was outside my area of expertise* ($f = 20$, 31.25%), *too many prior reviewing commitments* ($f = 15$, 23.44%), *other* ($f = 8$, 12.50%), *not one of my preferred journals* ($f = 7$, 10.94%), *the proposed deadline was too short* ($f = 6$, 9.38%), *personal reasons* ($f = 5$, 7.81%), *poor scientific quality of the paper* ($f = 3$, 4.69%), *not on contract* ($f = 1$, 1.56%), and *conflict of interest* ($f = 1$, 1.56%).

Table 6*Times Declined Invitation to Review over Last 12 Months*

Times	<i>f</i>	%
0	17	26.6
1	11	17.2
2	9	14.1
3	9	14.1
4-10	9	14.1
More than 10	6	9.4

Note. $M = 2.98$, $SD = 3.95$

We also wanted to know about other reviewing activities that participants completed. As depicted in Table 7, over 50% of participants reviewed more than nine conference submissions (papers, abstracts, and/or posters) during the past 12 months ($M = 9.67$, $SD = 10.0$).

Table 7*Conference Submissions Reviewed in the Past 12 Months*

Submissions Reviewed	<i>f</i>	%
Up to 1	11	18.0
2-5	18	29.5
6-13	16	26.2
14 or more	16	26.2

Note. $M = 9.67$, $SD = 10.00$

Reasons People Review

The second objective of this study was to describe participants' attitudes about reviewing (see Table 8). Participants *tended to agree* that they reviewed because they wanted to reciprocate the benefit of peer review ($M = 4.45$, $SD = 0.62$), liked playing my part as a member of the academic community ($M = 4.44$, $SD = 0.64$), enjoyed the opportunity to help improve a paper ($M = 4.00$, $SD = 0.75$), and enjoyed seeing

new work ahead of publication ($M = 3.87, SD = 0.91$). They also reviewed because that service is an expectation by people whose opinions they value ($M = 3.61, SD = 1.03$) and because professional service is part of their departmental culture ($M = 3.61, SD = 1.00$). Participants *tended to disagree* that they reviewed because it was an opportunity to build a relationship with the editor ($M = 2.19, SD = 1.07$); it would increase my chances of being offered a role on the journal’s editorial team ($M = 2.18, SD = 1.08$), it would increase the likelihood of my future papers being accepted ($M = 2.06, SD = 1.02$), due to peer pressure from colleagues ($M = 2.06, SD = 0.99$), to gain personal recognition from reviewing ($M = 1.97, SD = 0.94$), and when offered a discount on future publishing fees with the journal ($M = 1.95, SD = 1.11$).

Table 8

Reasons for Reviewing

Statement	Strongly Agree		Agree		Neither Agree or Disagree		Disagree		Strongly Disagree		M	SD
	f	%	f	%	f	%	f	%	f	%		
I want to reciprocate the benefit of peer review	32	51.6	26	41.9	4	6.5	0	0.0	0	0.0	4.45	0.62
I like playing my part as a member of the academic community	32	51.6	25	0.3	5	8.1	0	0.0	0	0.0	4.44	0.64
I enjoy the opportunity to help improve a paper	14	22.6	37	59.7	8	12.9	3	4.8	0	0.0	4.00	0.75
I enjoy seeing new work ahead of publication	17	27.4	25	40.3	15	24.2	5	8.1	0	0.0	3.87	0.91
I review because that service is an expectation by people whose opinions I value	10	16.1	30	48.4	13	21.0	6	9.7	3	4.8	3.61	1.03
I review because professional service is part of my departmental culture	10	16.1	29	46.8	14	22.6	7	11.3	2	3.2	3.61	1.00
I believe it will enhance my professional reputation	4	6.5	16	25.8	23	37.1	13	21.0	6	9.7	2.98	1.06
I review because it’s an expectation for my promotion and/or tenure process (or equivalent)	4	6.5	22	35.5	13	21.0	12	19.4	11	17.7	2.94	1.24
I review because it helps me identify potential research partners	5	8.1	12	19.4	15	24.2	15	24.2	15	24.2	2.63	1.27
I review when I feel obligated because I know the Editor	2	3.2	16	25.8	12	19.4	17	27.4	15	24.2	2.56	1.21
I review so I can influence which research is published	2	3.2	16	25.8	12	19.4	15	24.2	17	27.4	2.53	1.24
It is an opportunity to build a relationship with the Editor	2	3.2	5	8.1	15	24.2	21	33.9	19	30.6	2.19	1.07
It will increase my chances of being offered a role on the journal’s editorial team	1	1.6	8	12.9	12	19.4	21	33.9	20	32.3	2.18	1.08
It will increase the likelihood of my future papers being accepted	0	0.0	7	11.3	13	21.0	19	30.6	23	37.1	2.06	1.02

Statement	Strongly Agree		Agree		Neither Agree or Disagree		Disagree		Strongly Disagree		M	SD
	f	%	f	%	f	%	f	%	f	%		
	I review due to peer pressure from colleagues	0	0.0	7	11.3	11	17.7	23	37.1	21		
I will gain personal recognition from reviewing	0	0.0	5	8.1	11	17.7	23	37.1	23	37.1	1.97	0.94
I review when offered a discount on future publishing fees with the journal	2	3.2	5	8.1	9	14.5	18	29.0	28	45.2	1.95	1.11

Note. Valid Percentages of Respondents was used; Scale: 1 to 1.5 = strongly disagree, 1.51 to 2.5 = disagree, 2.51 to 3.5 = neither disagree or agree, 3.51 to 4.5 = agree, 4.51 to 5 = strongly agree

We also wanted to see how the reasons people reviewed were related to other variables (see Table 9). Using the Davis (1971) conventions, *I like playing my part as a member of the academic community* had a moderate positive correlation with *the number of articles reviewed in the last 12 months* ($r = .393, p = .01$) and low positive correlations with *the total number of articles published* ($r = .276, p = .05$) and *the number of conference papers and abstracts reviewed* ($r = .259, p = .05$). *I review because that service is an expectation by people whose opinions I value* had a moderate positive association with *the number of articles reviewed in the last 12 months* ($r = .333, p = .01$) and a low negative association with the minutes to complete a review ($r = -.276, p = .05$). *I believe it will enhance my professional reputation* had a low negative correlation with *the total number of articles published* ($r = -.254, p = .05$). *I review because it's an expectation for my promotion and/or tenure process (or equivalent)* also had a low negative correlation with *the total number of articles published* ($r = -.255, p = .05$). Finally, *I review when I feel obligated because I know the Editor* had a low positive relationship with review invitations declined ($r = .285, p = .05$).

Table 9

Relationships Between Reasons to Review and Other Variables

	Articles Published	Articles Reviewed Last 12 Months	Minutes to Complete Review	Weeks to Submit Review	Review invitations Declined	Write Comments on Manuscript	Conference Papers and Abstracts Reviewed
I want to reciprocate the benefit of peer review	0.150	0.193	-0.200	-0.181	0.170	0.035	0.092
I like playing my part as a member of the academic community	0.276*	0.393**	-0.106	-0.115	0.122	0.021	0.259*
I enjoy the opportunity to help improve a paper	0.190	0.181	-0.039	-0.175	0.064	-0.191	0.053
I enjoy seeing new work ahead of publication	0.132	0.104	0.003	0.056	0.136	0.146	-0.079
I review because that service is an expectation by people whose opinions I value	0.141	0.333**	-0.276*	-0.175	0.046	-0.031	0.171

	Articles Published	Articles Reviewed Last 12 Months	Minutes to Complete Review	Weeks to Submit Review	Review invitations Declined	Write Comments on Manuscript	Conference Papers and Abstracts Reviewed
I review because professional service is part of my departmental culture	0.005	0.181	-0.073	-0.099	-0.019	-0.059	0.127
I believe it will enhance my professional reputation	-0.254*	-0.162	0.036	0.112	-0.230	-0.235	-0.064
I review because it's an expectation for my promotion and/or tenure process (or equivalent)	-0.255*	0.228	-0.009	0.075	0.172	0.084	0.027
I review because it helps me identify potential research partners	-0.161	-0.042	0.194	0.172	-0.186	-0.073	-0.054
I review when I feel obligated because I know the Editor	-0.030	.252*	0.094	0.162	0.285*	0.105	0.035
I review so I can influence which research is published	-0.145	0.03	-0.010	0.225	-0.087	-0.008	0.13
It is an opportunity to build a relationship with the Editor	0.049	0.122	0.108	0.245	-0.089	0.139	0.014
It will increase my chances of being offered a role on the journal's editorial team	0.044	0.123	0.174	0.201	0.083	0.169	0.047
It will increase the likelihood of my future papers being accepted	-0.135	-0.028	0.274*	0.197	0.199	0.036	-0.040
I review due to peer pressure from colleagues	-0.081	0.056	-0.125	-0.037	0.074	-0.175	0.088
I will gain personal recognition from reviewing	-0.142	-0.187	0.085	0.213	-0.235	0.056	-0.159
I review when offered a discount on future publishing fees with the journal	-0.023	-0.072	-0.005	0.089	0.108	-0.128	0.082

Note. * $p = .05$; ** $p = .01$

The Process of Reviewing

Our third objective was to describe the process reviewers use when reviewing an article. We collected quantitative and qualitative data related to this objective. In an open-ended question, participants were asked to describe their process when reviewing an article. Five themes emerged from that data. **Standard review workflow.** Participants indicated their review process followed these steps: (a) initial assessment of expertise fit, (b) comprehensive reading, (c) note-taking (either on printed copy or digital document), (d) evaluation against journal criteria, (e) compilation of feedback, and (f) submission through the journal system. **Common evaluation priorities.** Reviewers looked for the following: (a) theoretical framework and conceptual clarity, (b) methodology and research design, (c) results interpretation and analysis, (d) literature review comprehensiveness, (e) APA formatting and references, and (f) overall contribution to the field. **Document preferences.** Participants provided comments about the format of the documents and tools for reviewing. Many reviewers prefer to print the manuscript for initial reading. Some reviewers use separate documents for notes and comments. Most reviewers provide structured feedback following journal rubrics. **Time management.** Participants shared several approaches they use to manage their time when reviewing. Reviewers typically schedule dedicated blocks of time. Participants shared that a review can take anywhere from 30 minutes to several hours. Reviewers noted they spent more time on promising papers that need moderate revision. They also acknowledged that less time is devoted to clearly problematic articles that are destined for rejection. **Feedback approach.** Participants discussed how they approached giving feedback. First, they generally focus on constructive criticism. They provide feedback on both major conceptual issues and minor editorial concerns. They consider the journal's standards and mission when providing feedback. They also balance between providing detailed comments and an overall assessment.

Participants were also asked to rank various evaluation criteria using a drag-and-drop question. Table 10 shows the ranked importance of items that impact the overall quality of an article. The items that ranked as the most important were *methodology* ($M = 3.85$, $SD = 2.39$), *purpose*, *objectives*, *research questions* ($M = 4.10$, $SD = 2.75$), and *introduction/problem statement* ($M = 4.61$, $SD = 3.02$). The items that ranked as the least important were *writing quality* ($M = 7.00$; $SD = 3.17$), *literature review* ($M = 7.47$; $SD = 2.31$), and *adherence to designated style* ($M = 10.03$; $SD = 2.17$). Participants were also asked if they provided comments directly on a manuscript in writing or using the Track Changes function in Word. Over half ($f = 36$, 58.1%) said they do not provide comments directly on a manuscript.

Table 10

Ranked Importance of Items that Impact the Overall Quality of an Article

Item	<i>M</i>	<i>SD</i>
1. Methodology	3.85	2.39
2. Purpose, Objectives, Research Questions	4.10	2.75
3. Introduction/Problem Statement	4.61	3.02
4. Findings/Presentation of Results	4.87	1.96
5. Contribution to Field	5.02	3.53
6. Theoretical/Conceptual Framework	5.58	2.96
7. Discussion/Recommendations/Implications	6.56	2.31
8. Conclusions	6.90	2.30
9. Writing Quality	7.00	3.17
10. Literature Review	7.47	2.31
11. Adherence to Designated Style	10.03	2.17

Fatal Flaws

For our final objective, participants were also asked an open-ended question to describe errors that would result in them rejecting an article without an option to revise and resubmit. These were fundamental problems that could not be addressed through simple revisions or additional writing, as opposed to issues like poor writing quality or formatting that could potentially be improved in a revision. They identified four main reasons. **Methodological issues.** The first issue is that the research design or methodology is fundamentally flawed and cannot be fixed through revisions. Secondly, significant data collection, sampling, or instrumentation problems would require conducting an entirely new study. Finally, there are unreliable or invalid results due to severe methodological deficiencies. **Ethical concerns.** Ethical concerns that automatically result in rejection included (a) evidence of plagiarism, (b) data falsification, (c) breaches of research integrity, (d) lack of IRB adherence, and (e) using non-existent references. **Poor writing quality.** Major problems with sloppy writing, poor editing, and grammar mistakes would result in a rejection. **Lack of novelty or relevance.** Reviewers indicated they would reject an article if the topic was completely outside the journal's scope or if it was from the wrong discipline. They also would reject it if it does not meet the minimum criteria for the type of contributions the journal aims to publish.

Conclusions, Implications, and Recommendations

On average, participants had published 46 articles in their careers. They reviewed six journal articles and nine conference submissions in the last 12 months. The most active reviewers reviewed at least five journal articles and over 14 conference submissions. They reviewed for four or more journals, with the *Journal of Agricultural Education* and journals outside our narrow discipline being the most common. The average reviewer took almost two hours to complete their review and submitted the final review in under four weeks, which aligns with Mulligan et al.'s (2013) findings that most social science reviewers take less than five hours for a review. Reviewers in our study declined an invitation to review about three times in the last twelve months, usually because they were too busy with other job responsibilities or the article was outside their expertise. Agricultural education reviewers had similar reasons for declining a review invitation as other fields (Kelly et al., 2014).

Peer review has long been considered unpaid service (Flaherty, 2022). Reviewer fatigue has been an ongoing conversation in many professional associations and journal editorial boards (Fox et al., 2017). On average, our reviewers spent just over 13 hours (6.65 articles x 117.75 minutes) reviewing journal articles in the last 12 months. Suppose we estimate that the time to review conference submissions as half that of a journal article, they also spent 9.5 hours (9.67 submissions x 58.88 minutes) reviewing conference submissions, so a combined 22.5 hours reviewing per year, or just over half a week every year for every reviewer. Our most active reviewers reviewed over 14 conference submissions per year, which equates to nearly 14 hours per year (14 submissions x 58.88 minutes).

Applying this within the context of the American Association of Agricultural Education (AAAE), the *Journal of Agricultural Education* required approximately 500 reviews in 2024 (B. Myers, personal communication, February 19, 2025). This means that JAE reviewers spent just over 981 hours (500 reviews x 117.75 minutes) reviewing articles or nearly 24 40-hour work weeks. The AAAE national conference also requires a significant amount of work to complete the reviews. In 2025, 110 papers were submitted, requiring three reviews each, which equates to 330 reviews (C. Lawson, personal communication, February 18, 2025). Also, in 2025, 750 reviews were required for poster abstracts (R. Anderson, personal communication February 26, 2025). This means 1,080 reviews of submissions for the AAAE national conference. If we assume that reviewers take half the time to review submissions as articles, this equates to (1080 x 58.88 minutes) 1,060 hours, or over 26 40-hour work weeks. Collectively, the national AAAE conference and the *Journal of Agricultural Education* required over 1,500 reviews per year. This does not

account for reviews required for the AAAE regional conferences, reviews for other conferences, or reviews for other journals. We do not know how many AAAE members are providing these 1,500 reviews.

Participants were more internally motivated to review. The most agreed upon reasons were: *I want to reciprocate the benefit of peer review*, *I like playing my part as a member of the academic community*, and *I enjoy the opportunity to help improve a paper*. These all align with motivation factors in the Motivation-Hygiene theory (Herzberg et al., 1959; Lindner, 1998). Our results almost mirrored those of Mulligan and Raphael (2010), who found these reasons in their top four. Reasons with external motivators were the least agreed on, including *I will gain personal recognition from reviewing* and *I review when offered a discount on future publishing fees with the journal*. Our findings somewhat differ from Mulligan et al. (2013), who reported that financial incentives were favored by over half of their respondents.

Reviewers who said they review because they *like playing their part as members of the academic community* tended to review more journal articles, review more conference submissions, and publish more articles themselves. Kerig (2021) noted that peer review can make reviewers better scholars who then have a better chance of getting published. Being a member of an academic community speaks to the role that professional societies like AAAE can play in creating a climate where research and peer review are valued as much as other professional roles like teaching, service, and Extension. Reviewers who reviewed because *service is expected by people whose opinions I value* tended to review more journal articles and take less time to complete a review. This implies that administrators and senior faculty can play a role in reinforcing the importance of service in a research context by being reviewers and then completing their assigned reviews in a timely manner.

Reviewers who had published fewer articles tended to review because they thought it would *enhance their professional reputation* or because it is an *expectation for promotion and tenure*. This makes sense because reviewers who have published fewer articles are likely earlier in their careers and pre-tenure, so they are working to build their professional identity. Kerig (2021) pointed out that peer reviewing can help equip researchers for future leadership roles in scholarly publishing. Reviewers who knew the editor who extended an invitation to review tended to decline more invitations to review. This may occur because they are comfortable with their existing relationship with the editor. It does, however, have implications for smaller disciplines where a large portion of the reviewers know the editor personally.

There was quite a bit of agreement amongst the peer reviewers in our study about the process they use to review an article. We discovered five themes about the process reviewers use to review an article. Reviewers generally used a *standard review workflow*, typically beginning with a quick read to understand the essence of an article and then a more detailed read to perform the review. This process is consistent with published reviewer best practices (Sedaghat et al., 2024). Reviewers applied *common evaluation priorities* when reviewing an article. Most reviewers prefer to *print a copy of the document* to read for the review. Some reviewers create a separate document outlining their feedback. Reviewers also brought up *time management*. Reviewers indicated they usually blocked time to complete their reviews. Reviewers generally structure their *feedback* as constructive criticism, balancing general and specific feedback. Our findings are consistent with those of Chong and Lin (2023), who found that good feedback from peer reviewers should be corrective and constructive.

Reviewers were also asked to rank the importance of different parts to the overall quality of an article. In general, they value methods and deemphasize writing. In order, the most important parts were (a) methodology, (b) purpose, objectives, research questions, (c) introduction/problem statement, (d) findings/presentation of results, (e) contribution to the field, and (f) theoretical/conceptual framework. The least important items were discussion/recommendations/implications, conclusions, writing quality, literature review, and adherence to the designated style. Our findings partially align with Stephen (2022), who found that most reviewers' comments focused on methodology, theory, and writing quality. Our

reviewers differed from those in Bolek et al.'s (2022) study, whose rating of conclusions was the most correlated with acceptance of an article. This has implications for how journals develop their review criteria and scoring rubrics. Many journals in our field focus on applied research, so the de-emphasis on discussion/recommendations/implications and conclusions is interesting, given that practical applications from the research will be described in these sections.

Participants also described four fundamental errors that could not be addressed through revisions and thus would automatically warrant rejection. These include *methodological issues*, *ethical concerns*, *poor writing quality*, and *lack of novelty or relevance issues*. These reasons align with journals in other fields like accounting (Stout et al., 2006), medicine (Khadilkar, 2018), and marketing (Fischer et al., 2017). Journals can reduce the burden on peer reviewers by screening articles for these issues before assigning peer reviewers. Additionally, following the best practices from the Committee on Publication Ethics (COPE, 2025) will help journals clearly communicate their scope and the ethical policies of the journal.

Our research has implications for researchers, peer reviewers, and journals. Researchers can use our results to understand better how reviewers will likely complete their review, including the parts of a manuscript that researchers say they focus on most. This can also be applied to the training of graduate students and the mentoring of junior faculty members. Making the next generation of our researchers and reviewers better prepared to enhance the quality of our research and the efficiency of our peer review process. Reviewers can use our findings to compare their own reviewing practices and refine their reviewing practices. Journals can use our findings to examine their policies and the instructions provided to peer reviewers. There may also be opportunities for cascading reviews between journals and conferences (e.g., JAE, JSAER, AAAE) (Aczel et al., 2021). As a broader profession, we should carefully examine the peer review demands placed on our researchers. From our perspective, current practices may be unsustainable. One tangible suggestion would be to use editorial assistants to screen submissions for submission guidelines, APA style, and general grammar issues. *Advancements in Agricultural Development* has already adopted this practice.

Future research could focus on the experiences of the most active peer reviewers and on peer reviewers who are known for providing exceptional reviews. Additionally, our sample was skewed with researchers from North America. Future research could broaden the journals used as the population frame to capture a more complete picture of agricultural education researchers worldwide.

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