Using Production Metrics to Solve Problems: A Case Study

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AIP Publishing - Portfolio

• The AIP Publishing portfolio consists of 28 Journals with 11 titles published on behalf of our Publishing Partners:
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  • American Association of Physics Teachers
  • American Crystallographic Association
  • AVS: Science & Technology of Materials, Interfaces, and Processing
  • Chinese Physical Society
  • Laser Institute of America
  • Society of Rheology

• Our journals program is thriving, with all of the journals enjoying a global reach for authorship, readers, editors and subscribers.

• Journals published by AIP Publishing have impressive rankings as measured by the Journal Citation Report and Google Scholar Metrics.
Backstory

In-house production model  Moved to off-shore provider model

9 years ago

• AIP Publishing transitioned to an off-shore model.

Production Workflow Metrics

• Author Alterations
  • Metric - working 2 days ahead.

<table>
<thead>
<tr>
<th>Total articles: 100</th>
<th>Total pages: 3,200</th>
<th>Total Selected Articles: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIP ID</td>
<td>Pub Date</td>
<td>Notes</td>
</tr>
<tr>
<td>029519ACP</td>
<td>05/02/19</td>
<td></td>
</tr>
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<td>05/02/19</td>
<td></td>
</tr>
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<td>017918ACP</td>
<td>05/02/19</td>
<td></td>
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<tr>
<td>024619ACP</td>
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<tr>
<td>025139ACP</td>
<td>05/03/19</td>
<td></td>
</tr>
<tr>
<td>033918ACP</td>
<td>05/02/19</td>
<td></td>
</tr>
</tbody>
</table>

• Quality
What is the problem we are trying to solve?

- By the end of Q4 2017, we were experiencing a daily backlog.
- All data reviewed indicated that the current staffing level plus the assistance of the independent contractor meant we should be able to manage the daily workload.
- But the backlog told a different story.

Now, what do we do?

WORK SMARTER
NOT HARDER

- Using our metrics of time to publication. We conducted an end to end process review asking these questions:
  - What are we doing?
  - Why are we doing it?
  - How can we do this differently (human vs. technology)?
- We observed the staff and asked a lot of questions.
  - Do we need to perform that task?
  - If so, what is the ideal place in the process to do it?
  - What is the best approach?
  - Can this be automated?
  - Can this be standardized?
  - We looked at staff productivity reports
Walk Us Through the Process

Editorial Review, Revisions, Lineup, Laser Approval Assigning for publication, QC’ing Publishing

Quick and Not So Quick Wins

- What did we learn?
  - We learned that by eliminating redundancies we can allocate more resources to conduct language reviews, Enhancing the Content.
  - We learned that the composition vendors were able to modify their process and improve the tagging; i.e., renumber references.
- We eliminated redundancies
  - Reannotate authors corrections (if clear and concise).
  - Check the HTML preview for correct given/name surname tagging
  - Check of Copyright (This is done during peer review)
  - Check for the correct copyright type
  - Check footer (year round) for correct year (only in Dec and Jan)
  - Check of references, unless added by AU or new DOI
  - Check for stacked figures (style requirements, vendor instructions)
- We identified opportunities to automate functions.
  - Asking the vendor to modify their tool to accurately renumber references after an addition or deletion of a reference.
Experiment 1: Asking the team to work differently

In January 2018, we made a change to the process, asking the team to:

- Focus more on the Editorial Review
- Adopting the “touch-it-once” time management philosophy.
- We also shifted the daily priorities.

Results:

<table>
<thead>
<tr>
<th>Time Savings</th>
<th>Cost Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 minutes per person per day</td>
<td>Eliminate needed IC</td>
</tr>
<tr>
<td>25 hr, = .75 FTE</td>
<td>Savings of ~$35K</td>
</tr>
<tr>
<td></td>
<td>Added efficiencies</td>
</tr>
</tbody>
</table>
Reinvest in the business

What is the problem we are trying to solve?
Metrics: Quality

- Errors introduced during copyediting
- Author alterations received with numerous corrections
- Author complaints
Experiment 2: Changing the workflow

The new workflow and team structure will:

- Allow the Content Editors to focus on improving the quality of the language in published manuscripts.
- Minimize context switching
- Play to the strength of the team members
- Better Experience for the readers as the content we publish would be more “readable”
- Better experience for editors as they know there is a language review before publication
- Most importantly, give the author added value in the production process.

<table>
<thead>
<tr>
<th>Team 0</th>
<th>Team 1</th>
<th>Team 2</th>
</tr>
</thead>
</table>
| • Peer Review Management take over routine task and interface directly with authors
• Respond to and resolve all email queries regarding manuscripts in production
• Ensures completeness of all article content before handing off to production
• Coordinates the cover selection process
• Support the Production team with the QC process for Conference Proceedings | • Production Editors to focus on the production of MS and journals
• Ensures accurate layout structure and journal style in First Proofs
• Moving articles forward for CE's to review language and copyediting
• Review Proofs for accuracy prior to approving for publication
• GC and publish daily on galley
• Compile all material for print journals - pre and post-lim and advertising
• Monitoring schedules for all articles, journals, and Conference Proceedings | • Content Editors to focus on language editing
• Responsibility is to raise the level of the language editing from the composition vendors
• Conducts initial cursory reviews of copyediting
• Review the copyediting on all articles before proofs are sent to authors
• Reviews author alterations using vendors’ proofing tools or on annotated PDF’s
• Enforces copyediting style for all journals
• Provide detailed vendor feedback in order to maintain the quality for both style and copyediting |

Quality Metrics

<table>
<thead>
<tr>
<th>Error rates:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total entries</td>
<td>260</td>
</tr>
<tr>
<td>No feedback (proof OK)</td>
<td>92  35.38%</td>
</tr>
</tbody>
</table>

| Copy Editing | 163  62.69% |
| Articles     | 76  29.23%  |
| Prepositions | 16  6.15%   |
| N/V agreement| 20  7.69%   |
| Punctuation  | 68  26.15%  |
| AU queries   | 29  11.15%  |
| Word choice  | 66  25.00%  |
| Spelling     | 17  6.54%   |
| Sentence structure | 24  9.23% |

<table>
<thead>
<tr>
<th>Style &amp; Layout</th>
<th>72  27.69%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout</td>
<td>12  4.62%</td>
</tr>
<tr>
<td>Hyphenation</td>
<td>8   3.08%</td>
</tr>
<tr>
<td>Use of quotes</td>
<td>0   0.00%</td>
</tr>
<tr>
<td>Acronyms</td>
<td>8   3.08%</td>
</tr>
<tr>
<td>Prefixes/suffixes</td>
<td>3  1.15%</td>
</tr>
<tr>
<td>Series units</td>
<td>0   0.00%</td>
</tr>
<tr>
<td>No value before units</td>
<td>0  0.00%</td>
</tr>
<tr>
<td>En dash</td>
<td>2   0.77%</td>
</tr>
<tr>
<td>British spelling</td>
<td>1  0.38%</td>
</tr>
<tr>
<td>vs</td>
<td>9   3.46%</td>
</tr>
<tr>
<td>Fig/Eq/Ref/Sec</td>
<td>5   1.92%</td>
</tr>
<tr>
<td>Fences (not math)</td>
<td>4  1.54%</td>
</tr>
<tr>
<td>i.e. and e.g. commas</td>
<td>28 10.77%</td>
</tr>
<tr>
<td>Hyperlinks</td>
<td>10  3.85%</td>
</tr>
</tbody>
</table>
Result:

The team is now catching and returning 62% of the content to the vendor for correction before the authors receive their page proofs.

Direct benefit:
- We are getting fewer corrections in the author page proofs that are returned.
- Eliminated multiple author proof cycles
- For those journals following this new workflow model we have realized a 16% improvement in the “author proof” turn-around times.

Thank You!

Questions and Discussion

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