



AUTHORSHIP ASSIGNMENT: RECOGNISING THE CONTRIBUTIONS OF INDIVIDUAL AUTHORS OF MULTI-AUTHORED REPORTS

by Raymond J. Struyk

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Introduction

Step-by-step over the past 50 years the production of social science research, including policy research, has shifted from a solitary enterprise to a team effort. The mental picture of research being done by a senior faculty member or a senior fellow at a research and policy institute (RPI), often supported by a research assistant, is inaccurate today. Rather it is teams of researchers with different skills that are combining not only to do most projects but to do them better than solo analysts. (RPIs include think tanks and other evidence-based policy developers whose projects often include co-creation with local officials and programme participants.) ‘Reports’ are broadly defined here to include formal publications, such as refereed journal articles, books, chapters in books; an institute’s own publications; presentations later printed, e.g., presentations to parliamentary committees; and documents generated in carrying out projects that are generally available to the public.

A critical by-product of the shift to teams is a heightened importance of the structure of author attribution, i.e., who is included as an author and how the work of each is indicated by the order in which they are listed and, in some cases, by including notes on the title page that describe the role that each member of a team had in creating the work presented.

The stakes are high in getting an institution’s rules on inclusion and on authors’ name ordering accepted by staff as being reasonable. The number of their reports and where they appear in the authors’ lists are important factors in determining a researcher’s career path because visibility and prestige varies systematically with where one’s name appears on publications’ authors’ lists. And this, of course, depends on an institute’s policy on this matter – or the lack thereof.

Naturally the importance of greater exposure through advantageous name placement in authors’ lists depends on the staffer’s interests and goals. If she is aiming for credentials that would permit her to move back-and-forth among academic-government-and RPI stints, name prominence is very important. On the other hand, those squarely focused on policy development and implementation will place less emphasis on name recognition. Nevertheless, they still want a degree of recognition as a capable analyst that helps their recommendations being given full consideration.

Interestingly, the literature on management of policy development institutions has had little to say about either who among those who work on a project should be listed as an author or the order in which authors are to be listed. One exception is a page on the inclusion issue in a recent book about think tank management.¹ Additionally, Andrea Ordonez raises the inclusion issue in an [On Think Tanks](#) post and reviews basic rules to follow in making these decisions ([On Think Tanks | Authorship in research: Practical tips for think tanks](#), 2013).

This paper starts by briefly overviewing the key empirical facts on the shift from solo-authored papers to team production. It also relates how successful a couple of the standard rules followed for listing authors are in identifying the relative contributions of team members. Trends in authorship developments in journal articles are used here because they are well documented and pattern seems consistent with developments at RPIs. Then we introduce a couple of options for possible improvements in more accurately identifying individual contributions.

1. R. Struyk, *Improving Think Tank Management*, (Washington, DC: Results for Development Institute, 2015), p.36.

The discussion then presents information on the practices of four well-managed RPIs and their views on the options.² These four do not constitute a representative sample. The four are:

- The Urban Institute, a 50-year-old think tank with a staff of about 500 located in Washington, DC. It is focused substantially on social policy issues and was created as part of the national government's response to broad declines in US central cities and violent urban demonstrations in the 1960s; it became a fully independent private entity in 1978.
- The Institute for Urban Economics, located in Moscow, Russia is a 25-year-old think tank created in 1995 about four years after the fall of the Soviet Union, with a current staff of around 30. Much of the work on developing management policies and procedures was undertaken when it had a staff of around 100. The Institute was founded by Russian policy researchers.
- NORC at the University of Chicago is an 80-year-old think tank with about 2,000 staff. It has conducted ground-breaking studies, created and applied innovative methods and tools, and advanced principles of scientific integrity and collaboration. NORC has a large policy research programme in transitional and developing countries.
- The Results for Development Institute (R4D) is a 15-year-old international non-profit organisation with think tank roots located in Washington that works only in transitional and developing countries. It takes the long view of successful development that embodies collaborating as equals with local "change agents" – government officials, civil society leaders, and private sector innovators – to support translation of knowledge into practice and developing relevant new knowledge. Its premise is that local leadership is central to self-sustaining change. I have been associated with R4D since its founding and include it among the sample because of its innovative approaches to its central work and an array of management issues.³

Below these are referred to as RPIs. As usual, I do not ascribe any particular policy to a specific organisation by name, consistent with my confidentiality pledge to them. However, for readers to be able to link different actions to a specific RPI I have assigned each of them a label, e.g., RPI-1, RPI-2, and so on. (The numbering does not correspond to the order in which the RPIs are listed above.)

The paper shifts at this point to describe a structure for determining authorship assignments equitably and in a way that enables readers to better understand each author's contribution.

2. I am very grateful to Missy Nachbar, Tatiana Polidi, Gina Lagomarsino, and Margery A. Turner for discussing their institutes' practices, engaging in somewhat broader, stimulating exchanges about these topics, and in some cases sharing internal documents.

3. For a statement of R4D's principles see http://r4d.org/about/our-principles/?_ga=2.168268713.987849210.1606301519-237446072.1602841814

Teams take over

A recent article in the *Journal of Economic Perspectives* includes an eye-catching article by Benjamin Jones, ‘The Rise of Research Teams: Benefits and Costs in Economics’,⁴ about the evolution of the production of the strongest, most important economic research articles. The central facts relevant here based on economic research articles are:

1. In the US the share of all economics papers published by a single, sometimes called a ‘solo’, author between 1950 to 2018 fell from about 80 per cent to about 30 per cent and the mean number of authors per paper went from about 1.2 to 2.7. Team research is dominant.
2. To measure the influence of articles the author computed the share of articles that are ‘home runs’, that is, being among those having the highest 10 per cent, 5 per cent, and 1 per cent of citations among all economic articles published in a year in the US. In 2010, team-written articles were 3.3 times more likely to reach the top 10% per cent of citations and 4.1 times more likely to reach the top 1 per cent of citations than solo-authored papers.
3. With some variation these points hold across all 11 defined topic categories accounting for the highest number of journal publications in economics. It seems likely they also apply to most social sciences. This finding applies to the public policy subfield specifically.

The clear conclusion is that most research is being conducted by teams and that working in teams yields higher rates of the most important research.

Why teams?

What accounts for the growing superiority of teams over individual researchers? The article gives a convincing answer that is worth quoting.

In Albert Einstein’s (1941) words ‘Knowledge has become vastly more profound in every department of science. But the assimilative capacity of the human intellect remains strictly limited. Hence it was inevitable that the activity of the individual investigator should be confined to a smaller and smaller section.’ Einstein’s ‘inevitable’ specialization in turn naturally leads to team work. Individual researchers become increasing narrow (Jones, 2021, p.200).

There is also evidence that strong relations among diverse team members within teams enhances creativity.⁵

4. B.J. Jones, Vol. 35, No.2, Spring 2021, pp.191–216.

5. In the NPR Hidden Brain Series, S. Vendantam, J.S. Schmidt, and T. Boyle, ‘[Creativity and Diversity: How Exposure to Different People Affects Our Thinking.](#)’ July 27, 2020, and evidence cited there.

Who is to be included as an author?

This question has received significant attention when compared with the commentary on within-team credit attribution. The International Committee of Medical Journal Editors has been particularly active in laying out qualifications necessary for inclusion. Broadly they include:

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
- Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content.⁶

Clearly fairness in inclusion of authors is an essential first step and RPIs need a clear policy on it. (Hereafter this is termed a policy and procedures statement [P&P]). Equally important is fairness in distributing credit for a published work among the authors.

Current practices on credit attribution

Teams bring challenges. Where teams are employed, it is often difficult to allocate the credit for a report's success or a weaker performance among the authors.

An alphabetical listing is often employed. This has been discredited in various articles because of its resulting in greater recognition for authors with family names beginning with letters near the beginning of the alphabet and the lower exposure to later-in-the-alphabet names.⁷ Particularly when more than two authors are on a team, in-text referencing favours the early authors. A typical example of an in-text

6. ICMJE Recommendations, Defining the Role of Authors and Contributors. [ICMJE | Recommendations | Defining the Role of Authors and Contributors.](#)

7. See, for example, L. Waltman, 'An Empirical Analysis of the Use of Alphabetical Authorship in Scientific Publishing,' *Journal of Informetrics*, October 2012, pp. 700-711; and, M. Levitt and M. Thelwall, 'Alphabetization and the Skewing of First Authorship Towards Last Names Early in the Alphabet,' *Journal of Informetrics*, July 2013, pp.575-582.

reference call for a five-author document is (Brown and Green, 2000). Publishers omit the extra names to save text space. While alphabetical ordering is declining in some disciplines, it is still often used.

A second common approach is to list authors in the order of the importance of their contribution to the paper. A frequent problem with listing authors in this order is senior faculty (or at non university RPIs, the most senior researcher) believing they have the right to first authorship almost by definition. Readers have no way of knowing the accuracy of such listings in denoting relative responsibility for the work done.

A third approach, less common than the other two, is to list by order of contribution importance but in addition include a note at the bottom of the title page that briefly describes the contribution of each author. This is now required by certain leading science journals, according to Jones (op.cit.). An example is the *Proceedings of the National Academy of Sciences* published in the US.⁸ The box below gives an example drawing on an article from the *Proceedings* using parts of the title page. The note about which authors made various contributions in the work are indicated at the bottom of the entry journal page. It is certainly terse. But when one studies the number of authors in each of the four contribution categories and the ranking of the authors within each, some clear patterns emerge as reported in the final paragraph in the box.

Example of author attributions from the Proceedings of the National Academy of Sciences

PNAS 2021 Vol. 118 No. xx e2022206118

On Title page, top

‘Pre-Columbian fire management and control of climate-driven floodwaters over 3,500 years in southwestern Amazonia’

Authors

Neil A. Duncan, Nicholas J. D. Loughlin, John H. Walker, Emma P. Hocking, and Bronwen S. Whitney

On Title page, bottom notes

Author contributions: N.A.D., J.H.W., and B.S.W. designed research; N.A.D., N.J.D.L., J.H.W., and B.S.W. performed research; N.A.D., N.J.D.L., J.H.W., E.P.H., and B.S.W. analyzed data; and N.A.D., N.J.D.L., J.H.W., E.P.H., and B.S.W. wrote the paper.

Quick analysis

Designed research	3 authors
Performed research	4
Analysed data	5
Wrote paper	5

Authors are listed in different orders within each of the four categories. For example, N.A.D. and J.H.W. are both responsible for designing the research and performing research; but J.H.W. is in the second position for designed research but the third position for performed research, while N.A.D. is in the first position for both. The smallest contribution is by B.S. W. who is the last author in all four categories. At the other extreme is N.A.D. who is listed first in every category: obviously the research team leader. One wonders if she/he actually had the largest contribution everywhere. Data analysis is very often done extensively by other staff with discussions with the team leader.

8. According to Michaela Panter in “Credit Where Credit is Due: Best Practices for Authorship Attribution”. [Michaela Panter authorship - Bing](#)

There is no reason this convention could not be adopted by individual RPIs both in their own publications and in the typescripts of articles submitted to journals for possible publication. Indeed, Jones supports its wider use. He is aware that there may be overlap among authors in various tasks executed but sees no problem in this.

There are certainly other ways to decide the order in which authors are listed. But it would seem that unless there is some explanation of the reasons for the actual rankings, they will not help those who are genuinely interested in who did which part of the work so they could be contacted for future collaboration, for example, as well as for weighing their work for promotion or other rewards.

Critically, none of the documents consulted discuss in any detail how organisations could establish a system to ensure procedures to achieve objectivity in listings' order; an appeals process – a critical element – is simply absent. The bland statement constantly repeated in authorship discussions that 'the research team should decide' on authors' order is simply inadequate to achieve fairness.

An impact of the lack of clarity in individual author contributions in the alphabetic and order-of contribution listings (without further information in a note) is to delay academic promotions and peer recognition: it takes longer to build a reputation.⁹ One concrete indicator of this is that the age of researcher at the time of his or her first grant from the US National Institutes of Health rose from 36 in 1980 to 43 in 2016.

A greater number of quality reports, presumably many with teams of varying compositions, is needed today in order for authors to be recognised and promoted. There is some evidence that in economics, at least, in cases of a male first author and a women co-author the woman receives less credit for their publications than their male co-authors in tenure decisions.¹⁰

Reports traditionally have been the key source of information on job candidates' technical skills available for third party scrutiny. Likely one result of today's situation is for greater weight to be given now to the quality of talks and seminars where an individual's contribution is transparent.

All the foregoing notwithstanding, an important point is that staff assessments at RPIs take a wider range of activities into account, e.g., participation in the policy process, effectiveness in strengthening the administration of government programmes.

Practices of panel RPIs

What are the actual practices of our RPIs? It seems fair to say that the participating RPIs have relied on a basic approach in addressing authorship inclusion and ordering. None has a written policy and procedures statement on authorship in place.¹¹ But RPI-3 has an informal system operating while RPI-1's is more structured.

9. Mann (2017) cited in James (op.cit.).

10. Particularly, Heather Sarsons' 'Recognition for Group Work: Gender Differences in Academia,' [American Economic Review, vol. 107, no.5, May 2017, PP.141-145; also, at [full_v6.pdf \(harvard.edu\)](#)] found the following: 'Within economics, I find that men and women who solo-author most of their work have similar tenure rates conditional on a proxy for the quality of papers. However, an additional co-authored paper is correlated with an 8% increase in tenure probability for men but only a 2% increase for women. 'This gap is significantly less pronounced for women who co-author with women, suggesting that the attribution of credit is related to the gender mix of co-authors. Furthermore, a man who co-authors is no less likely to receive tenure than a comparable man who solo-authors even though there is presumably more uncertainty as to how much work he did.' Sarsons did not consider if the placement of male and female names in the authors' list had an effect.

11. One had developed the procedures about 10 years ago and began implementation. For various reasons the full system was never completely implemented. Our respondent believes the procedures may still have some influence on current practices.

At RPI-1 new research staff are introduced to authorship practices when they begin their first project. It is the task of the programme director (who is a level up from the team/project leader) to explain the policies. The explanation emphasises that the key factor is each analyst's intellectual contribution to the project as opposed to the amount of time worked on it.

When the project is nearing completion, the team meets and discusses who should be included as an author and the order in which the names of those included will be listed. The different roles that people have played are discussed and the team leader suggests who should be included and this is then discussed. Occasionally someone will be added as a result of the discussion. The philosophy is to err on the side of including marginal authors to encourage them to continue their development.

Author ordering is based on the importance of each author's contribution, which is determined by the team together. A final point for RPI-3 is that the respondent believes strongly that if there were issues on authorship fairness, staffers would raise them in the discussions with supervisors in the annual staff appraisal process. The matter is not being raised.

Among the other RPIs practices seem fairly similar. While there is no planned briefing for newcomers on the how the author designation process works, informal staff-to-staff explanations are very likely. Concerning the order in which authors are listed, the team leader takes the lead. Generally, there is discussion within the team about inclusion. Our respondent for RPI-1 reported that it is fairly common for the most senior or prominent person to be listed first, even if they were not the primary contributor.

The respondent from RPI-2 speaks for everyone, I believe, in saying that the informal guidelines are based broadly on academic/industry standards with which team leaders should be knowledgeable just by virtue of being active in conducting social science research, publishing results, and serving on editorial boards of journals.

There is no appeals protocol at any RPI. Appealing outside one's programme area is generally viewed as exceptional, with issues rather being raised with the team leaders. The respondent for RPI-3 was not certain raising such an issue outside a programme had ever occurred. An appeal could in principle be brought to its Academic Committee, although this has not been done. A more likely appeal route would have the problem brought directly to the organisation's president.

At RPI-1 and RPI-2 appeals are also infrequent. Our RPI-1 respondent's impression is that an appeal would be to the programme director on an informal basis with the outcome highly contingent on the relationship or trust between the staffer and the director.

On the other hand, there are signs of author dissatisfaction when the question is explored. In particular, it is worth noting that staff in RPI-1's human resources and communications groups have relayed a nontrivial number of researcher complaints on authorship fairness to management in the recent past, suggesting that the system may warrant a fresh look.

No RPI has adopted the procedure of ranking the contributions of each team member in each major work element in a project as illustrated earlier for the article appearing in the *Proceedings of the National Academy of Sciences*.

My sense is that the broad patterns just described likely apply to most RPIs. The balance of this note discusses how author recognition can be better observed and reported.

The way forward on author recognition

To judge from the foregoing practices of the participating RPIs, significant changes would be necessary to foster greater fairness among authors for their contributions to team-produced reports. Taken as a whole the process may appear demanding to implement. A good deal of detail is provided for clarity purposes which may give this impression. Organizations can choose many variations on the set-up described. Simplifications are certainly possible particularly from fitting the process into an organization's existing management structure. However, one essential step is for a policy and procedure statement on author inclusion and listing be developed and widely promulgated. This can serve as a kind of "bill of rights" that will remove a lot of uncertainty and facilitate discussions within research teams on authorship questions.

A number of steps are laid out below; many are quite straightforward to implement. It may be possible for an existing committee to take on most of the tasks.

Note that our focus below is strictly on the treatment of authors. Appropriate recognition should also go to sponsors, editors, writers, designers, statisticians and others who contribute to publications. The works cited above on current practices address this area.

Establish a framework. The first step is for a RPI is to develop its own policy and procedures statement on author inclusion and the order in which the authors are listed.

The policy would:

- establish an 'Authorship Committee' to oversee the policy's creation and implementation;
- define a standard for including researchers as authors and the order that authors are listed in a report; this includes defining the categories of contributions to a project, e.g., 'designed the research', that will be used by the team in making its rankings;
- name the head and members of the committee, their period of service, and the method of selecting replacement;
- state expected standard practices, (1) researcher team members whose contributions meet the standards stated in the P&P statement (see below) will be included as authors; (2) authors are listed in order of the importance of their contributions and an explanation of contributions is included in an entry page footnote; and
- establish and promulgate the appeals process available to an author who believes his/her contribution has not been appropriately recognised.

The RPI's standard policy is promulgated and can only be deviated from where good reasons are accepted by the committee. The policy is overviewed to all new researchers as part of their orientation briefing. The P&P statement is posted online with other policies.

This is all quite abstract. The following statement comes from one drafted some years ago by one of our RPIs to provide a standard on author inclusion:

In general, the authors of a book, report, paper or article should be those researchers who have made *significant* intellectual contributions to the research, including, but not limited to, formulating the research design or concept, analysing and interpreting the data, and writing or rewriting substantial parts of the manuscript. Another condition for authorship is that contributors must be able to explain and answer questions about the research. As a rule of thumb, it's the quality and importance of the intellectual contribution that determines authorship, not the amount of time spent on the project... Keeping in mind each project member's interest and abilities and their match with the research task at hand, Principal Investigators are encouraged to provide opportunities for staff to make significant intellectual contributions.¹²

When work on a project is initiated, the team leader goes over the P&P statement on authors' inclusion and names ordering and then outlines the process the group will follow in making its decisions.

My preference for the policy and the related process for determining author ordering is:

- Team members decide on the order of authorship together.
- At the project's outset the team meets to discuss author ordering after the roles of each participant have been defined to decide on the probable order. There is no necessary expectation for the team leader to be the first author.
- The group revisits the ordering during the project as needed and comes to a final agreement after the report is finished.
- Authors then specify in their manuscript the contributions of each author following the order in which they are listed so that readers can interpret their roles. This could be in a very summary format like that shown above in the National Academy example statement or be more explanatory. It will appear presumably in a footnote on the title page in the same fashion as notes thanking others who contributed to the work reported and sponsors.¹³
- Where there are disagreements among authors about those included as authors or the order in which authors are listed, efforts should be made by the team to reach a fully accepted listing. Where this fails an aggrieved author can submit an appeal to the Publications Committee. The committee will review the appeal following guidelines it will promulgate as soon as they are developed following its establishment.

The Authorship Committee. One version of such a committee's structure and operations is sketched below.

Six–eight experienced senior researchers are appointed to the committee by the institute's management, with the chair identified at this time by management. Members could serve for three-year, staggered terms, for example. They are compensated for their time from the institute's general funds, i.e., they have a 'project number' to which to charge their time. The inaugural group drafts its operating procedures, which are confirmed by the institute's management. The committee would develop a simple form for appellants to use in submitting a challenge about an inclusion or name–ordering decision of the research group that developed a report.

12. Draws heavily on a statement prepared by the Urban Institute some years ago.

13. This description draws on material in [authorship_guidelines.pdf \(harvard.edu\)](#)

When an appeal is received, the committee leader appoints 3–4 members to a temporary subcommittee to address it. Committee members appointed to do the review pledge to be free of any conflict of interest for the report, including close friendship with an appellant. Members would read the report, the description of the contributions of all research team members, the appeal filed. They then interview separately the appellant, the research team leader, and possibly other authors about the proceedings among the team in arriving at its decisions. The subcommittee could dismiss the appeal at any point in the process, providing a clear statement on the reasons for its decision.

It is likely that many organisations already have in place pieces of this model to build upon. For example, one participant RPI described a pathway at her institute for ‘whistle blowers’ to report objectionable professional practices; the pathway by-passes managers. A similar committee could handle author appeals, but it would probably be good practice for the appellant to talk to the team leader first and only appeal to the committee when this fails. Similarly, RPI-3’s Academic Committee duties might be expanded for this task.

One anticipates that just the presence of a rigorous and fair appeals process would positively affect decisions on author inclusion and name ordering.

It is likely that many organisations already have in place pieces of this model to build on.

Tasks for team leaders. There are several steps the team leader (who will not necessarily be the first author) can do facilitate the attribution–decision process.

1. Keep a careful record for all team members of their particular contributions throughout the research process.
2. Encourage team members to keep logs of their contributions, i.e., outputs of their efforts and when each is completed on a task-by-task basis. These can be critically important in resolving team leader misperceptions of the extent of someone’s contributions.
3. Maintaining open communications with your collaborators, including technicians, about outputs and expectations for recognition.
4. Familiarising themselves with target journals’ or publishers’ authorship and contributions guidelines to inform the discussion on including individuals.
5. Crediting all contributions in your paper, whether in authorship, conflicts of interest, or acknowledgement sections.¹⁴

This is a significant list. That said, my experience in keeping records of this type is that it is not very time intensive if done on a regular basis. This is particularly the case where the team leader has access to reports on time charged to the project by all team members. Where a flurry of activity is indicated, the colleague could be asked about nature of the progress on the tasks. Monitoring of this type is routine in many RPIs.

14. Draws substantially on Pantner, op.cit.

Fairness in authorship

In my 50 years of full-time work, predominantly at think tanks but with stints in government and at a for-profit consulting firm, the subjects of author inclusion or position in the authors' list never surfaced. While some policy development organisations are now giving explicit attention to the inclusion element, very little appears to be going to the ordering of names on lists of authors.

I am certainly not suggesting that RPIs are avoiding addressing author fairness. As stated in the introduction, the shift to the team project organization occurred gradually over many years. I for one was certainly not aware of the degree of the change until recently. A more realistic story is that development was not appreciated by RPI leaders and, as the saying goes, "if it's not broken, don't fix it." My sense from casual observation is that the treatment of author inclusion and listing order IS broken in some RPIs.

My recommendation for those who have not thought much about the issue is for them to take two steps.

1. Prepare the policy and procedures statement described earlier here. Involve researchers at all levels in its drafting. For certain include an appeals process. (You may well have some push back from some very senior researchers who feel they are being implicitly criticized.) This is a good opportunity to present information similar to that given near the beginning of this article on the composition of report-writing teams and its change over the part 10-15 years and its consequences for author inclusion and the order in which those included are listed. Even if there are few problems in your institute now, the P&P will raise awareness and serve as a reminder for Team Leaders about good practices and encourage analysts who believe they have been mistreated a clearly acceptable way to raise their issues.
2. Conduct confidential informal interviewing about the experiences of researchers in the authorship decision process. Good candidates to invite are those who are strong mid-level and entry senior-level analysts. These are people who are likely to be making notable contributions to projects and therefore often should be included among the authors, sometimes in a prominent place in the authors' list. But also include a sample of other analysts and, if appropriate, statisticians and/or econometricians that sometimes make important contributions to projects. They could be confidentially asked about their experience by someone from the HR group. This information can guide decision making on next steps. (After a summary report is written, the raw material should be destroyed to insure continued confidentiality.)

Common sense suggests that if authorship is more tightly related to contributions the positive incentives created will result in better research and policy design and a more productive and creative staff.