

Editorial for Engineering Studies Issue 10.2/3

Citation for published version (APA):

Mody, C. C. M. (2018). Editorial for Engineering Studies Issue 10.2/3. *Engineering Studies*, 10(2-3), 85-89. <https://doi.org/10.1080/19378629.2018.1546728>

Document status and date:

Published: 01/01/2018

DOI:

[10.1080/19378629.2018.1546728](https://doi.org/10.1080/19378629.2018.1546728)

Document Version:

Publisher's PDF, also known as Version of record

Document license:

Taverne

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy

If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.



Editorial for *Engineering Studies* Issue 10.2/3

Cyrus C. M. Mody

To cite this article: Cyrus C. M. Mody (2018) Editorial for *Engineering Studies* Issue 10.2/3, *Engineering Studies*, 10:2-3, 85-89, DOI: [10.1080/19378629.2018.1546728](https://doi.org/10.1080/19378629.2018.1546728)

To link to this article: <https://doi.org/10.1080/19378629.2018.1546728>



Published online: 15 Jan 2019.



Submit your article to this journal [↗](#)



Article views: 618



View related articles [↗](#)



View Crossmark data [↗](#)



Editorial for *Engineering Studies* Issue 10.2/3

Welcome, readers, to volume 10, issue 2–3 of *Engineering Studies*. As you might infer from our combining the final two issues of volume 10, the journal is looking for additional content. We have a number of new developments planned for volume 11, but we can only make those a reality if we have a steady input of manuscripts moving toward publication. Fortunately, the benefit of a short queue, at least for our authors, is that our time-to-publication is quite quick, especially compared to some of the other journals that publish engineering studies research. Conversely, one putative disadvantage to sending articles to *Engineering Studies* that I've heard about from some potential authors is that we have a very low acceptance rate. Please treat that number with some caution! *Engineering Studies* receives a large number of manuscripts on engineering topics that fall well outside the journal's mission. If you have a manuscript that you believe falls within the 'Aims and Scope' described on our website (<https://www.tandfonline.com/toc/test20/current>) then you can be assured that the journal's acceptance rate for that kind of manuscript is significantly higher.

Readers should also note that the journal is gradually expanding the variety of types of contribution that we publish. The current issue features a Report, 'Principles and Practice of Engineering Exam Pass Rate by Gender', by Julia Keen and Anna Salvatorelli. Reports are non-peer-reviewed, generally shorter contributions intended to get a finding or observation out to the community quickly, often with the expectation of a more detailed, peer-reviewed follow-up publication later. *Engineering Studies* has featured Reports in the past – generally summaries of workshops for non-attendees. But we plan to feature more, and more varied Reports in the future.

Next year we will also unveil our first Book Reviews. These will be long-form, argumentative reviews of between three and five recent books at a time. That format allows reviewers to synthesize the claims of scholars at the leading edge of some area of engineering studies in an original and enlightening way. Book Reviews will be commissioned and edited by Qin Zhu (qzhu@mines.edu), so if you would like to suggest a book (including your own) for review, and/or if you would like to suggest a topic or reviewer (including yourself), please contact him.

We would also like to solicit submissions for a new category of peer-reviewed article, Systematic Literature Reviews. Manuscripts in this genre should critically survey some topic in engineering studies, in a manner that falls within the journal's Aims and Scope. This is not a genre *Engineering Studies* has published before, but our peer journals offer a number of suggestions for best practices.¹

And of course we still plan to publish regular research articles, Critical Participation pieces, and special issues. Please contact me or any member of the editorial team if you have an idea for a special issue that you would like to guest-edit. After initial discussion we would like to see a short proposal with a list of authors, titles, and abstracts as well as

a motivation for the special issue that could serve as the starting point for your eventual guest editorial.

Engineers and state-building

Let's move on, then, to the content of this exciting issue. Our contributions nicely span a wide range of approaches in typical *Engineering Studies* fashion: early-modern history, recent history, science and technology studies, anthropology, sociology, and engineering education research are all represented in some fashion. And the contributions travel the world in keeping with engineers' own travels: from Portugal to the Persian Gulf to the United States. That said, the contributions cluster around two broad topics: engineers in the construction of states, and diversity in engineering and engineering education.

Not that these topics are really separate: Antónia Fialho Conde and M. Rosa Massa-Esteve's 'Teaching Engineers in the Seventeenth Century: European Influences in Portugal' shows that diversity in engineering education can be closely related to engineers' ability to aid state construction. They exam the life and *magnum opus* of Luis Serrão Pimentel, an influential seventeenth century Portuguese applied mathematician and military engineer (to use modern terminology) as well as the leading educator of the next generation of Portuguese engineers. Serrão Pimentel benefited from the varied backgrounds of his own teachers, many of whom were Jesuits who came to Portugal from all over Europe to offer training in the most advanced mathematics of their day. He then made their knowledge his own in three different but related ways: designing a series of much-tested border fortifications; developing new mathematical theorems in sometimes pointed dialogue with far-flung scholars (e.g. Simon Stevin in the Low Countries), and combining fortification design with advanced mathematics in a pedagogical treatise in (for the first time) Portuguese. These activities helped ensure the continued existence of the Portuguese state in and beyond Serrão Pimentel's lifetime and connected Portugal into dispersed knowledge networks. Their story nicely resonates with several recent histories of twentieth-century engineers in building states on the Iberian peninsula and negotiating those states' complicated relationship with the rest of Europe and the world.²

Meanwhile, Gökçe Günel's 'The Backbone: Construction of a Regional Electricity Grid in the Arabian Peninsula' picks up some similar themes but this time in the context of an attempted technological – and hence partially political – integration among six countries: Saudi Arabia, Kuwait, Qatar, Bahrain, the United Arab Emirates, and Oman. Electrical grids have, of course, long been a lens for understanding how engineers can shape (and be shaped by) the co-construction of technologies, states, and the behavior of those states' citizens.³ We are presently in the middle of a wonderful renaissance of grid studies. Some of these new works come at the well-studied US grid from new directions.⁴ Others have globalized the topic.⁵ In doing so, they've shown how grid studies can be the site for significant methodological innovation – e.g. by showing us what an empirical study in the vein of Actor-Network Theory would look like.⁶

Günel's article very much extends the latter line of investigation. She shows us that there are not independent domains of activity that we could label 'construction of an electrical grid', 'international diplomacy', or 'domestic politics'. Domestic politics makes and is remade by the grid and the evolving relations among the Gulf States. 'The grid' itself is a misnomer: as she puts it,

In studying the construction of markets, the generators, converters and the air conditioners that make up the physical infrastructure of grid and the regional coalitions, electricity prices, and diplomatic crises should be analyzed by taking their interlaced natures into account.

Engineers are central to all of those, even if most observers (including many engineers themselves) think of, say, diplomatic crises as lying outside of engineering practice. Certainly, engineering education is generally oriented to some of these ingredients of grids, while many engineering educators struggle to incorporate other elements.

Diversity in practice

Which brings us to ‘Principles and Practice in Engineering Exam Pass Rate by Gender’ by Julia Keen and Anna Salvatorelli and ‘The Power and Politics of Engineering Education Research Design: Saving the “Small N”’, by Amy E. Slaton and Alice L. Pawley. Both articles are interested in the question of why most engineering fields in most countries are so much less diverse than the societies from which engineers are drawn. This question has inspired much public debate over the past few decades (if not longer), with regard not just to questions of equity (does everyone have a fair chance at becoming an engineer) but also questions of justice (does a less diverse engineering field produce knowledge and artifacts that discriminate against those groups that are disproportionately excluded from that field).

As Slaton and Pawley note, that public debate has in turn led to a significant amount of scholarship intended to measure how diverse engineering fields are and what contributes to their lack of diversity. Keen and Salvatorelli’s Report falls into that category and, I think, nicely demonstrates what such approaches can tell us. Keen and Salvatorelli look at a common rite of passage for engineers in the United States: passing the Principles and Practice of Engineering exam. Noting the robust finding that women leave STEM fields more readily than women in other fields, they ask whether the PE exam could be one of the so-called off-ramps leading women to exit engineering careers. And they find that, yes, that does seem to be the case: in their sample women passed the PE exam at an 11.6% lower rate than men. Keen and Salvatorelli don’t overstate their case – they don’t know what causes the lower pass rate and they are frank about the limitations of some of their data. But it’s an important finding (which is why *Engineering Studies* wanted to communicate it rapidly in Report form): there’s *something* about the PE exam that should draw our attention, even if it’s not clear what.

Slaton and Pawley, on the other hand, put forward a critique of such studies – or, at least what I would take from their article is, a critique of over-reliance on such studies at the expense of small-N, qualitative, reflexive research which takes the messy complexity of personhood seriously. The women in Keen and Salvatorelli’s study are not just women – and that matters. As Slaton and Pawley put it, ‘We ask how dismantling the stigma of the small-n by elevating the systematic study of fewer persons, rarer experiences, and less repeatable conditions may hold the promise of more incisive critiques of discriminatory engineering education practices’.

That’s not the end of Slaton and Pawley’s critique, though. They see the whole project of large-n research on engineering diversity as contributing to the problem that it seeks to solve by treating identity as static and categorical. Here they do engineering studies a great service by bringing in insights from Queer Theory and Disability Studies to illustrate

how neglecting the fluidity of identity and experience – which large-N studies necessarily (perhaps?) must do – underwrites the *status quo*. Slaton and Pawley are provocative in ways that should, I hope, improve the quality of reflection and research across engineering studies – both among those who strenuously disagree with their take and those who are more sympathetic to it.

There are, you'll note, some tensions between these two papers in this issue of the journal, and between these two papers and articles published in previous issues. They are – I hope – productive tensions. The contents of this journal are, in that sense at least, decidedly anti-positivist: we are not continually adding bricks to a metaphorical wall of knowledge. The proper metaphor is something more dynamic and complicated, less additive: perhaps a dance, where there is give and take, movement forward and backward, and occasional missteps, but where the overall effect is pleasing.

Notes

1. Borrego *et al.*, "Systematic Literature Reviews"; and Pham *et al.*, "A Scoping Review of Scoping Reviews."
2. E.g. Camprubi, *Engineers and the Making of the Francoist Regime*; and Saraiva, *Fascist Pigs*.
3. E.g. Hughes, *Networks of Power*; Nye, *Electrifying America*; and Hirsh, *Technology and Transformation*.
4. E.g. Cohn, *The Grid*; Slaton, "Efficient, Secure, Green"; Lambert, *The Power Brokers*.
5. Mohsin, "Wiring the New Order"; and Kim and Choi, "Technical Standard in Transition."
6. Shamir, *Current Flow*.

References

- Borrego, M., M. J. Foster, and J. E. Froyd. "Systematic Literature Reviews in Engineering Education and Other Developing Interdisciplinary Fields." *Journal of Engineering Education* 103, no. 1 (2014): 45–76.
- Camprubi, Lino. *Engineers and the Making of the Francoist Regime*. Cambridge, MA: MIT Press, 2014.
- Cohn, Julie A. *The Grid: Biography of an American Technology*. Cambridge, MA: MIT Press, 2017.
- Hirsh, Richard F. *Technology and Transformation in the American Electric Utility Industry*. Cambridge, UK: Cambridge University Press, 1989.
- Hughes, Thomas P. *Networks of Power: Electrification in Western Society, 1880–1930*. Baltimore: Johns Hopkins University Press, 1983.
- Kim, Junsoo, and Hyungsub Choi. "Technical Standard in Transition: The Distribution Voltage Conversion Project in South Korea, 1967–2005." *The Korean Journal for the History of Science* 36, no. 2 (2014): 183–203.
- Lambert, Jeremiah D. *The Power Brokers: The Struggle to Shape and Control the Electric Power Industry*. Cambridge, MA: MIT Press, 2015.
- Mohsin, Anto. "Wiring the New Order: Indonesian Village Electrification and Patrimonial Technopolitics (1966–1998)." *Sojourn: Journal of Social Issues in Southeast Asia* 29, no. 1 (2014): 63–95.
- Nye, David. *Electrifying America: Social Meanings of a New Technology, 1880–1940*. Cambridge, MA: MIT Press, 1992.
- Pham, Mai T., Andrijana Rajić, Judy D. Greig, Jan M. Sargeant, Andrew Papadopoulos, and Scott A. McEwen. "A Scoping Review of Scoping Reviews: Advancing the Approach and Enhancing the Consistency." *Research Synthesis Methods* 5, no. 4 (2014): 371–385.
- Saraiva, Tiago. *Fascist Pigs: Technoscientific Organisms and the History of Fascism*. Cambridge, MA: MIT Press, 2016.

Shamir, Ronen. *Current Flow: the Electrification of Palestine*. Stanford: Stanford University Press, 2013.

Slayton, Rebecca. "Efficient, Secure, Green: Digital Utopianism and the Challenge of Making the Electrical Grid 'Smart'." *Information & Culture* 48, no. 4 (2013): 448–478.

Cyrus C. M. Mody
Maastricht University, The Netherlands
 c.mody@maastrichtuniversity.nl