EDITORIAL

Editors' Introduction

Dean Nieuwsma,^{*} Donna Riley,[†] Jens Kabo,[‡] and Usman Mushtaq^{**}

^{*} Department of Science and Technology Studies, Rensselaer Polytechnic Institute, nieuwsma@rpi.edu

[†] Picker Engineering Program, Smith College, driley@smith.edu

[‡] Division of Engineering Education Research, Chalmers University of Technology, jens.kabo@chalmers.se

^{**} MSc, Queen's University, mushtaq.usman@gmail.com

The Engineering, Social Justice, and Peace (ESJP) network held its seventh annual meeting in Bogotá, Colombia in July 2011. With over 50 participants from four continents, representing engineering educators and students, non-governmental organizations, and various local community groups, the conference provided evidence of diverse interest and commitment to explorations at the intersection of engineering, social justice, and peace.

The meeting was pivotal for ESJP in several ways. It was the first meeting held in the global South. It was the first meeting co-sponsored by multiple and diverse organizations: ESJP, Universidad de los Andes, Universidad del Minuto de Dios, and Ingenieros sin Fronteras (Engineers without Borders) Colombia. And it was the first meeting conducted in two languages (English and Spanish) simultaneously. Building on the momentum of that meeting, and fulfilling a promise made at the ESJP 2010 meeting in London, we publish this, our first issue of the *International Journal of Engineering, Social Justice, and Peace (IJESJP)*.

WHY ANOTHER JOURNAL, AND WHY *THIS* JOURNAL?

IJESJP is unique in its focus, bringing together two domains of inquiry/practice that live separately in other contexts. It achieves this focus with critical insights that span disciplines and through collaboration between theorists and practitioners. In bridging these domains, we intend the journal to serve as inspiration and support for those who promote engineering for social justice and peace.

Established scholarly journals that overlap with terrain covered by *IJESJP* already exist, and new titles continue to proliferate. Journals that cover engineering education and educational reform initiatives include the *Journal of Engineering Education*, newly named in 1993 but with a [complex history](#) dating back to the 1890s and the *European Journal of Engineering Education*, first published in 1975. The history of technology journal, *Technology and Culture*, dates to 1959, and one of the major journals in Science and Technology Studies (STS), *Science, Technology, and Human Values*, was established in 1976. The more general *IEEE Technology and Society Magazine*, which treats many facets of technology in society, was first published in 1982.

More recent journals overlap even more closely with *IJESJP*, including *Science and Engineering Ethics* (established 1995), the open-access *International Journal of Service Learning in Engineering (IJSLE)*, established 2006), and *Engineering Studies* (established 2009). While we are keenly interested in ethical practices and outcomes in engineering as is *Science and Engineering Ethics*, our approach is grounded more in critical social analysis (including, for example, feminist, anti-racist, decolonializing ethics) than formal ethical reasoning. Similarly, there is considerable overlap with *IJSLE* around international development work, but our approach takes an explicitly critical

perspective on development along the lines of post-development theory. There are also important parallels in our approach and that taken in *Engineering Studies*, with a major difference being our focus and our missions. Obviously, the terrain of *IJESJP* is narrower than that of *Engineering Studies*. And whereas *Engineering Studies* seeks to advance the scholarly study of engineers and engineering, and in particular to advance scholarly research, our mission is to apply critical insights to the practice of engineering and engineering education, so *IJESJP* articles are expected to be relevant to reflective practicing engineers (even as they may simultaneously circulate among scholars).

We believe there are four compelling reasons to publish this journal. First, as indicated above, *IJESJP* has a *unique focus*, which lies at the intersection of social justice/peace and engineering (including its knowledge, practices, professions, communities). Other journals focus on one or the other of these two domains, or focus on social justice/peace in other communities of practice. Understanding the relationships between engineering and social justice/peace, we believe, offers particular opportunities and challenges.

These opportunities and challenges are connected to commonplace understandings of the derivative relationship between engineering and technology, on one hand, and technology and social progress, on the other hand. In fact, it is not unusual for engineering to be understood as the motive force of human advance, as it is put in the 2008 US National Academy of Engineering's 2008 *Grand Challenges of Engineering* report: "Throughout human history, engineering has driven the advance of civilization." The existence of such grandiose claims (see Riley, 2011) is itself a sign that the domain deserves careful attention. While we do not adhere to such a grandiose vision of engineering, we do see great potential in engineering—when practiced appropriately—to address social problems. Exploring what it means to practice engineering appropriately for social justice and peace—and understanding how a social justice lens challenges dominant notions of technological progress within engineering education and practice—is the point of this journal.

Second, *IJESJP* strives to be *radically interdisciplinary*, including with content that bridges technical practice and social analysis. It is neither an engineering publication in the traditional sense nor a social sciences or humanities journal. This interdisciplinary approach is exemplified in this issue by a series of articles co-authored by engineering scholars and social sciences/humanities scholars, itself an experiment in interdisciplinary collaboration. We also hope to provide space for disciplinary boundary crossing, so scholars who are established in one area (usually on one side of the technical/social divide) may begin to explore another.

Third, *IJESJP* strives to *bridge researchers and practitioners*, especially researchers committed to better engineering and engineering education practice and practitioners who are reflective about their work and how it impacts disadvantaged social groups. We recognize that an academic journal will inevitably be skewed toward the perspectives of researchers, but with that recognition, we commit to promoting the voices of practitioners—both practitioners of engineering and practitioners of social justice—directly through publication as well as indirectly through the type of academic work we cover.

Fourth, *IJESJP* strives to *serve the growing ESJP community*, both as a vehicle for communicating careful thinking and creative practice and as a venue for inspiring and supporting one another. Whereas many of us work in small, isolated groups and others work individually in our home institutions and local communities, within ESJP we work together as a much larger, and enthusiastic, community. At every ESJP meeting since the first, participants have highlighted the importance of the support the meeting provides. We hope this journal will extend that support

network, filling the gaps between meetings and reaching an audience that cannot otherwise participate in ESJP meetings or other affiliated activities.

OUR VALUES

The Engineering, Social Justice, and Peace international network has created a detailed [statement of commitments](#). As part of those commitments, we recognize the complexity of drawing boundaries around “social justice” as a concept or a set of practices. “While social justice is our goal, we do not adhere to a singular definition of social justice or a static notion of what it entails. We are committed to continually redefining social justice along side those who experience injustices” (ESJP, 2012).

We also recognize the need to continually interrogate our own relationships to power and privilege. “We are committed to reflexivity—to resisting injustice even as we recognize our complicity with it. As members of different engineering communities, we recognize the structural forces impinging on the profession that perpetuate and reinforce problematic forms of power and privilege. Our participation in these structures necessarily affects how we view social justice and peace. We therefore seek to work critically and inter-disciplinarily to interrogate these structural forces and our relationships to them” (ESJP, 2012).

In addition to these commitments, the editors of *IJESJP* commit to a set of values surrounding the journal’s editorial process and content. In addition to setting an appropriate purview and scope (see below), as a selective publication, we must employ some standards of quality to shepherd submissions through peer review, so we strive for transparency in expressing our views on the characteristics of a high quality manuscript:

- robust, focused, and reflective analysis;
- careful and explicit attention to the context and limitations of the analysis; and
- accurate representation of all others’ voices and perspectives.

We encourage work extending from empirical data sets, but also welcome insightful analysis of changing structures of thought, human experience, or material conditions. We discourage exclusive reliance on abstractions or lofty claims that are not grounded in critical engagement with engineering thought and practices. We also discourage empirical accounts without accompanying critical assessment.

While we acknowledge the important role to be played by traditional disciplinary scholarship, our goal with *IJESJP* is to create space for highly interdisciplinary inquiry and exploration. Hence, we commit to keeping disciplinary filters in check. We expect authors to draw on disciplinary approaches where appropriate, and, with the help of our reviewers, we will direct authors to disciplinary scholarship when useful or necessary. But we will not disqualify submissions for not adhering to the linguistic, methodological, or analytic conventions of any particular scholarly discipline.

Our values and commitments are embodied in our process, especially our submissions review process. We commit to a review process that cultivates—rather than punishes—creative exploration of engineering and social justice/peace. We commit to working closely with authors whose papers show promise and fit within our purview and scope. We will strive to identify reviewers who will help to iterate the thinking of authors over the extent of revision required. And we are open to constructive feedback from readers and authors as we work to refine our processes.

Finally, we commit to wide dissemination of the journal's content, acknowledging inherent limitations in our English-only format. Given the increasingly role of centralized commercial interests in academic publishing, and the increasing costs of scholarly journals, open-access publication is one strategy of resistance. We use the Open Journal System for easy and free access of our content globally.

PURVIEW AND SCOPE

This journal is unique in its purview: simultaneous attention to engineering and questions of social justice/peace. All published content will attend explicitly and consistently to both of these facets. The journal will focus on the *domain of engineering*: the thinking and practices prevalent within diverse engineering settings where engineers and others interact through various engineering projects, including those surrounding engineering education. While many engineers and some scholars of engineering attempt to delimit "(real) engineering" to an assumed technical "core" of engineering knowledge and skills, we seek to emphasize the various social contexts that provide relevance for technical knowledge and skills. We reject *universalist* characterizations of engineering, where only one way of thinking about or practicing engineering is suggested to be possible or correct. We also reject *essentialist* understandings that assume engineering is immutable and that it does not reflect the context in which it comes to be understood and practiced. Given these positions, we hope *IJESJP* will highlight a variety of engineering practices in a variety of settings that conform to (or resist) distinct cultural and institutional logics.

The journal will also focus on *questions of social justice and peace* surrounding engineering. We take "social justice" to entail efforts that seek to address systemic inequities, especially enduring inequities resulting from historical social, economic, and political power imbalances, and so we reject as inadequate, if not misguided, strategies to achieve social justice limited to charity work. We take "peace" to entail efforts that seek to address systematic cultures of violence, oppression, and warfare as they are manifest at both individual and institutional levels. We take social justice and peace to be interlinked and welcome submissions that attend to both—but we also welcome submissions that address either social justice or peace—in the domain of engineering.

Of course, social justice and peace are ideals: they can be approached, but neither completely nor finally attained. As with other such ideals, it is often easier to identify examples that work against the ideals. It is easier to point to a wide range of specific injustices than to identify a clear case of social justice achieved. The same is true with peace. Hence, we anticipate and welcome submissions striving to better understand *barriers* to social justices and peace surrounding engineering, but we also welcome submissions that describe and analyze experiments that work toward social justice and peace in or through engineering practices.

BACKGROUND ON THE ESJP NETWORK

The Engineering, Social Justice, and Peace (ESJP) network has coalesced over several years following the first "Engineering and Social Justice" conference organized by Caroline Baillie in 2004. Since then, a network of dozens of engineering scholars, educators, and practitioners has formed, with members organizing and participating in a wide range of academic, community-based, and direct-action interventions. These activities span diverse domains—material, educational, professional, and conceptual—and are large in number (Nieusma, 2011).

At the second meeting in 2006, the term "Peace" was added to the conference name, and the "Engineering, Social Justice, and Peace" conference has been held annually in a variety of locations

internationally since that year. At the 2008 meeting, the ESJP coordinating committee was formed, which thereafter developed the ESJP website (esjp.org), created a [statement of commitments](#), and initiated planning for this journal. The journal plan was finalized at the 2010 conference and work setting up the journal infrastructure started thereafter. Table 1 provides basic information on the conference series since its 2004 inception.

Year	Organizer(s)	Host Institution(s)	Location
2004	Caroline Baillie	Queens University	Kingston, Ontario, Canada
2006	George Catalano	Binghamton University	Binghamton, New York, USA
2007	George Catalano	Binghamton University	Binghamton, New York, USA
2008	Donna Riley	Smith College	Northampton, Massachusetts, USA
2009	Chris Byrne	No institutional host	Whidbey Island, Washington, USA
2010	Caroline Baillie	Royal Society of the Arts	London, England
2011	María Catalina Ramírez	Universidad de los Andes	Bogotá, Colombia
	Juan Lucena	UNIMINUTO	
	Andrés Valderrama	Ingenieros sin Fronteras Colombia	
2012	Katy Haralampides	University of New Brunswick	Fredericton, New Brunswick, Canada

Table 2: ESJP Annual Conferences

CONTRIBUTIONS TO THIS LAUNCH ISSUE

Two papers in this first issue of *IJESJP* come from the 2010 conference in London, including one that resulted from the US National Science Foundation grant, entitled “Engineering and Social Justice: Research and Education of (In)commensurable Fields of Practice,” which was won by Juan Lucena, Jon Leydens, and Jen Schneider. The remaining three papers resulted from a grant won by principle investigator, Caroline Baillie, from the [now-defunct Australian Learning and Teaching Council](#). That grant project, entitled “Social and Environmental Justice in Engineering Education,” entails collaboration among scholars representing a range of academic disciplines, with the papers herein submitted by interdisciplinary pairs of scholars (including one author with an engineering background and another with a social sciences or humanities background) from the grant.

In our first article, Rita Armstrong and Caroline Baillie compare two very different encounters between mining companies (and their engineers) and the local communities in which they work. The authors explore the validity and utility of the concepts of culture and cultural relativism for practicing engineers in these contexts. They warn against superficial treatment of these concepts and emphasize that it is important for engineers to understand both *why* and *how* culture matters when negotiating with communities if equitable relationships are to be achieved.

The second article offers a critical and reflective perspective of service learning in engineering. Andrés Valderrama Pineda, Richard Arias-Hernández, María Ramírez, Astrid Bejarano, and Juan Silva provide a self-assessment of the activities of Ingenieros sin Fronteras Colombia (ISFC, Engineers Without Borders Colombia). To carry out their assessment, they first develop a typology of engineering service learning initiatives, which relates where assistance comes from and where it is enacted in local communities. Next, by questioning their organization’s name, ISF (Engineers Without Borders), the authors identify five different types of borders that are likely to separate engineers from the communities they intend to serve. Taking each of these potential borders in turn, the authors interrogate their own organizational practices to identify how and where borders remain.

This issue’s third article investigates engineers’ roles and responsibilities in the construction of dams along the Mekong River in Southeast Asia. Drawing on interviews with experienced

engineers, Dani Barrington, Stephen Dobbs, and Daniel Loden discuss the complexities of dam building in this region, highlighting both benefits of such projects and their negative impacts. Using the lenses of social and environmental justice, the authors argue that dam-building engineers have an obligation to integrate critical reflection on outcomes into their technical practice and that engineers should opt out of projects likely to result in considerable injustices.

The fourth article takes a more conceptual tack in exploring the relationship between engineering and warfare, broadly conceived. Dean Nieusma and Ethan Blue put forward a definition of warfare that goes beyond the common-sense notion of nation-states in armed conflict, and then use this concept as an analytic lens to explore engineering culture. By focusing this lens on engineering labor and engineering epistemologies, Nieusma and Blue show how, in important respects, engineering can be understood as a “war-built” discipline. The authors then suggest “social justice” could serve as an idealized alternative foundation for engineering.

The issue’s final article investigates how and whether engineering and social justice are commensurable fields of practice. Jon Leydens, Juan Lucena, and Jen Schneider put forward two established macro-sociological frameworks—structural functionalism and social-conflict theory—which represent contrasting perspectives on how society functions. By exploring the intersections between engineering, social justice, structural functionalism, and social-conflict theory, the authors identify conceptual alignments between structural functionalism and engineering on one hand and between social-conflict theory and social justice on the other hand. Hence, efforts to establish bridges between engineering and social justice must anticipate that there will be divergence not only in priorities and preferences between the fields of practice, but also in their foundational assumptions about how society is—and ought to be—organized. Recognizing such incommensurabilities, they suggest, is a critical step in aligning engineering and social-justice perspectives, and may provide an opportunity for critical reflection among engineering-for-social-justice advocates as well.

This issue concludes with a book review by Julian O’Shea, who discusses Dambisa Moyo’s *Dead Aid: Why Aid Is Not Working and How There is Another Way for Africa*.

NEXT STEPS

IJESJP is to be published twice each year, with publication targets of late spring and late fall. We accept manuscripts at any time, and publish accepted articles on a rolling basis. We plan to offer occasional special-themed issues and welcome suggested themes. Specific scheduling information is provided on our website. We invite inquiries regarding possible submission topics, and we look forward to diversifying content and authorship as we move forward.

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