Beyond the Social License to Operate: Training Socially Responsible Engineers to Contend with Corporate Frameworks for Community Engagement

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Beyond the Social License to Operate: Training Socially Responsible Engineers to Contend with Corporate Frameworks for Community Engagement

Abstract

The “social license to operate” (SLO) has emerged as a key industry framework for conceptualizing the need to responsibly engage communities. The social license loosely refers to public acceptance, but the term is usually invoked without clear definition [1]. Advocates for the SLO define it as “the level of tolerance, acceptance, or approval of an organization’s activities by the stakeholders with the greatest concern about the activity” [2]. From its original use in the pulp and paper and mining industries in the 1990s, the term has since migrated to arenas as diverse as chemical manufacturing, pharmaceuticals, construction, and biotechnology. One review found that the term “social license to operate” appeared in fewer than 10 articles a year from 1997 through 2002, but in more than 2,000 articles in 2016 alone [3]. Yet scholars raise strident critiques of the SLO as a way to conceptualize engineers and other professionals’ social responsibilities. First, it can treat communities as risks to be managed, precluding the development of the more trusting and collaborative partnerships necessary to promote sustainable development [4]. Second, it serves as a private form of governance and can detract from rights-based community engagement frameworks, such as Free, Prior and Informed Consent (FPIC), mandated by the United Nations for projects involving indigenous peoples. FPIC is a principle, enshrined in international human rights standards, that states that all peoples have the right to self-determination and that all peoples have the right to freely pursue their economic, social and cultural development. Third, it does not provide guidance on how to “navigate power inequalities, divergent interests, and diverse cultures of communication and governance” [5].

This paper investigates how a critical take on corporate social responsibility shapes the ways in which engineering students conceptualize and critique the SLO. Drawing on pre- and post-surveys of 95 students who participated in our research, we explore: 1) how they defined the SLO; 2) whether and how those definitions changed as a result of their learning in the class; and 3) the extent to which they recognized that the SLO can hinder a company’s ability to authentically act with social responsibility. We conclude by providing recommendations for engineering educators who seek to contrast industry models for community engagement with those that are grounded in justice-based frameworks.

Introduction

Community engagement should be everyone’s job at a corporation. Unfortunately, it has rarely been seen within the skill set or responsibility of engineers. In fact, the NSPE Code of Ethics
tells us in Canon 2 not to perform services outside of our areas of competence [6]. It has become
increasingly clear that engineers will at least need to consider communities more centrally in
their work, if not engaging directly. The mining and oil and gas industries provide powerful
examples of the need to consider, engage, and center communities, bringing to the fore
challenges faced by engineers working in both industry and community development. More
general asymmetries in power between engineers and communities are especially stark in
contexts of mining and oil and gas development, especially when such development happens in
rural places, whether that be a gold mine in Colombia or an oil patch in rural Colorado.
As we discuss in greater detail below, the “social license to operate” came to dominate industry
parlance once companies realized that they may have received formal approval for their
exploration and operations from a government body without receiving approval or acceptance
from the people represented by those governments. The SLO became the way to avoid
community members stopping operations but fell short of the kind of meaningful community
engagement desired by many inside and outside of industry.

The SLO, interestingly, rarely comes into discussions of community engagement in engineering
education, though we share evidence below that suggests it is poised to play a larger role in this
arena. In this paper, we draw on a five-year NSF study of the intersection of corporate social
responsibility (CSR), engineering practice, and engineering education to investigate how a
critical take on CSR shapes the ways in which engineering students conceptualize and critique
the SLO.

At the same time as we signal serious limitations of the social license concept, we see a clear
danger in not addressing it in undergraduate training, given its growing presence in the
corporations where many of them will seek employment. Rather than ignore the term, we sought
to provide our students with the tools to critically approach it, with the hope that this would
position them to become more effective advocates for more meaningful community engagement
in their places of work and volunteering.

**Literature Review**

Many of the concepts and practices that inform engineering education first emerged in
management. For example, the term “stakeholder” emerged from the 1980s strategic
management movement as companies sought to clarify their accountabilities to multiple publics.
The term has now become ubiquitous even outside of the business realm, including in social
justice organizations and engineering education. As of January 1, 2021, a search for
“stakeholder” in the ASEE PEER repository returned 3,604 papers. While it may appear neutral,
the term stakeholder has been critiqued by social scientists for multiple reasons, including that it
can simplify the social world; that does not hold the same sense of rights and obligations as
might others, such as citizens; and that it can politically neutralize critics [7].
The “social license” is also a term that has its roots in the business world but is increasingly being used to conceptualize social perceptions of science and engineering. The term is usually loosely invoked to refer to public approval of a particular company or operation. Advocates for the social license define it as “the level of tolerance, acceptance, or approval of an organization’s activities by the stakeholders with the greatest concern about the activity” [2]. From its original use in the pulp and paper and mining industries in the 1990s, the term has since migrated to arenas as diverse as chemical manufacturing, pharmaceuticals, construction and biotechnology. One review found that the term “social license to operate” (SLO) appeared in fewer than 10 articles a year from 1997 through 2002, but in more than 2,000 articles in 2016 alone [3].

The term social license is seeping into engineering education, including humanitarian pursuits. Engineers Without Borders - Canada employs the social license term extensively in its Mining Shared Value initiative that seeks to support sustainable development for the communities that host mining projects by fostering more local procurement programs [8]. Louis Bickford, an adjunct professor of human rights at Columbia University, argued that a socially responsible engineering group should “‘map out the field and understand where they add value’ to obtain what is known as social license. The social license is not a physical license or form of documentation—it’s about showing a ‘demonstration that they have really consulted and engaged in dialogue with partners working on the ground, closest to the problem’” [9]. Pamela Wolf, a co-founder and CEO of the Engineering Leadership Council who is now an assistant professor teaching at the University of British Columbia, also advocates for socially conscious engineers to ensure that they have a “social license” for their projects [10].

Engineering educators, especially those with a commitment to social justice and sustainable development, should be cautious about the potential migration of the term from business to universities. The mining industry has been one of the strongest proponents of the term, and constructive critics argue that it can lead companies to focus on perceptions rather than outcomes and treat communities as risks to be managed, both of which the development of the more trusting and collaborative partnerships necessary to promote sustainable development [4]. The social license is often invoked to refer to acceptance in a general way, failing to provide guidance on how to “navigate power inequalities, divergent interests, and diverse cultures of communication and governance” [5]. Finally, the social license does not provide a clear framework for the people impacted by a business to hold that business accountable.

Responsibility for defining what acceptable levels of a social license are -- and assessing whether they have achieved such levels of acceptance -- fall to companies. The social license is a far cry from rights-based community engagement frameworks, such as Free, Prior and Informed Consent (FPIC), mandated by the United Nations for projects involving indigenous peoples [11]. FPIC is a principle, enshrined in international human rights standards, that states that all peoples
have the right to self-determination and that all peoples have the right to freely pursue their economic, social and cultural development.

**Methods**

This paper compares survey responses from students enrolled in two courses at the Colorado School of Mines, a public engineering and applied science university with a historical focus on the natural resource industries. *Corporate Social Responsibility* is an upper-division social science elective taken by engineering students from a variety of disciplinary specializations. Most of the students take the course to fulfill a humanities and social science graduation requirement, though many are enrolled in the school’s Humanitarian Engineering undergraduate minors. In contrast, *Petroleum Engineering Seminar* is a required course for petroleum engineering students that teaches CSR themes as part of its broader focus on professional development. Both courses are almost exclusively taken by graduating seniors. For the purposes of this paper, we analyze one semester of data. In Fall 2017 the Seminar course was taught by a professor who held both a PhD in petroleum engineering and a JD and was appointed to the Petroleum Engineering Department. The course was grounded in project-based learning in student groups, with a focus on practical application to student careers. The second author helped develop the course activities and assignments. In Fall 2017, the Corporate Social Responsibility course was taught by the second author, a cultural anthropologist and Science and Technology studies scholar who was appointed to a liberal arts department. Structured as a discussion-based seminar, the class involves students reading peer-reviewed social science research on the relationships between companies and communities, including those referenced in this paper’s Literature Review that critique the SLO concept, and engaging the texts through discussion and intensive writing.

In addition to these differences in the course structures and student enrollment, our previous research found that the students began and ended the courses with different opinions about CSR and desires for their future careers. The CSR course tends to draw students who already have a deep commitment to careers working for socially responsible corporations [12]. There is no clear dominance of one specific industry, sector, or discipline. In contrast, the students in the PE Seminar are all graduating PE seniors actively seeking careers or research in the oil and gas industry, but they demonstrate a much wider range of opinions about CSR and the importance of working for companies with positive reputations for social responsibilities.

These differences should be kept in mind when interpreting the survey data. Our data consist of pre- and post-student responses on a survey instrument that we developed and validated for a much larger research project on corporate social responsibility in engineering education. A detailed account of the survey instrument and the wider project can be found in our previous publications [7], [12], [13]. The survey questions we analyze here assess changes in students’
abilities to define the social license to operate (SLO), to gauge the extent to which a company had achieved an SLO, and to critique the role of the SLO in a company’s overall social responsibility efforts. They include:

9. What is the social license to operate? [open-ended, write in response]

We hoped that students would highlight community acceptance in their definition rather than formal permits granted by either governments or other stakeholders.

We first scored Question 9 definitions of the SLO with a 0, 1, or 2 based on the intentions of the modules and teaching about SLO:

<table>
<thead>
<tr>
<th>Score</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Defines the SLO as an actual license from the government or “I don’t know”</td>
</tr>
<tr>
<td>1</td>
<td>Considers the SLO is abstract, but more transactional than consistent approval</td>
</tr>
<tr>
<td>2</td>
<td>Centers community acceptance or approval of a business or project in the definition</td>
</tr>
</tbody>
</table>

After scoring, we compared the pre- and post- survey responses. We identified emergent themes from the written definitions and noted some changes in these definitions.

10. How does a company best know it has a social license to operate?
   A. It receives a permit from the appropriate local government authority.
   B. The community does not protest the company.
   C. Employees regularly talk with stakeholders to hear their views.
   D. I don’t know.

We had hoped that students would be more likely to select C at the end of a course, given that the social license is not a formal permit granted by government authorities (A) and that a lack of protests does not signal actual acceptance (B).

11. How does the social license to operate relate to CSR?
   A. The social license to operate should be the primary goal of a company’s CSR activities.
   B. The social license to operate should be one goal of a company’s CSR activities.
   C. A focus on garnering the social license to operate can treat communities as risks and therefore hamper a company’s ability to meaningfully engage them.
   D. The social license to operate is unrelated to CSR.
   E. None of the above
   F. I don’t know.

Response C best captures social science and industry critiques of the SLO concept. It signals that
the risk-management framework of SLO practices can actually hinder other engagement
techniques and goals, such as those that require trust in order to promote sustainable community
development. Response A collapses a company’s overall social performance goals with the
social license, while response B signals that a company could have multiple desired outcomes
from their CSR efforts. Response D denies that the SLO plays a role in CSR.

Results and Discussion

In this paper, we focus our analysis on responses from 95 students that completed the pre- and
post-survey: 78 students in the seminar and 17 in the CSR course, all from the Fall semester of
2017. We also analyze 23 additional responses defining the SLO from a Spring 2017 CSR course
to gain a broader perspective on students in that course, since it enrolls a smaller number of
students than does the Seminar.

Petroleum Seminar

Q9 - Definitions of Social License to Operate
More than half of the students (41) did not have a significant change in their response from the
beginning to the end of the course. Every one of these students already had an advanced
understanding of the SLO, perhaps because it had been taught in previous courses in their major.
Interestingly, the average score for the class overall remained almost the same from the
beginning to the end of the semester, even though 37 students actually changed their definitions.

Eleven students had a much less advanced definition by the end of the class, meaning that they
centered community engagement and acceptance at the beginning, but changed their definition to
reference a government-issued license or a more cynical take of “being nice enough to people.”
For example, Student 356 first defined SLO as, “The acceptance of locals that will enable a
project to run smoothly.” In the post-survey, they responded, “When the community's state of
mind is swayed to being happy with a company that puts them at risk.”

Seven students had a somewhat less advanced definition in comparison with their pre-course
survey. Some students dialed back stakeholder engagement away from community acceptance to
be more transactional. Others left out the community altogether, but still referenced health and
well-being. Student 375 shows this evolution: “The Social License to Operate is whenever a
company seeks to operate within a community for a particular project and asks for community
support through different events and meetings with residents,” and at the end of the course: “the
good grace of stakeholders that allows a company to continue operating.”

Seven other students went in the opposite direction and had a somewhat more advanced
definition by changing their response from licensure to including stakeholders somehow, or from
a general stakeholder engagement to gaining community acceptance. Student 377 notably
switched the responsibility of approval from the community in the pre- (“Only being able to operate in areas where communities want you”) to the corporation in the post (“It is an informal approval that allows a company to operate within the limits of a community by the members of that community or other groups that have a stake in that community”).

Twelve students defined SLO in a much more advanced way in the post-survey than they did in the pre-. This, of course, was the goal of the CSR intervention. Students changed their responses from “I don’t know” or a license from the government to community acceptance and even explicitly stating that the SLO is not a legal document. Student 339 is a good example who went from “If it is legal for a company to operate in that area” to “It is the acceptance of the community to the company to operate in their neighborhood.”

**Table 1: PE Seminar Definitions of the SLO**

<table>
<thead>
<tr>
<th>Change</th>
<th>Pre- Definition</th>
<th>Post- Definition</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>Community approval</td>
<td>I don’t know or government license</td>
<td>11</td>
</tr>
<tr>
<td>-1</td>
<td>Community Approval</td>
<td>Stakeholder awareness</td>
<td>6</td>
</tr>
<tr>
<td>-1</td>
<td>Stakeholder Awareness</td>
<td>I don’t know or government license</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>Community Approval</td>
<td>Community Approval</td>
<td>41</td>
</tr>
<tr>
<td>+1</td>
<td>I don’t know or government license</td>
<td>Stakeholder Awareness</td>
<td>2</td>
</tr>
<tr>
<td>+1</td>
<td>Stakeholder Awareness</td>
<td>Community Approval</td>
<td>5</td>
</tr>
<tr>
<td>+2</td>
<td>I don’t know or government license</td>
<td>Community Approval</td>
<td>12</td>
</tr>
</tbody>
</table>

Q10: How does a company best know it has a social license to operate?
We included this question in the survey as a further check on student understanding, specifically to see if students could correctly identify “engaging stakeholders” rather than relying on a government permit or being satisfied with a “lack of protest.” We hoped that students would be able to see that simply not actively protesting a company is not evidence of quality relationships or acceptance.

Twenty-six students had the same responses from the beginning to the end of the course, but these split into fourteen that kept an advanced definition of regular discussion with stakeholders, seven that the community does not protest, and 5 that continued to believe SLO was provided by the government. Twenty-three students had less advanced responses from pre- to post-. Seven went from regular conversations with stakeholders to a government permit (much less advanced). Those who had a less advanced consideration of the SLO split between being in regular conversation with the community to not being protested (10), and no protest to acquiring
a government permit (6). Twenty-nine students had a more advanced way of thinking about the SLO. Three went from a government license to community not protesting, eighteen from community not protesting to regular conversation, and eight more that made the leap from government permit to community conversations.

Table 2: PE Seminar Responses to How a Company Knows it Has the SLO

<table>
<thead>
<tr>
<th>Score change</th>
<th>Pre- response</th>
<th>Post- response</th>
<th># students</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>Engaging stakeholders</td>
<td>Government permit</td>
<td>7</td>
</tr>
<tr>
<td>-1</td>
<td>Engaging stakeholders</td>
<td>Lack of protest</td>
<td>10</td>
</tr>
<tr>
<td>-1</td>
<td>Lack of protest</td>
<td>Government permit</td>
<td>6</td>
</tr>
<tr>
<td>0</td>
<td>Engaging stakeholders</td>
<td>Engaging stakeholders</td>
<td>14</td>
</tr>
<tr>
<td>0</td>
<td>Lack of protest</td>
<td>Lack of protest</td>
<td>7</td>
</tr>
<tr>
<td>0</td>
<td>Government permit</td>
<td>Government permit</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Government permit</td>
<td>Lack of protest</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>Lack of protest</td>
<td>Engaging stakeholders</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Government permit</td>
<td>Engaging stakeholders</td>
<td>8</td>
</tr>
</tbody>
</table>

Q11: How does the social license to operate relate to CSR?
We included this question on the survey to provide students a space to demonstrate critical thinking about the SLO concept rather than simply providing a definition (Q9) or explaining how it is assessed (Q10). We had hoped that more students would be able to see that because the SLO concept is based in a risk management approach to communities, it can actually harm other community engagement goals, such as promoting sustainable development. While this was the most radical critique of SLO, we also included a more tempered question response that would allow students to mark the SLO as distinct from other social performance goals. Our efforts to cultivate a more critical take on the SLO were complicated by dominant industry messaging that the SLO is the gold standard for community engagement and does not present risks to other social performance goals.

Of all the possible ways that students could have changed their ideas in response to this question, they clustered around three changes, with a significant fourth. Twenty-five students had a more industry-focused attitude, going from the SLO as one goal of CSR efforts to SLO as the primary goal of CSR efforts. Eighteen students answered the same in the pre- and post- with the SLO being one goal of CSR efforts. Another nine also kept their answers the same in considering the SLO to be the primary goal. Thirteen students went from thinking that the SLO was the primary
goal to one goal amongst many. Only seven students selected the critique of the SLO as limiting to authentic community engagement in the post-survey, compared with 36 that selected the SLO as the primary goal.

The table below shows all the variations of pre- and post- responses. ‘Community as risk’ is the preferred answer corresponding to C in the Methods above.

Table 3: PE Seminar Responses to How the SLO relates to CSR

<table>
<thead>
<tr>
<th>Change</th>
<th>Pre-survey</th>
<th>Post-survey</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>Community as risk</td>
<td>Primary goal</td>
<td>1</td>
</tr>
<tr>
<td>-2</td>
<td>One goal of CSR</td>
<td>I don’t know / unrelated</td>
<td>2</td>
</tr>
<tr>
<td>-1</td>
<td>Community as risk</td>
<td>One goal of CSR</td>
<td>0</td>
</tr>
<tr>
<td>-1</td>
<td>One goal of CSR</td>
<td>Primary goal</td>
<td>25</td>
</tr>
<tr>
<td>-1</td>
<td>Primary goal</td>
<td>I don’t know / unrelated</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>Community as risk</td>
<td>Community as risk</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>One goal of CSR</td>
<td>One goal of CSR</td>
<td>18</td>
</tr>
<tr>
<td>0</td>
<td>Primary goal</td>
<td>Primary goal</td>
<td>9</td>
</tr>
<tr>
<td>0</td>
<td>I don’t know / unrelated</td>
<td>I don’t know / unrelated</td>
<td>0</td>
</tr>
<tr>
<td>+1</td>
<td>I don’t know / unrelated</td>
<td>Primary goal</td>
<td>1</td>
</tr>
<tr>
<td>+1</td>
<td>Primary goal</td>
<td>One goal of CSR</td>
<td>13</td>
</tr>
<tr>
<td>+1</td>
<td>One goal of CSR</td>
<td>Community as risk</td>
<td>4</td>
</tr>
<tr>
<td>+2</td>
<td>I don’t know / unrelated</td>
<td>One goal of CSR</td>
<td>1</td>
</tr>
<tr>
<td>+2</td>
<td>Primary goal</td>
<td>Community as risk</td>
<td>3</td>
</tr>
</tbody>
</table>

**Corporate Social Responsibility Course**

Seventeen students took the CSR course in Fall 2017. To show some diversity between semesters and increase the number of student responses analyzed, we also include the Spring 2017 cohort here for definitions of the SLO. We do not include analysis for Q10 and Q11 from Spring 2017 because it used an earlier version of the survey that did not include them; we added Q10 and Q11 in the Fall 2017 survey to dig further into student conceptions of the SLO.

Q9: Definitions of the Social License to Operate
In Spring 2017, 23 students completed both the pre- and post- surveys. Eleven students had
advanced definitions upon entering the course (Student 17: “A social license to operate is basically gaining the acceptance of the surrounding community/people in whatever business venture is taking place”). Three students had definitions that were more about ethical practices, and the other nine responded either “I don’t know” or considered the SLO formal or related to compliance (Student N1: “The formal agreement that companies will adhere to performance standards”). By the end of the course, all 23 students had advanced definitions of SLO centered on community acceptance. The same Student N1 responded with this definition: “The acceptance and support of a community toward a company's operations.”

In Fall 2017, eleven of the seventeen students had advanced definitions of SLO coming into the course, primarily focused on community acceptance, and left with a similar definition. Some did have a more detailed definition, such as Student 226 who defined SLO as “When local communities approve of the operation at hand” in the pre-survey, and “ongoing acceptance of a company or industry's standard business practices and operating procedures by its employees, stakeholders and the general public” in the post-survey. Two students did not include the community as the stakeholder who approves of a company’s operations, and four more chose not to try to define the SLO in the pre-survey.

All seventeen students had an advanced definition of SLO by the end of the course. One good example of advancing understanding is Student 231, whose pre-course definition did not include the community at all, “A license that a business has to obtain to operate.” By the end of the course, they defined the SLO as “a verbal contract between a company and the community in which it plans to operate, allowing the company to conduct its business in that place.”

Q10: How does a company best know it has a social license to operate?
In responding to the question, “How does a company best know it has a social license to operate?,” students showed a wide array of responses in the pre- and post-surveys, as well as between surveys, as seen in the below table. Only four students had the same answers in the pre- and post- surveys. Four went from believing a company knows it has an SLO through community engagement to a lack of protest. Four others went from thinking the SLO was a government permit to discussions with community members as the way a corporation knows it has the SLO at that time. While none of the students believed that the SLO came from the government at the end of the class, almost half still considered the absence of protest good enough to indicate the SLO.

<table>
<thead>
<tr>
<th>Score change</th>
<th>Pre- response</th>
<th>Post- response</th>
<th># students</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>Engaging stakeholders</td>
<td>Government permit</td>
<td>0</td>
</tr>
<tr>
<td>-1</td>
<td>Engaging stakeholders</td>
<td>Lack of protest</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 4: CSR Course Responses to How a Company Knows it has the SLO
Q11: How does the social license to operate relate to CSR?

With only seventeen students in the CSR course, the changes did not cover the full spread of options, but still many different ones considering that they all had a more advanced definition of the SLO in the open-ended question. Five students kept their answer of the SLO being one goal of CSR, and three others came to that understanding from the SLO being the primary goal. In comparison, five students also selected the critique of the SLO, that it leads companies to consider communities as a risk to be managed and gets in the way of meaningful engagement. Clearly this critique was evident in the class, as students arrived at this understanding from SLO being part of CSR, the primary goal of CSR, and even not knowing at all how the two are related.

<table>
<thead>
<tr>
<th>Change</th>
<th>Pre- survey</th>
<th>Post- survey</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>Lack of protest</td>
<td>Government permit</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>Engaging stakeholders</td>
<td>Engaging stakeholders</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>Lack of protest</td>
<td>Lack of protest</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>Government permit</td>
<td>Government permit</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Government permit</td>
<td>Lack of protest</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>Lack of protest</td>
<td>Engaging stakeholders</td>
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<td>2</td>
<td>Government permit</td>
<td>Engaging stakeholders</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 5: CSR Course Responses to How the SLO Relates to CSR
Comparison between Petroleum Seminar and Corporate Social Responsibility courses

While hard to determine the cause, we did notice that in the open-ended responses, some of the language was very similar between students in the CSR course. This seems to indicate that they internalized and were able to repeat a definition. It is for this reason that we included Q10 and Q11 in the follow-up survey, in order to provide a space to see if students could correctly define the SLO while also demonstrating an ability to critique its limitations.

Our analysis of the student survey data suggests that students in the social science course were more likely to correctly identify the SLO as being an informal approval given directly by communities. In contrast, a significant number of students ended the Petroleum Engineering seminar by focusing on government permits, which do not necessarily encompass the needs and desires of its most marginal constituents or those most affected by an industry. We suspect that this could be because the course content focused on government compliance and was taught by a professor with legal training. In contrast, the CSR course was taught by a social scientist whose research focuses more on community stakeholders rather than government institutions and processes.

Students in the social science course were also more likely to demonstrate a more critical take on the SLO concept, viewing it as either one goal of community engagement among others or even as a risk-based activity that could endanger other goals. The petroleum engineering students, in contrast, were more likely to actually end the course with a more industry-focused take on the SLO. This could be because the focus of the seminar is professional development within an industry-focused context, in terms of both the course assignments and guest speakers. This raises the interesting question of whether and how students can transition into an industry while maintaining a critical eye to its central ethical tenants.

While in this paper we have compared student responses in the two courses with an eye to comparing the different kinds of instruction and course content, it is also true that these are two very different groups of students. This means there are likely other factors that influence the differences we observe. For example, the petroleum engineering students had experienced extreme highs and lows in their own future employment options, which faculty observed influencing their views of companies and those companies’ relationships with communities. When they arrived on campus in 2014, the price of oil was at near record highs, above $100 a
barrel [14], and they witnessed their peers receive multiple lucrative internship and job offers. By Spring 2016 it was only $37 a barrel, making internships almost impossible to find, and by Fall 2017, it was between $50 and $60 a barrel, and jobs were still difficult to find. In 2016 these students also witnessed the worldwide protests over the Dakota Access Pipeline in North Dakota, when activists around the world supported members of the Standing Rock tribe to protest its construction, citing injustices in the planning and consultation process, potential environmental contamination of their water, and the expansion of fossil fuel infrastructure that would hasten climate change [15], [16]. Some students made strident critiques of the main corporation behind the pipeline, Energy Transfer Partners, but others viewed the protesters with disdain and felt personally attacked by the uprising.

While this university’s students in general were aware of boom-and-bust oil prices and the Dakota Access Pipeline protests because even students in other majors pursue careers in the oil industry, those with other majors were more able to imagine and pursue different career options when employment in that industry became unviable and publicly vilified. We therefore signal that the things we observe in the Petroleum Engineering Seminar students are likely influenced by the students’ perception of current events and their changing employment fortunes.

Limitations

As with any study, there were some limitations that lead us to recommend that these concepts, and the teaching of them, be considered for other majors and engineering disciplines. The two courses are very different in content and delivery method, as they serve different roles at Mines. Obviously, there were many more students in the petroleum engineering seminar than the CSR social science course, and the student profiles of each course were very different. We also did not consider demographics for this round. For reference, the CSR class typically enrolls equal numbers of women and men, but petroleum engineering has many more men. We know that social responsibility attitudes vary by gender, and women score a full point higher on a 7-point socially responsible engineering scale [17]. These differences should be kept in mind.

Conclusions

While the SLO has not (or not yet) been integrated in the mainstream of humanitarian- and community development-focused engineering projects or student learning in this area, we offer this paper to signal the importance of training students to be aware of and think critically about industry concepts. The concepts that we use in our teaching and service projects often originate in industry, as illustrated by the now-ubiquitous case of “stakeholder” and its potential depoliticizing effects. This means that hidden assumptions and politics can animate these concepts unless we make them visible. As the SLO continues to rise in prominence, it is possible
that this particular term could migrate more strongly into engineering education and practice, as suggested by the quotes from the engineers promoting social justice. While the term has an aspirational signal of the importance of community -- rather than simply governmental -- approval and/or acceptance, we also showed that it has multiple limitations that should raise concern among engineers seeking to improve community engagement. It is not a rights-based framework, which leaves the power to define, manage, and enforce a “social license” to companies themselves. It does not include provisions for managing power differentials and it can lead proponents to focus on improving community perceptions rather than outcomes, all crucial concerns for projects seeking to advance social justice or community development. Students ought to be aware of these limitations of the SLO concept when they encounter it in their professional lives.

For engineering educators inside of industry-focused programs, we highlight a potential double bind. Students who are already skeptical of the importance of community engagement or acceptance may view even a relatively industry-focused concept such as the SLO as a radical and inappropriate imposition on business practice, as suggested by some of the colorful responses to the survey questions in the petroleum engineering course. Teaching those students to be critical of the SLO has the risk of actually undermining the little buy-in they have into thinking about community wellbeing. If the SLO is as much as they are willing to acknowledge the importance of community acceptance, impugning the concept runs the risk of turning them off from community acceptance as a whole. We have found that teaching students the business value of community acceptance can lead to greater uptake of social justice and community development concerns, but it runs the risk of instrumentalizing those outcomes.

For this Community Engagement Division, we believe integrating this SLO concept into teaching would be valuable. An increasing number of engineering students and professionals are wondering how to take their passions of using engineering to facilitate improvements to community well-being. Familiarity with industry concepts and processes like the SLO may allow engineers to identify opportunities for enhancing community engagement towards the advanced concepts described in this paper. This can be one effort amongst many others needed to bridge community-engaged engineering education with industry practice.

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Bibliography


