

Vice Chancellor for Operations and Technology Transfer
Professor of Engineering Practice

June 27, 2019

Andrew Toole, PhD
Office of the Chief Economist
Mail Stop OPIA
U.S. Patent and Trademark Office
P.O. Box 1450
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Dear Dr. Toole,

Washington University appreciates the opportunity to provide comments under the “Study of Underrepresented Classes Chasing Engineering and Science Success Act of 2018” (SUCCESS Act). Washington University is a major research institution comprised of a top ten ranked medical school and a strong engineering school with a collective sponsored research fund of greater than \$700 million. The university has almost 4000 faculty members, of which 33% are women and 11% are minorities. The perspective brought by our institution highlights that of the university, where many inventors in industry, startups and non-profits get their start in research and scientific training – and where these individuals should gain exposure to patenting and commercialization of research findings.

The SUCCESS Act is imperative because there is a clear disparity in how women and under-represented populations engage in patenting, as well as commercializing their research findings. At the university level, the research around the disparity of women inventors goes back decades. Early studies indicated women were 35-40% less likely to file an invention disclosure, the first step in the university inventing process¹, or patent their work². Years later, these statistics had not changed and women continue to be underrepresented in disclosing and patenting their work³⁻⁶. The body of studies around minority engagement in patents contains fewer references than around gender, but nonetheless shows a similar gap in how underrepresented minorities approach patenting and commercialization.

Despite the disparity, there is a body of work that details the reasons we see gaps, and some groups have capitalized on these factors in modeling programming that could attempt to close the gap. Understanding the “why” behind the disparity is critical to addressing the problem and finding a solution. Several papers corroborate the evidence of rationales for differential participation in the patent and commercialization system between genders⁷⁻⁹. While there are varying factors weighing in, certain of these are easy targets to tackle, including:

- Teaching- addressing the knowledge gap in underrepresented populations around patenting and entrepreneurship;
- Connecting- aiding underrepresented populations to establish meaningful networks that enable their penetrance into patenting and other commercialization areas like venture funding or sourcing accelerator and incubator opportunities, for example;
- Relating- providing examples of successful individuals who identify in these underrepresented populations; and,
- Inviting- finally making a very clear invitation to underrepresented populations to participate in patenting and commercializing their discoveries and ideas.

Through government grants like the NIH ADVANCE and NSF AWARE grants, certain universities have created curricula and support structures around training underrepresented populations in innovation and entrepreneurship, while other institutions like Washington University in St. Louis have independently

established programs to engage and educate their underrepresented groups around patenting and commercialization of research. However, the incentive and merits of universities piloting efforts in diversifying inventors and entrepreneurs at their institutions has not been universally adopted, as evidenced from the limited number of institutions with actual programs in this space, suggesting that a large number of academic entities have not yet made the correlation to see advantages for them. Additionally, most institutions have not yet made the investment in or prioritized taking on diversity and inclusion efforts in the innovation space. Yet, with enough examples of model programs directed to underrepresented groups, other institutions have models that could work for their specific needs and individual institutional culture. It is this reality that underscores the importance of the domain touched upon by the SUCCESS act.

It is important to understand the benefits of diversity programming at the university level. Washington University was a pioneer in establishing an innovation-focused training program in 2014, which is called WIT: Women in Innovation and Technology. We started with programming specifically to women because of the density of faculty as compared to minorities, which enabled us to track meaningful data before and after the start of WIT. In the early phase of the grant, the university took a hard look at our data pertaining to female participation in our own technology transfer office, and we built a program to address the barriers to participating in innovation. Thus, the critical factors in WIT provide the education around patenting and commercializing technology, showcase women who have commercialized their work through startup companies or direct licensing to existing companies, and provide opportunities for participants to grow their networks with individuals who can actively help with strategic direction, capitalization, and/or connections. Critically, though, WIT relies on the invitation to participate. The technology transfer office at Washington University actively solicits names of women who would benefit from WIT, making calls and stopping by offices to provide personalized invitations with specific reasons why we believe she is a good candidate to participate.

The initial model for WIT relied on a cohort model to build a membership, but in the last 3 years, the university has moved to modular programming which engages more than 150 women each year, graduating women as they leave for post-docs or faculty positions at other institutions, and allows the university to tailor offerings that reach those new to innovation and those who need deepened content. Now a typical year starts off with an annual kick-off event that brings all past and new participants together, as well as a full day symposium designed to address barriers and find solutions that enable women to engage in patenting and commercialization of their research. Additionally, very specific and topical programming is provided throughout the year that enables smaller groups of women to come together around an industry representative or a venture capitalist in an environment that promotes asking questions and growing knowledge.

Differences in statistics to measure effectiveness could be seen after 3 years of WIT programming. Over that time period, we saw a rate of new women innovators engaging in technology transfer activities compared to new male innovators. Traditional signs of engagement in technology transfer also showed differences. When WIT started, just over 30% of disclosures listed a female innovator. In our 2018 fiscal year reporting, 50% of invention disclosures listed a female innovator. Patent filings have also increased from 35% listing a female inventor to 43%. Additionally, Washington University now has role models of women who are founders of university startup companies or who have meaningful engagement in technology-focused startup. When WIT started, not a single female faculty member had started a company. Now we have 4 women who are examples of faculty entrepreneurs – 2 who are company founders and 2 where the startup has in-licensed her intellectual property and where she is the inventor and on the board or engaged in another meaningful capacity.

In 2018, our program was recognized by the Association of American Medical Colleges, receiving the first place award for Innovations in Research and Research Education. Also, the early outcomes of WIT

were published in the Technology and Innovation Journal out of the National Academy of Inventors so that other universities could see that efforts can be meaningful¹⁰.

Despite the institutions, like Washington University, working hard to enable diversity and inclusion in university inventors and entrepreneurs, the push across the country at universities is not enough and no substantive and aggregate data exists in order to track and benchmark outcomes. The Association of University Technology Managers (AUTM) has been working to create awareness around the problem, specifically to women engaging in the patenting and commercialization process. AUTM through its Women Inventors Special Interest Group has made an earnest attempt to convince university tech transfer offices to track gender. To this end, the group has successfully convinced AUTM to put questions relating to gender on its annual survey of technology transfer offices. For the last 3 years, TTOs have been encouraged to submit how many invention disclosures, which is the very start of the process for a university innovator, and how many patents have a woman listed on them. The AUTM women inventors group has helped TTOs understand barriers of the problem too, and produced a toolkit for institutions to start their own diversity programs. Yet, this data is not publically available and it's unclear just how many universities are reporting this data and have done so for all 3 years. Moreover, an even more limited number of universities are thinking about tracking ethnicity, race, and veteran statistics, each of which exist within the university human resource system and could be matched up to patenting and commercialization statistics maintained by technology transfer groups.

Thus, the USPTO could represent a real partner of academic institutions to drive the conversation around diversity and inclusion and help institutions to better engage underrepresented minorities, women, and veterans in patenting their research. To this end, the USPTO has the opportunity to be the driver that:

1. Strengthens partnerships with academia to educate women, minority, and veteran graduate students, post-doctoral fellows, and faculty around patenting and entrepreneurship;
2. Enables opportunities for underrepresented academicians to find and build networks and branch points to individuals or companies that can support their efforts to patent, license or start a company;
3. Engages high level administration at universities to establish the importance of this topic and communicate the variety of ways to attract and retain underrepresented researchers and innovators and how to enable these individuals to become inventors and entrepreneurs; and
4. Tracks dynamic data in the USPTO system in order for the USPTO to make a clear statement that diversity of inventors is important and provide a source for institutional benchmarking. While certain data around individuals may be sensitive, requiring this data and keeping it confidential in the USPTO system would give assurances to inventors to provide sensitive information and enable a robust dataset for benchmarking against progress.

Sincerely,



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Citations:

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