Using Peer Observation to Branch into STEM Curricula Through Patent Education

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Using Peer Observation to Branch into STEM Curricula Through Patent Education

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Sandy Avila, Science Librarian
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University of Central Florida Libraries

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Meet the team

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Instruction & Engagement Librarian

Rebecca “Missy” Murphey
Patent & Trademark Resource Center (PTRC) Librarian

Sandy Avila
Science Librarian

Ven Basco
Engineering Librarian
Agenda

- Information about our peer observation group and background on peer observation of library instruction
- Introduction and background on patents
- Case study examples of infused patent and subject-related instruction
- Outreach efforts and integration of patent literacy into library instruction
- Future plans
Peer observation
Group details

- Fall 2019
- Idea generated from an article (Dimmit, Maxwell, & Nesvig, 2019) discussed at an Instruction Team meeting
- Voluntary group composed of librarians who did not supervise other librarians
- Formative feedback, not meant to be included in official evaluations
- 8 librarians from 3 different departments, representing a range of subject areas
Peer observation and library instruction

- Standard practice for instructional faculty in higher ed, but it’s relatively new to library instruction
- Variety of terminology: peer observation, peer review, peer evaluation, peer coaching, etc.
- Offers an opportunity to receive feedback from colleagues and also to see what colleagues are doing in the classroom
- Need to clarify purpose of the group, who will be involved, and how the feedback will be used
- Importance of establishing an environment of trust, respect, and confidentiality
Recommended structure

- **Orientation meeting**: background on peer observation, discussion of the process, guidelines for observations, strategies for giving and receiving feedback
- **Pre-observation meeting**: librarian and observer meet to discuss objectives of the session, what the librarian would like the observer to focus on, the observer’s role
- **Observation session**: observer attends session and takes notes
- **Post-observation session**: librarian and observer debrief (takes place as quickly after the observation session as possible)
- **Final group meeting**: recap of experiences, reflection on lessons learned, informal evaluation of the process and what could be improved
UCF as a PTRC

Patent and Trademark Resource Centers (PTRCs) are part of a network of U.S. libraries designated by the USPTO to:

1. Provide free access to patent and trademark resources provided by the USPTO
2. Assist the public in the efficient use of patent and trademark information resources

Staffed by librarians, not attorneys

• Cannot provide legal advice
• Cannot conduct patentability or trademark clearance searches
What is a patent?

A **PATENT** is a property right granted by the Government of the United States of America to an inventor “to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States” for a limited time **in exchange for public disclosure of the invention when the patent is granted.**
What can be patented?

Anyone who invents or discovers any new and useful

• Process
• Machine
• Manufacture
• Composition of matter

or any new and useful improvement thereof, may obtain a patent

The details of an invention are published when granted
Why use patent information?

- Ensure your research is unique
- Determine patentability
- Avoid infringing on others’ patents
- Discover usable technology from:
  - Applications for patents not granted
  - Patents abandoned or expired
Why patents? (cont’d)

• Familiarize yourself with people and organizations working in your area of interest
• Learn what your competitors are working on
• Identify trends and recent developments in your field
• Gain perspective on the problem you are working on
• Identify key articles, reports, patents, and other resources.
Jeffrey P. Bezos
Seattle, WA, US

MOST CITED PATENTS

1. Method and system for placing a purchase order via a...
   1,952 Citations
2. Internet-based customer referral system
   1,457 Citations
3. Secure method and system for communicating a list of credit...
   689 Citations
4. Secure method for communicating credit card...
   472 Citations
5. Computer services for assisting users in locating and...
   375 Citations

INVENTOR, PATENT, ASSIGNEE RELATIONSHIPS

Amazon Technologies, Inc.
12,615 Patents

This Inventor • Patent • Assignee
Why patents and not scholarly articles?

• Covers research performed outside academia
• Competitive intelligence not published elsewhere
• Patent specifications have to provide enough information that someone of “ordinary skill in the art” can replicate the process
  • Written detailed description
  • Not only drawings, but flowcharts, spectrometry, chemical structure, genetic codes, much of which you won’t find in articles
Parts of a patent

- Title Page = bibliographic info:
  - Inventor
  - Assignee

- Abstract

- Specifications

- Background

- Detailed description

- Drawings

- Claims

- Cited patents and Non-Patent Literature (NPL)
How are patent searches used by students?

1. Determine patentability

Florida & PR Pro Bono program requires a PRIOR ART SEARCH retrieving 3-10 relevant inventions
2. Judging criteria for competitions
3. Senior engineering design projects

- Literature review
- Patentability search
- Freedom-to-operate search (if they wish to commercialize the product, so they don’t infringe on existing patents)
Patents (and trademarks) in the classroom

Biochemistry
Chemistry
Practicum in Entrepreneurship
Electrical/Computer Engineering Design
Legal Studies
Product Design
Science, Technology and Contemporary Issues
Optics
Collaborative instruction
Peer observation meets patent literacy

- Science Librarian and PTRC Librarian are partnered up to do joint peer observation.

- Patent education need is apparent during a face to face science related library instruction in a Biology course: Urban Ecological Field Studies.

- Future plans were made to incorporate patent library instruction in other STEM related classes.

https://pixabay.com/photos/to-join-project-pixworm-cooperation-5266708/
“Biological Research Methods & Experimental Design” course

- Face to Face course co-taught by Science and PTRC Librarians in Fall of 2019 during 1st instruction offering

- Research Intensive Course Designation- heavy undergraduate research component

- Outcomes: additional group project instruction sessions and research consultations

https://pixabay.com/photos/experiment-research-laboratory-5607399/
“Frontiers in Optics” course

- Online synchronous co-taught course in Fall of 2020
- PTRC Librarian invited after three previous years of instruction offerings
- Patent literacy focus on assisting entrepreneurial spirit in the field of optics/photonics
- Outcomes: patent related research consultations

Outreach efforts
Faculty support: New patent & trademark video
“Engineering Senior Design” course

- Spring & Fall Semesters - Senior Design Showcase
- Student-made innovations and so much more in a showcase of projects created by teams of graduating seniors of the UCF College of Engineering and Computer Science.
- Entire senior year, students work with faculty advisors to explore project ideas, collaborate with teammates, work with sponsor clients, develop proposals and timelines, design, build and test prototypes, and showcase their creations.
- The projects demonstrate students' knowledge and application of engineering and advanced computing concepts, provide solutions to real-world problems, many of which are industry-sponsored.

https://www.cecs.ucf.edu/senior-design-hub/
Patent information in LibGuides

OSE 4930 - Frontiers in Optics
EIN 4891C - Industrial Engineering Senior Design
Engineering Research Skills
ESI 4523 - Systems Simulation
Future plans

- Continuing to build on integrating patents into STEM related library instruction
- Moving into next phase of peer collaboration with a Peer Review of Instruction Materials group
- Developing an asynchronous patent literacy education module collaboration
- Planning and coordinating USPTO programming to help increase awareness/visibility of patents
References


Thank you for watching!

Feel free to contact our team

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