

## **The socially responsive design for a library catalogue and thesaurus in a non-profit community organization (Toronto, Canada)**

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### **Abstract:**

*The thesaurus was developed for a library catalogue in a legal aid clinic in Toronto (Canada). This organization assists low-income injured workers with worker's compensation claims appeals. A small non-profit with limited resources, it has been actively engaged for nearly fifty years in advocacy and law reform. Its commitment to social justice is also advanced through its work in public legal education, participatory research and community organization, including support of self-help groups. The library serves as an archive of the social history of injured workers' movement in Ontario, as well as a working law library. The library collection has been developed since the clinic's establishment in 1969. It includes not only commercially published literature, but also a substantial proportion of grey literature covering a unique range of materials on workers' compensation in Ontario, the struggles, historical and current, to improve the system and its impact on injured workers' lives and well-being.*

*The library catalogue is online and made available to the public through a link on a website for injured workers. It is intended to be easily maintained by a community organization that may not have a full-time librarian and/or professional cataloguer. All cataloguing is original and full-level, and the bibliographic records also include tables of contents and annotations to improve access to materials through keyword search. All records are also indexed with subject terms drawn from a customized thesaurus, at present linked to the library catalogue as a static pdf file. The thesaurus, built on freeware, aims to make accessible a specialized terminology and examine its complex meanings and many underlying biases.*

*Our presentation focuses on the stories behind many subject terms in the thesaurus. While many existing sources were used in constructing the thesaurus, it has become clear that much of this vocabulary, such as the term "entitlement", has specific biases and social sensitivities. The library users include lawyers, researchers, and injured workers from a multicultural population with many non-native English speakers. We discuss the challenges in developing a socially responsive thesaurus to meet the needs of this diverse range of users:*

- *How can both the literary warrant vs. user preferences and sensitivities be best incorporated into a thesaurus entry?*
- *How should one define the primary user group?*
- *What are feasible means for evaluating alternative terms?*
- *How can the thesaurus reflect historical contexts and meanings?*

*Technologies for thesaurus construction and display carry their own challenges as well. An earlier initiative to build and evaluate a thesaurus for the clinic's library catalogue used the techniques of Vicente's and Mai's Cognitive Work Analysis to analyze organization work domains and the selected terms. We present case studies of selected thesaurus terms, addressing socially responsive structure of an entry and technological issues of dynamic implementation and sustainability. We discuss how a thesaurus as a form of controlled vocabulary can also become an educational tool for diverse user groups. The implications for creating a transferable and scalable model for community-based organization of knowledge are discussed.*

**Keywords:** thesaurus, special library, socially responsive design, workers compensation, Cognitive Work Analysis

## **Introduction**

This paper presents an overview of a project funded by the Law Foundation of Ontario to create a workers' compensation thesaurus for the library of Injured Workers Consultants (IWC), a community legal aid clinic based in downtown Toronto. The challenge was to develop a thesaurus within a modest budget, one that could be easily maintained by volunteers or staff with little or no librarian training, and most importantly, one that met the diverse needs of its various user groups.

### **IWC Library and collection**

For over 40 years Injured Workers Consultants has been engaged in assisting low-income workers free of charge with their workers' compensation claims, advocacy for law and policy reform, public legal education and community organizing. Although unable to fund a permanent librarian, the Clinic staff have always placed a high value on library as a resource for its work and has over the years built up a unique collection. The library serves as a working law library, repository for research project materials and archive of the social history of Ontario's injured workers movement. Core topics covered by the collection are administrative law, workers' compensation, occupational health and safety. The scope is broad, with materials ranging from published from legislative committee submissions to virtual exhibitions to newspaper clippings.

In 2007 the Clinic received a project grant from the Law Foundation of Ontario for library projects including development of a specialized in-house thesaurus which is now available to the public, together with the online catalogue, at *injuredworkersonline.org* website (<http://www.injuredworkersonline.org/Library/library.html>)

### **Key considerations in developing our thesaurus:**

- Low-cost, user-friendly software, able to generate a version for online public access. We chose the freeware thesaurus program [TheW32](http://publish.uwo.ca/~craven/freeware.htm), (<http://publish.uwo.ca/~craven/freeware.htm>) developed by Timothy Craven, professor of Western University Faculty of Information & Media Studies. It is a 32-bit Microsoft Windows program with an alternative Java application, customizable with exploded term and graphic display options, link-type incompatibility checks but no pre-set feature for identifying orphan terms. The default structure template and report formats proved adequate for our initial goal.
- Flexible structure to accommodate different levels of specificity; limited size, for ease and consistency in use and maintenance. Our chosen model was the Australian Occupational Health and Safety Thesaurus, selected for its related subject matter, hierarchical and alphabetic structure, and preference for single concept terms that would keep the thesaurus “as simple and as short as possible, as well as to make indexing and searching more flexible” (Australia. National Occupational Health and Safety Commission, 2003, p.3). Currently the IWC Thesaurus has approximately 1500 terms.
- Useful to diverse user groups, including those unfamiliar with workers’ compensation and medico-legal terminology by providing context, background details and plain language definitions when required; clarify meaning in the language of bureaucracy where terms may be deliberately vague and confusing or their application constantly shifting. We therefore added scope notes to the Australian model.
- Responsive to the values of IWC: terminology should counter socio-cultural biases and stereotypes that through the history of workers’ compensation have stigmatized the injured worker; it should take into account historical and connotative meanings. If literary warrant might give unwanted legitimacy to a pejorative term it would not be used as the basis for selecting the preferred term (e.g. “psychological disability” would be chosen as the preferred term, with the derogatory “compensation neurosis” included as a non-preferred term, with further explanation in the scope note; methods used to evaluate and maintain the tool should reflect IWC’s culture of collaboration and participatory decisionmaking

### **CWA thesaurus evaluation**

The workers’ compensation discourse in Ontario demonstrates the tension between two social practices. On one hand, the bureaucratic legal and administrative system is increasingly influenced by the new “private insurance mentality” in workers’ compensation law. In contrast, the injured workers’ community is committed to values of social justice and fair compensation. These differences come with a matching vocabulary.

A framework particularly well-suited to analyzing work dimensions that affect the components of information systems, including thesaurus terms and their relationships, is Cognitive Work Analysis (CWA). CWA was originally developed by Vicente (1999). At the heart of CWA is the

notion that information-seeking behavior of actors is shaped by constraints along 5 dimensions, from the most general on the outside, to the most actor-specific. Cognitive analysis of work is conducted along each dimension as: 1) analysis of work environment, 2) analysis of work domain, 3) organizational analysis, 4) activity analysis, 5) analysis of actor characteristics. The application of CWA to design of controlled vocabularies is discussed by Mai (2008) who argues for a need to study “goals and usage of documents and of controlled vocabularies’ purposes” in the context of work (Mai 2008 p. 18).

The first author, who had also worked as a student volunteer at IWC, was hired to analyze the work environment at IWC and to evaluate the thesaurus. For our thesaurus evaluation project, we conducted user interviews and word association tests as discussed below.

### **CWA User Interviews**

A questionnaire was constructed, based on a sample questionnaire designed on CWA principles (Mai, personal communication). The sample CWA questionnaire, intended for a large organization, consisted of 57 questions. Our questionnaire, modeled on it, was organized along the essential CWA dimensions, and consisted of 16 questions addressing: user characteristics (Questions 1-3); tasks (Questions 4-7); cognitive decisions (Questions 8-11); and collaboration and organization structure (Questions 12-16), as shown in Fig. 1.

Two interview rounds took place. First, one of the authors (LS) conducted one-on-one interviews with several IWC staff members. In the second round, a group interview with 5 IWC members was conducted, with one author (LS) facilitating the discussion and the other one (MH) taking notes.

For individual interviews, the questionnaire was used by the interviewer only as a script for prompting user responses, which allowed for spontaneity, informality, and rapport-building, as well as prompt clarifications of any technical terms if needed, while also ensuring that the range of questions was covered equally for each interviewee. For the group interview, each user received a copy of the questionnaire and filled it during the group discussion.

### IWC Thesaurus User Questionnaire

1. How long have you worked in IWC? (Check)
    - 0-5 years
    - 5-10 years
    - more than 10 years
  2. Which of these activities occupy the majority of your time at work? Please try to rank them in order of priority
    - Case work
    - Law reform
    - Public legal education and community work, including
      - support group
      - organizing and educating
      - research, including academic partners
    - Administration, including
      - IWC clinic management
      - library
      - consulting other legal aid clinics
    - Other (specify) \_\_\_\_\_
  3. In your own words, how would you describe the most important thing to you in your work?
  4. Could you give (an) example(s) of difficulties in reaching the goal of your work, such as equipment, availability of people, resources, etc?
  5. How do you know when you've reached the goal of your work?
  6. What is your current project?
  7. What questions did you need to answer in working on this project?
  8. How did you search for information to answer these questions, for example (check all that apply)
    - Google?
    - IWC library catalogue?
    - keyword catalogue search
    - WCAT keyword directory?
    - PubMed?
    - Yahoo directories?
    - Legal databases? (specify if possible) \_\_\_\_\_
    - ask a colleague or co-worker?
    - other \_\_\_\_\_
  9. What was the most effective way of locating the information you needed?
  10. Were you satisfied with the information you found? Please explain, giving example(s) if possible.
  11. Did you have any problems searching for the information? Please explain, giving example(s) if possible.
  12. Are you currently involved in any group activities in your work? Please explain briefly.
  13. What do you do to exchange information for your group activity, for example, do you meet in person, email, use the phone? Please give examples.
  14. Do you find some ways of information exchange more effective than others, perhaps for different purposes? Please give example(s) if possible.
  15. Who do you usually receive information from?
  16. Who do you usually give information to?
- Anything else you want to add? Questions? Comments? \_\_\_\_\_

**Fig. 1. IWC User Questionnaire based on CWA principles**

## Word Association Test

Lykke Nielsen (2001, 2002, 2004) discusses the Word Association method as a technique for construction of an associative test thesaurus and as a test method in domain study. She found that the terms gathered by the Word Association method reflect “to a larger extent the perspective of the information environment” (Lykke Nielsen 2004: 439).

The word association test at IWC gauged user preferences for several aspects of thesaurus construction, including:

- Acronyms vs. full phrases, e.g., ‘Loss of earnings benefit’ vs. LOE vs. LOE benefit; ‘The Board’ vs. WSIB
- Synonyms: ‘re-employment’, ‘employers assessments’, ‘medico-legal issues’, ‘psychological hazards’, ‘psychological disability’
- Higher or lower level of specificity: ‘benefits’ vs. specific benefits such as LOE , NEL, FEL.

The written questionnaire included 10 terms for which IWC staff were asked to list three associations, synonyms or examples. The terms tested had been selected from a large number of “thesaurus conundrums” regarding: the issues of specificity; compound vs. simple term; use of acronyms; choice of synonyms; and user warrant vs. literature warrant.

The Word Association test was quite helpful for producing additional terms. Based on these results, new terms were added to thesaurus entries, e.g. *Social Advocacy* as RT (related term) for Social Justice, or *Casework (Legal)* as USE (non-preferred term) for *Legal representation*.

Acronyms were very frequent as associations. Based on these results, it was decided to use the acronyms LOE, NEL, FEL, not the full phrases, as thesaurus terms, with their own specificity level. Accordingly, the entry for the general term *Compensation benefits* lists LOE, NEL and FEL as narrow terms (NTs).

The word association test also brought out the ideological complexities in the vocabulary for some acronyms. For example, IWC staff rarely listed *WSIB*, the acronym for the official name of *Workers’ Safety and Insurance Board*, as the synonym for “The Board”; the overwhelmingly preferred acronym was “WCB” for the former name *Workers’ Compensation Board*. Therefore, it was decided to include the acronyms and the full form of the phrases into online thesaurus entry, with detailed scope notes: see Example 1 below for details of the implementation solution.

## Findings

While general recommendations on in thesaurus construction are found in the literature (Aitchinson, Gilchrist, Bawden 2000), the thesaurus evaluation results provided specific guidance on these issues for IWC work environment, and could be taken into consideration for future decisions. The main findings of the thesaurus evaluation are as follows. The work domain at IWC covers the community of injured workers and the legal system (as well as medical, administrative, government and academic organizations). The work tasks most important to IWC staff are legal case work and law reform, community development and research. Legal case work involves working with injured workers as legal aid clients and communicating with the WSIB

and Appeals Tribunal. IWC staff assist injured workers at every stage of the process, most particularly with appeals of claim decisions before the WSIB and with representation at the Appeals Tribunal. In communicating with injured workers, IWC staff also explain the legal language of WSIB, including WSIB official letters, denied claims, etc. Law reform work involves working with members of provincial parliament and senior management at the WSIB through consultation, submissions and advocacy to make system-wide changes to law, policy and practice that improve the quality and fairness of claims decision-making and the economic, social and health well-being of injured workers. Community development means providing public legal education through a variety of formal and informal means, such as conferences and community discussion forums, published reports, media campaigns, street rallies and a website *injuredworkersonline.org*. Another task of community development is encouraging injured worker self-advocacy by providing peer support groups with meeting space and leadership skills, such as their Speaker School. Research supports all tasks and activities of the Clinic, and often addresses issues with a different focus (worker-centred) or scope than that of existing studies. Staff are actively engaged in community-academic participatory research, such as the recent Research Action Alliance on the Consequences of Work Injury (RAACWI) initiative (<http://www.consequencesofworkinjury.ca/>). In the community legal clinic model, injured workers are not only clients but active partners and participants in all these work tasks, from law reform to research.

The information exchange needs of IWC staff are impaired by the tension between the legal system and the injured workers' community. The legal system and the injured workers' community are informed by different social practices. The legal system is constrained by its official terminology of legislative documents, the language of the Act, Bills, WSIB documents and correspondence, such as injured workers' claim submissions and letters. The community of injured workers is informed by a commitment to social justice and fair compensation. The language and the vocabulary reflect these differences. Written documents, such as official letters from WCB to injured workers, are replete with obtuse terms and turns of phrases that require "translation" into plain English. Legal terms, due to their technical character, are often found in practice to be obscure and incomprehensible. They are difficult even for native speakers of English; although they may appear intuitive, this is often deceptive, since even the basic understanding of the system is hard. Many terms are also perceived as containing systemic bias and negative connotations for injured workers. For example, legal forms refer to "claimants", not "injured worker". The interviews confirmed that IWC staff are very much aware of language issues and of the need to "translate" from the "language of the Board" to the "language of the injured workers".

Acronyms stood out in this group as especially obtuse, and one of IWC educational theatre skits sums it up well:

*WCB:* There is no entitlement to NEL or FEL or LMRP post TT because the FAE from the REC shows no MLD at MMR.

*Translator:* Your back may be broken, but we still think you can work with the rest of your body.

Based on the interviews, the decision was also made to include terms reflecting the communication needs into the thesaurus, such as *letters, petitions, submissions*.

An example of a thesaurus entry illustrates several issues addressed in the project.

**Thesaurus entry example: *Ontario Workers' Compensation Board***

The entry term for the organization administering workers' compensation in Ontario combines two acronyms. The first, WCB=Workers Compensation Board, i.e., the acronym for the earlier form of the name. This acronym, as confirmed by the word association test, is overwhelmingly used by staff in informal communication when referring to both the old and new names of the Board, is generally used by injured worker community and well understood by all audiences. Also, WCB is often used generically for the various names of Canadian provincial compensation boards<sup>1</sup>.

The acronym for the current name of the board, WSIB= Workplace Safety and Insurance Board, is also included in the lead term as a single unit of thought. Combining both acronyms reflects the clinic's desire to maintain the earlier name encompassing the Board's original core purpose under the Act, i.e. to provide fair compensation. It also avoids the gender bias of "Workmen's" and allows searchers to easily find all material about the Board under any of its names. Finally, inserting a space rather than forward slash (/) between the acronyms allows for variations in how library automation software treats spaces and punctuation.

The full forms of the earlier and the newer name are given as UF terms. A fairly lengthy scope note is aimed to provide historical information (for searcher and volunteer cataloguer) and supplement the context provided by the semantic relationships.

WCB WSIB

SN Name changed from Workmens' to Workers' in 1981; to Workplace Safety and Insurance Board with Bill 99 (in effect 1998). Add for decisionmaking, policy & issues specific to Ontario's compensation board. Prefer term "WORKERS' COMPENSATION" for material on the compensation system in general or for Boards of other jurisdictions.

UF ONTARIO. WORKERS' COMPENSATION BOARD  
ONTARIO. WORKMEN'S COMPENSATION BOARD  
ONTARIO. WORKPLACE SAFETY AND INSURANCE BOARD  
WSIB

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<sup>1</sup> For example, in the name of the Association of Workers Compensation Boards of Canada (AWCBC); Canadian Centre for Occupational Health and Safety website provides information on "Provincial Workers' Compensation Boards in Canada" ([http://www.ccohs.ca/oshanswers/information/wcb\\_canada.html](http://www.ccohs.ca/oshanswers/information/wcb_canada.html)), accessed March 27, 2014).

## **Next steps**

Like most thesauri, the IWC Thesaurus is in a state of “perpetual beta” or constant revision. A Subject Suggestion form based on the form created by the RBMS Bibliographic Standards Committee (ACRL, 2002) was included in the documentation and training though staff generally prefer to give feedback informally in person or by email. A follow-up survey of clinic users was conducted a year after the thesaurus was initially completed and we are undertaking a more comprehensive review using the evaluation methods described.

Feasible options to improve display and integration with the search interface, as recently discussed in *Powering Search* (Shiri, 2012), are also being explored. The IWC thesaurus is currently accessible only in static PDF format. While easy to upload and print, an interactive version offer searchers a more user-friendly means for quick referral. The W32 software does include a function for export to XML in VOCML-compatible form or to Javascript, though the documentation is limited. An example of its application has been documented by De Vorse, Elson, Gregorev & Hansen (2006). Other possibilities include open-source TemaTres (<http://www.vocabularyserver.com/>) or MultiTres Pro which offers a relatively easy and low-cost means of exporting a simple html version with full display.

As an integrated search option, we are considering further customization of the Minisis M2L catalogue search interface to add their thesaurus search function.

## **Concluding remarks**

As discussed above, IWC library is a small special library served by a solo volunteer librarian, while the controlled vocabulary for its library catalogue is highly specialized and complex. The practical need for thesaurus development and evaluation had to be addressed within a community organization that had a small number of staff, a cooperative work environment, and limited resources.

The Cognitive Work Analysis framework offered a methodology that fit in well with IWC workplace culture and size. We were able to develop scalable user interview and word association tests based on CWA principles. Even though most IWC staff took part in all thesaurus evaluation activities, the number of participants was not statistically large; the number of terms tested was also small, as discussed above. However, as user interviews and word association tests clearly brought out the pervasive ideological tension between the “IWC language” and the “WSIB” language, as well as providing many leads and suggestions for specific terms and term classes, thesaurus evaluation had a considerable qualitative value.

We also found out that the sample can get too small as, in trying to use as many CWA techniques as possible, we designed another CWA exercise, a “hierarchy exercise,” for a single term. IWC staff were asked to provide synonyms for the term “trauma” and organize these terms in a hierarchy. While this exercise produced some revealing terms and interesting mappings, the results were too disjointed to base any practical decisions on them. This suggests that while CWA techniques are well scalable, there is a lower limit to scalability: one is definitely too small. If we had the resources to design and conduct more CWA-based user interviews, word association tests and hierarchy exercise, these could become quite effective as a regular evaluation tool.

Finally, the thesaurus evaluation fit in well with the workplace culture of collaboration at IWC. The exercises were designed and conducted in the spirit of mutual respect, open discussion and creativity, including cartoons and a plate of chocolates. As a method, task-based interviews and group exercises are non-bureaucratic, activity-oriented and engaging. They were well received, as a subsequent training session and follow-up surveys also demonstrated. It is our hope that this study in thesaurus evaluation techniques could be useful and applicable to other environments.

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