Toward an information management system for handling parenting information users’ comments

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ABSTRACT
Little is known about how their qualitative feedback can be used by information providers. In this study, researchers worked with information providers, ‘Naître et grandir’ (N&G), to implement the Information Assessment Method (IAM) for assessing and improving parenting information. Qualitative feedback was collected from participants who visited the N&G website during the study period and who completed an IAM questionnaire. Using an Organizational Participatory Research approach, a coding manual for the identification of participants’ comments was created, and developed by the researchers in partnership with information providers. This manual was used by two coders for classifying participants’ comments. A 4-step process was followed. For each step, a sample of comments were codes, coding was compared, and codes were further refined. At step-4, the inter-coder reliability was tested.

This led to a reliable coding manual that will be used in the creation of an online system to facilitate the coding of comments, and provide selected comments to N&G editors on a weekly basis. This system can be adapted by other website editors.

Keywords
Information assessment, Online consumer health information, Parenting

INTRODUCTION
Health informatics research usually deals with quantitative feedback from information users. Little is known about how information users’ qualitative feedback can be used by information providers (Tang, Bouthillier, Pluye, Grad, & Repchinsky, 2015). This study aims to measure the reliability of a coding manual (codes, definitions and examples) for selecting constructive feedback comments from parents using a website on parenting information. This will allow us to improve our information management system for handling future feedback from readers. In the future, this selection process can be adapted by websites’ editors to handle information users’ comments, and improve their online resources.
Naître et grandir (N&G) provides free and trustworthy information, independent of industry funding, to prepare parents and families during pregnancy and the first five years of their children's lives. Its modes of dissemination include magazine and website (http://naireetgrandir.com) formats, and a free personalized electronic weekly newsletter. N&G is funded by the 'Lucie and André Chagnon’ Foundation, a philanthropic organization that seeks to contribute to the educational success of children, specifically from socially vulnerable families.

Since 2014, McGill University and N&G have worked in partnership to implement the Information Assessment Method (IAM) for assessing and improving the pages of parenting information. Developed at McGill, the IAM allows people to rate the situational relevance, cognitive/affective impact and use of specific information content (e.g., an N&G web page), and ensuing subsequent health/well-being outcomes (Pluye, Granikov, et al., 2014).

In previous research, the IAM was used in a clinical context (two-way knowledge translation process): pharmacists and physicians sent constructive feedback to information providers, who used the feedback to improve their information, thus creating ‘better than best’ evidence (Pluye, Grad, et al., 2014). In the present study, the context is different as the information content targets the general public.

**METHODS**

**Approach**

We followed an Organizational Participatory Research (OPR) approach which blends action research and organizational learning to undertake research with organization members and improve practice (Waterman, Tillen, Dickson, & de Koning, 2001). In this study, N&G and McGill partners participated in all stages of the research process, from developing research questions, collecting and analyzing data to interpreting and disseminating results. In contrast to community based participatory research, OPR is aimed to improve organizational work (e.g., professional practice).

**Participants**

Participants were those who completed at least one IAM questionnaire for a specific N&G webpage, with qualitative feedback, during an eight month study period (June 1, 2014 to January 31, 2015). Participants were from the province of Quebec (Canada), and accessed the N&G webpages directly, or through the weekly N&G newsletter. Participation was voluntary (no monetary incentive).

**Instrumentation**

The IAM questionnaire includes seven questions: two on the situational relevance of N&G information, one on the cognitive/affective impact of N&G information, one on the intention to use N&G information, two on expected outcomes of N&G information use, and an open-ended question gathering qualitative feedback (‘Do you have any other comments or suggestions?’). This allowed participants to provide qualitative feedback about the questionnaire or about N&G information, such as testimonials.

**Data collection**

Participants who visited the N&G website during the study period could complete an IAM questionnaire. Following submission of a completed questionnaire (cookie-based system), participants were not offered an additional questionnaire during a 30-day period, thereby reducing possible response fatigue. All questionnaires with qualitative feedback (free text comment) received during the study period were included in the four-stage analysis (n=1219).

**Analysis**

A preliminary version of the coding manual was created by N&G and McGill partners. The coding manual is a formal system for the identification of the different types of codes. There was a 4-stage participatory process that involved co-decision-making & co-knowledge construction between partners.

Stage 1: Two coders, one from N&G (PR) and one from McGill (PP) worked iteratively, coding independently 10% of the sample and discussing codes and comments to add, merge, or refine codes and their definitions. This led to 12 codes.

Stage 2: An initial testing of the codes was conducted on 50 randomly selected comments by two independent coders (PP and PB).

Stage 3: Further testing was conducted to ensure that the coding manual was clear and could be used by a coder not involved in its creation. Two hundred randomly selected comments were, therefore, coded by two independent coders (PB and RS). After each stage, the definition of the codes was further refined.

Stage 4: Comments were randomly selected from November 2014 and January 2015 (n=191) and were coded by two independent coders (PP and PB), and an inter-coder reliability was tested. Inter-coder reliability is defined as the extent to which an assessment provides the same results when conducted by different coders, and was measured using Cohen’s kappa score. For each code, the presence or absence was reported as 1 and 0, respectively. Kappa was calculated using GraphPad. A kappa between 0.21 and 0.40 was interpreted as indicating fair agreement; between 0.41 and 0.60, moderate agreement; between 0.61 and 0.80, substantial agreement; and between 0.81 and 1.00, almost perfect agreement (Landis & Koch, 1977).

**RESULTS**

A total of 12 codes were defined.

1. Evaluation of the IAM questionnaire (kappa= 0.87)
2. Evaluation of the N&G information
   2.1. Thank you and positive comments (kappa=0.79)
2.2. Suggestions for revision-
  2.2.1. Missing information (kappa=0.80)
  2.2.2. Suggestions for additional content/resources (kappa=0.74)
  2.2.3. Potential problem with the information (kappa=0.70)

3. Other comments
  3.1. Rapid action necessary (kappa=0.24)
  3.2. Technical problem (not enough coded comments to calculate a kappa)
  3.3. Reason for visiting the N&G website (kappa=0.53)
  3.4. Testimony (kappa=0.41)
  3.5. Incomprehensible (empty) comment (kappa=0.56)

The kappa scores varied between the 12 codes. There was almost perfect or substantial agreement for the five main codes associated with an explicit content of the qualitative feedback: Evaluation of the IAM questionnaire and evaluation of the N&G information (1, 2.1, 2.2.1, 2.2.2, 2.2.3).

There was fair or moderate agreement for four codes ‘other comments’ associated with a subjective content of qualitative feedback (3.1, 3.2, 3.3, 3.4, 3.5).

**DISCUSSION AND CONCLUSION**

The coding manual includes codes on the IAM questionnaire and the N&G information, as well as codes for testimonials and reasons for visiting the website. Due to the participatory coding process, the needs of the researchers and the information providers were met, which provided a reliable, valuable and pertinent coding manual. Coding of new comments will be performed on a monthly basis by McGill and submitted to N&G for analysis.

Implications for future work: We have developed a reliable coding manual that will be used in the creation of an online system to facilitate the coding of comments.

This will provide feedback to the N&G editors on a weekly basis, allowing them to act on it more rapidly and, therefore, shrinking the feedback to action time. A similar system has been used by the Canadian Pharmacists’ Association to collect professionals’ feedback on medical information for the last five years (Tang et al., 2015). Such system (information dissemination-assessment-feedback-improvement) can be adapted by other websites’ editors.

**REFERENCES**


