How Do Non-librarians See the Bibliographic Universe?

Abstract

Functional Requirements for Bibliographic Records (FRBR) is a relatively new conceptual model of the bibliographic universe. While it is recognized among library experts, there is a considerable lack of user studies. A pilot study, consisting of three different tasks, was conducted to test the instruments for acquiring mental models of the bibliographic universe. Results show that users do not have a consistent mental model of the bibliographic universe and that various techniques used can be useful for acquiring individuals’ mental models of the bibliographic universe. Of the three tasks, the one asking people to rank pairs of similar item according to substitutability revealed results that were closest to FRBR, while card sorting and concept mapping exercises failed to provide a single alternative model.

Introduction

Functional Requirements for Bibliographic Records (FRBR) is a conceptual model which represents a general view of the bibliographic universe (Functional… 1998). The model consists of bibliographic entities, relationships between them and attributes of these entities. Entities are divided into three groups. Group 1 consists of entities that are products of intellectual or artistic endeavour; Group 2 consists of entities that are responsible for intellectual or artistic content; while Group 3 is made up of entities that serve as subjects of intellectual or artistic endeavour. Group 1 entities are: Work, Expression, Manifestation and Item. Work is a distinct intellectual or artistic creation, expression is an intellectual or artistic realization of a work, manifestation is a physical embodiment of an expression, while item is a single exemplar of a manifestation.

While FRBR caused some discussion in library circles, the implications of its application are still largely unknown. Even the FRBR Final Report recognizes that the model is not meant as perfect or unchangeable, and theoreticians and practitioners alike (Delsey 2005; Kilner 2005; Hickey, O’Neill 2005) have expressed ideas how to improve on the current model.

While a handful of FRBR-based, or rather FRBR-like, implementations exist and early studies show enthusiasm for frbrized catalogs on part of the end-users (Kilner 2005; Jepsen 2007) we cannot really claim to know much about how users view the bibliographic universe. Although there had been many user studies prior to production of FRBR, no user studies were conducted during the course of FRBR creation. In fact, the highly controversial proposal to suspend work on RDA (Resource Description and Access) made by The Library of Congress Working Group on the Future of Bibliographic Control was motivated by the same recognition. While it may not be the most diplomatic thing to suggest, it highlights the importance of the issue.

We propose to rectify this apparent void by eliciting individuals’ mental models of the bibliographic universe. While this may seem redundant as experts certainly are the ones who know their area of expertise best, there are good reasons for conducting such a study. Firstly, there is no common agreement on the validity of the conceptual model among the experts. Secondly, users are the ones who are supposed to benefit from FRBR, but only as far as the conceptual model matches their mental models. Of course, users may have imperfect mental models or have more than one mental model of the bibliographic universe
and these mental models may not be stable. But that is exactly why the library community should look into mental models of their users.

To this end, we conducted a pilot study. The purpose of our study was twofold: to test the applicability of this approach, as well as to possibly practically point out any major theoretical flaws in FRBR. The methodologically closest research to ours was work done or proposed by Carlyle (1999; 2001; 2003), relating to sorting of various manifestations with the same progenitor and substitutability of material. However, in her card-sorting study Carlyle was interested in various sorting criteria on the same level, whereas we were interested in the single criterion that arranges bibliographic entities into different levels, and her proposed research focused on real-life library user needs, while we deliberately tried to avoid any reference to catalogs or even libraries as we were interested in people’s mental models of the bibliographic universe. However, it would be wrong to assume that people do not form their mental models of bibliographic universe at least partially based on their experience with library catalogs.

According to Norman (1998), mental models are models people have of themselves, others, the environment and the things they interact with. Mental models are formed through experience, training and instruction. They are an internal representation of the outside world. Mental models vary with time and the knowledge and experience acquired. Usually, there is a tendency for user’s mental model to become closer to conceptual model. Research usually focuses on conditions where expert’s conceptual model of a system is in place, while user’s understanding of the system is to be determined. While it is true that in the case of bibliographic universe the FRBR conceptual model is in place, we would like to check the validity of the model which is normally a given. Mental model research is not uncommon in LIS, e.g. Michell and Dewdney (1998) identified 42 such projects.

The Design of the Study
The study was conducted on 15 participants, residing in or in vicinity of Slovenia’s capital, Ljubljana. Participants of our study were asked to complete three tasks: card sorting, making concept maps and comparing/contrasting pairs of books. These three tasks were chosen to get a more well-rounded view of mental modes of the bibliographic universe.

Specifically, the first task asked of the participants to sort cards containing various instances of FRBR group 1 entities into at least three groups based on the criterion of concrete/abstract (physical/non-physical) nature. We asked for at least 3 groups to avoid having respondents splitting cards into just general “abstract” and “concrete” groups. Card sorting was performed on two separate examples (Hlapec Jernej in njegova pravica and The Da Vinci Code), in order to detect any inconsistencies. Also, participants were asked to name/describe groups in an attempt to find more user-friendly names for the entities. Participants were instructed not to pay attention to the descriptions but rather to what those descriptions were of or represented. As this is a rather subtle distinction, most of the participants had trouble understanding the difference. There were 13 cards used for the example of Hlapec Jernej in njegova pravica and 14 for The Da Vinci Code, which also expanded into the territory of motion pictures and audio books. Descriptions were worded in such a way that they would not remind participants of catalogs and we also tried to avoid using exactly the same attributes, as to not get results based on similarity of descriptions. Therefore cards would be as diverse as “Ivan Cankar’s Hlapec Jernej in njegov pravica”, “The copy of the book The bailiff Yerney and his rights from 1930 held in the British Library”, “Croatian translation by Stanko Tomašić called Sluga Jernej i nje-
govo pravo, which has 94 pages” and “Cankar’s original text of Hlapec Jernej in njegova pravica”. The last description was found to be most problematic to understand, as some deemed it to be somehow only connected to the dramatization, which was also part of the example, some thought it denoted a draft, some thought it referred to Cankar’s manuscript and some could not place it at all, as we saw in Task 2.

For the second task, participants were given the same cards used in card sorting for Hlapec Jernej in njegova pravica and asked how these cards are inter-related and, more specifically, “What comes out of what?”. They were told not to necessarily think in terms of chronological order and that the resulting graphs need not be linear. Again, participants were asked to describe the resulting “concept maps”. Almost all of the participants changed their mental models during the course of description, sometimes as a result of researcher asking questions to make things clearer, but it was mostly fine tuning.

The third task consisted of two parts. First, the participants were asked to describe 11 pairs of similar items (mostly pairs of books, but in two cases also a book and a DVD) presented to them, state how they are similar and whether they are substitutable. It was explained to the participants that substitutable was meant in terms of: “If one cannot acquire one item in the pair, would one be satisfied with the other?”. It is important to note that participants were instructed to name any possible condition for the two items not being substitutes, regardless of whether or not it applied in the case of particular participant. Finally, they ranked the pairs according to the degree of similarity / degree of substitutability. Although the task allowed for the two different rankings none of the participants did so.

Each card sort, conceptual map and ranking was photographed with a camera and all of the explanations were recorded on a sound recording device.

Results

Our research showed that, in general, the participants did not have a ready-made mental model of bibliographic universe. In fact, not only did mental models seem to change with the task, but also using different examples within the Task 1. It must be said that this may partly be attributed to the relative complexity of the tasks.

Most of the participants found the first two tasks difficult, asked for further explanation and often expressed their dissatisfaction with the criterion or the design of the tasks. In fact, the naming of the criterion for Task 1 was found to be critical during the design stage of the study and much consideration was given to the appropriate naming of the criterion. If participants asked for more explanation, they were told that a book can be a concrete physical object, but it can also be something more abstract.

All but two participants failed to sort cards according to the criterion given and rather sorted them using their own criteria. In these cases the criteria used most commonly were language and physical format, as well as a combination of both with the original criterion. In Task 2 some participants only made vague connections between larger groups of cards. It is also safe to assume that some participants did not read the cards carefully enough, although they were initially instructed to do so. In fact, that was the reason given by individual participants, when apparent inconsistencies were detected. In Task 3, some participants failed to consistently comment aloud, again contrary to the instructions and despite repeated prompting. Seemingly, participants failed to note the obvious (for instance, titles of books were seldom stated by the participants), as they probably found it trivial. Also, although there was no time constraint, some participants seemed to hurry through the tasks.
None of the individual card sorts and conceptual maps obtained in the first two tasks was completely in accordance with FRBR, although 10 of the 15 concept maps captured the Work—Expression—Manifestation progression or the Expression-Manifestation-Item progression at least once, and 5 even captured the whole Work-Expression-Manifestation-Item chain, but not consistently (one such example is found in Figure 1, where participant U1 established Work-Expression-Manifestation-Item progression from work through original Slovenian text and first edition to copy of that edition). In fact, no clear model emerged from the first two tasks, as mental models elicited shared relatively few common elements. However, in Task 2 six of the participants, including U1 in Figure 1, considered the original text of a work relatively important compared to other FRBR expressions (this might have been influenced by the example of Hlapec Jernej in njegova pravica by Ivan Cankar, considered a classical work in Slovene literature). Four others even put all entities pertaining to the original at the top of their hierarchies. Also, a dramatization of a work, which is considered a separate work in FRBR, was generally not considered as such by the participants, when eliciting their mental models. However, dramatization was indeed branded as a separate work by two participants in informal conversation. An example of a concept map can be seen in Figure 1 (the descriptions here are used for clarity and are not those actually used on the cards).

In Task 3, all of the participants stated that when two items were in different languages, those who do not speak both languages would not consider them as substitutes. That was the only element of non-substitutability that vast majority of participants explicitly agreed on. However, for example, most participants did agree that a book and a movie or two versions of a textbook published twenty years apart, generally speaking, are not substitutes but they named various reasons (e.g. content, carrier or both for book/movie; age, edition, content, or some combination of these for textbooks), which were in some cases difficult to distinguish. In light of apparent importance of original text detected in
the first two tasks, it must be stressed that in Task 3 most participants indicated preference for newer texts when comparing two versions of the same textbook.

Also, while there was some variation, a general pattern emerged from the ranking exercise, as seen in Table 1. Two practically identical items were found to be most substitutable (*Charter of Parma, Uncle Tom’s Cabin*). Next, there were different manifestations of the same expression (*Okus po grenkem, Master and Margarita, The Mystery of the Blue Train*), followed by different expressions (*Where to in Ljubljana?, Skrivnost modrega vlaka, Out of Africa*) and pairs containing a book and a movie, based on that book, (*Poirot, A Room with a View*) were found to be most dissimilar (although participants rarely indicated whether the distinction was due to differences in content, carrier or both).

This generally follows the classic FRBR Item-Manifestation-Expression-Work structure. It is interesting to note that 6 of 11 pairs were considered to be the most similar by at least one participant and to be the least similar by at least one other participant, although it must be said that one participant only made two separate groupings. The one pair that varied the most in rankings was a pair of textbooks (*Economics*) separated by more than 20 years. This can be attributed to the cultural differences mentioned in the FRBR report, although, as far as users are concerned, apparently these differences exist even between neighbours or members of the same family.

Table 1. Average ranks of pairs according to degree of substitutability

<table>
<thead>
<tr>
<th>Work name</th>
<th>Most notable differences</th>
<th>Avg. rank</th>
<th>Var.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charter of Parma</td>
<td>Owner’s signature</td>
<td>2.233</td>
<td>1.067</td>
</tr>
<tr>
<td>Uncle Tom’s Cabin</td>
<td>Owner’s signature</td>
<td>2.3</td>
<td>0.957</td>
</tr>
<tr>
<td>Okus po grenkem</td>
<td>Format</td>
<td>3.4</td>
<td>0.828</td>
</tr>
<tr>
<td>Master and Margarita</td>
<td>Number of volumes, Format</td>
<td>3.867</td>
<td>1.088</td>
</tr>
<tr>
<td>The Mystery of the Blue Train</td>
<td>Additional photos and interviews, Age, Images from movie</td>
<td>5.333</td>
<td>5.702</td>
</tr>
<tr>
<td>Where to in Ljubljana?</td>
<td>Language, Slightly different contents</td>
<td>7.267</td>
<td>1.817</td>
</tr>
<tr>
<td>Skrivnost modrega vlaka</td>
<td>Language, Age</td>
<td>7.33</td>
<td>1.845</td>
</tr>
<tr>
<td>Out of Africa</td>
<td>Language, Additional short story, Author’s pen name, Age, Image from movie</td>
<td>7.5</td>
<td>6.464</td>
</tr>
<tr>
<td>Economics</td>
<td>Contents, Age, Additional author, Owner’s signature</td>
<td>7.533</td>
<td>1.409</td>
</tr>
<tr>
<td>Poirot</td>
<td>Medium, Contents, Number of stories, Age</td>
<td>9.5</td>
<td>2.678</td>
</tr>
<tr>
<td>A Room with a View</td>
<td>Medium, Contents, »Demanding literature«</td>
<td>9.733</td>
<td>1.102</td>
</tr>
</tbody>
</table>

Therefore, while the results of the first two tasks were not particularly FRBR-supportive, participants did indeed rank non-borderline cases in the order that closely shadowed FRBR in Task 3, which was the most concrete of the three, as it not only provided the participants with real-life pairs of items, but also stimulated them to think in terms of material use. For the borderline case of textbooks (separate expressions of the same work or two separate works?), no clear answer was obtained; some even considered them as separate manifestations of an expression. However, on average the textbooks were placed together with other expressions, just like FRBR suggests.

Also two editions of Agatha Christie’s *The Mystery of the Blue Train* were on average ranked higher than other cases where there were differences in editions. Part of the reason was because one contained additional pictures and interviews with the actors from the movie of the same name. However, some, particularly those who could not speak English well, may have also considered them less substitutable because they were in English, not Slovenian like the other two examples.
Conclusion
Based on our research, we can say that this approach is both feasible and needed, although further research would benefit from more focus and more homogenous groups of participants. While none of the tasks were found to be completely irrelevant for the purpose of mental model elicitation, the difficulty, as well as the number, of tasks, suggests taking a one-task-at-a-time approach. Although, based on our research, one would have to be careful when drawing conclusions from results of a single task. Having more examples for each task would help clarify the results. Also, in-depth interviews with participants can shed new light on the results, as we found when talking to participants off-the-record. On the other hand, although there was no time constraint, some participants appeared uncomfortable with the length of the exercises and the fact that they had to search for details.

The described study is only a part of larger study, which should provide an even better understanding of how individuals view the bibliographic universe.

References