

# Linked Data Bibliographic Description Based on User Search Behavior

Sangoh Na<sup>1,†</sup>, Inkyung Choi<sup>2,\*</sup>, Yeonhee Park<sup>3</sup> and Jongwook Lee<sup>1,†</sup>

<sup>1</sup> Kyungpook National University, 80, Daehak-ro, Buk-gu, Daegu, Republic of Korea

<sup>2</sup> Online Computer Library Center, Dublin, Ohio, United States

<sup>3</sup> Korea Education and Research Information Service, 64 Dongnae-ro, Dong-gu, Daegu, Republic of Korea

## Abstract

This study examines how librarians in Korean academic libraries perceive the usefulness of bibliographic enhancement data (BIBED) elements in cataloging tasks. Through a survey, it evaluates their perceptions of these elements' utility in scenarios involving searches for known items, unknown items, and related items. Additionally, by comparing various data models/metadata schemas, it proposes potential application profiles for book descriptions. This research highlights the importance of integrating user-centered elements into library catalogs and underscores the role of linked data technology in better meeting user needs.

## Keywords

bibliographic enhancement data, library catalogs, librarian perception, linked data

## 1. Introduction

Previous research has indicated a discrepancy between resource discovery in library catalogs and the needs of users (Park, Richards, & Brenza, 2019). Libraries have made efforts to enhance bibliographic information in OPACs by incorporating additional data elements like cover images and summaries to meet the needs of users (Wittenback, 1992; Harker & Sassen, 2015; Stevens, 2022). In Wu's (2023) definition, Bibliographic Enhancement Data (BIBED) refers to additional bibliographic data that aids users in tasks such as resource discovery, identification, selection, acquisition, and exploration, encompassing a list of 19 elements. Out of these elements, certain elements, such as 'reader Q&A' or 'ratings,' have proven challenging to incorporate into the standard MARC format. Advancements in linked data technology now allow for representing these elements (Jin, Hahn & Croll, 2016). This study aims to examine librarians' perceptions of using BIBED elements and finding appropriate ontologies for them.

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\* Corresponding author.

† These authors contributed equally.

✉ gg4518@knu.ac.kr (S. Na); choii@oclc.org (I. Choi); yaniep@keris.or.kr (Y. Park); jongwook@knu.ac.kr (J. Lee)

 0009-0005-1264-5644 (S. Na); 0000-0001-5048-8516 (I. Choi); 0000-0009-3370-9220 (Y. Park); 0000-0002-5332-3765 (J. Lee)



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## 2. Methods

A survey was conducted among librarians in university libraries in Korea who are responsible for cataloging to examine perceptions of the utility of the 19 BIBED elements. The survey took place from April 22 to 29, 2024, with 37 respondents answering all 12 questions. Perceptions of usefulness were examined by categorizing searches as 'known-item,' 'unknown-item,' or 'related-item' on a 5-point Likert scale. A repeated-measures analysis of variance (ANOVA) was used to analyze perceived utility levels in three scenarios.

## 3. Preliminary Results and Discussion

We examined the usefulness of BIBED elements across three scenarios and investigated the differences in usefulness among these scenarios. The differences in perceptions of usefulness across the three scenarios were statistically significant for 10 elements (excerpts/quotes, related works, reviews/comments, summary/description, ratings, table of contents, reader Q&A, discussions, intended audience/reading level, related agents). These elements were perceived as particularly useful in the 'unknown-item search' situation compared to the 'known-item search' or 'related-item search' situations.

Based on a survey testing 19 Bibliographic Descriptive Enhanced (BIBED) elements, we created a crosswalk table of five relevant data models/metadata schemas to suggest potential application profiles for book descriptions. We compared how people rated these 19 elements among aforementioned three scenarios: known item, unknown item, and related item. MARC21 elements will not be implemented in application profiles as they are not published in linked data, but we included them as a reference to highlight the differences and similarities between linked data bibliographic models and current cataloging practices.

The elements from the other four data models can be used to describe a book, according to user needs. The crosswalk results are as follows: Bibframe covers 12 out of 19 elements, MARC21 covers 12, RDA covers 9, Schema.org covers 14, and ONIX covers 8. The elements considered relatively more useful (top 50%) in three retrieval cases across all these models include 'Related works', 'Author/contributor information', 'Summaries', 'Keywords', 'Tables of contents', and 'Alternate titles'. Bibframe and MARC21 cover all six common elements, RDA includes five, Schema.org four, and ONIX five.

For elements distinguishing the retrieval of unknown items from known and related items, Bibframe includes three out of four, MARC21 two, RDA two, Schema.org three, and ONIX one. Elements common in library cataloging practices were easily mapped across data models generated by library communities such as Bibframe and RDA, while elements representing non-traditional library cataloging, such as users' perspectives on a book, were more frequently found in the web-based data model such as Schema.org. This suggests that enhanced data models using Schema.org can improve book retrieval, especially for unknown items.

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