

December 2013

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Recommended Citation

Flury Carlson, Nancy (2013) "Sort This Pile: Content Management Lessons from the Toy Box," *Sci-Tech News*: Vol. 67: Iss. 4, Article 4.

Available at: <http://jdc.jefferson.edu/scitechnews/vol67/iss4/4>

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Sort This Pile: Content Management Lessons from the Toy Box

Nancy Flury Carlson

There is widespread recognition of the value of LEGO play to help children and young adults learn science, technology, engineering and math (STEM) concepts. Preschool children learn basic math concepts by fitting bricks together, and high school and university students study robotics, programming and other engineering techniques using the MINDSTORMS® platform. The Lego Group started its Educational Products Department in 1980 and currently provides curriculum support, associated products, and teacher resources for all levels of education. (1)

The information profession can similarly embrace LEGO play as a natural training ground for the concepts of content management and taxonomy. Anyone who has tried to organize a big pile of LEGO elements will recognize the similarities between managing a pile of bricks and managing a collection of books, reports, documents and digital media. How do you arrange them so you can get at the ones you need quickly? For LEGO, is it best to organize by color, by size, or by function? For content, is it best to organize by document type, subject matter, or title?

If you have a dozen LEGO sets at home or a few hundred books, it's easy enough to keep the LEGO parts in a few buckets arranged by color, and the books arranged by subject on bookshelves. Sifting through the bucket or browsing the shelf for a few

moments can be an enjoyable way to find what you are looking for. But the hard-core LEGO enthusiast has different needs, as does the manager of a document collection or a digital repository.

In the mid 1990s with the rise of the internet, adult fans of LEGO (AFOL) began communicating through internet discussion lists. Many of them were interested in creating their own constructions, known as MOCs (My Own Creation) rather than building LEGO sets from the original instructions. AFOLs who focus on a particular type of MOC, such as trains or spacecraft, need large numbers of specific LEGO brick styles, colors or shapes. This drove a demand for aftermarket trading in LEGO elements.

The original equipment manufacturer, The LEGO Group, launched its web site in 1996 but did not open up its online LEGO World Shop until 1999. Before that, the company sold spare parts through mail order. Now the online LEGO Shop's Pick-a-Brick store offers over 1500 specific bricks for sale, but in the mid 1990s AFOLs were on largely on their own. (2)

So what does all this have to do with content management and taxonomy? Instructions for LEGO sets are visual, not text-based, so they illustrate how to sequentially build something, but they do not name the parts. Generally the only explicit naming that comes

with a LEGO set is the specific set name and number, possibly a theme name (Castle, Explorians, Star Wars, etc.). AFOLs generally acquired their interest in LEGO bricks when they were children, and most had their own family- or friend-based terminology for parts. Examples: "guys" for the little people, now called "minifigs" or "mini-figures", "flat smooth 8" for what is now called a "1x8 panel". Early AFOLs needed to develop a shared naming convention so that they could easily trade the LEGO components. The alt.toys.lego discussion list includes numerous threads on this topic, such as an April 1993 thread called "parts list" in which several participants debated terminology and shared their personal naming conventions. (3)

In the late 1980s or early 1990s, The LEGO Group began imprinting product codes on some of its elements, providing another piece of the identification puzzle for those seeking parts. An early attempt to identify brick codes was published on alt.toys.lego in 1993 by Peter Miller; the list contained fewer than 100 different codes but was the largest list available at the time. (4) By 1997, James Jessiman had compiled a list of 6599 different part codes, with associated records including images generated by his open-source LDRAW software. (5) In 1998, a discussion list poster asked, "Does anyone know of anywhere where spare pieces can be found?" and put out a desperate plea for a "grey Engine type of piece" - there were no responses to the post. (6)

Community-based sites including the discussion list alt.toys.lego, websites Bricklink.com, Lugnet.com, Brickset.com and others emerged to help

people locate older and more specialized bricks that were not easily available directly from The LEGO Group. These sites rely in part on their user communities to update inventory item descriptions, post images of parts, and list items wanted or for sale.

Bricklink.com, for example, has nearly 210 million items for sale through 7,500 online stores. The site's catalog includes metadata for Item Type (sets, parts, minifigs, etc.), year of manufacture ranging from 1935 to present, and Category. Categories include generic part types (i.e. Brick, round) and themes (i.e. Castle). (7)

There is still no universal standard for the naming and taxonomy of LEGO elements. A 2011 post on bricks.stackexchange.com addresses the question "How are LEGO bricks categorized?" (8) Eight major classification schemes are outlined: Bricklink, Peeron, Ldraw, PartsRef, LEGO Digital Designer, Pick-a-Brick, Auczilla, and Technica. They differ according to scope, categorization levels, and approach to terminology. They also borrow naming conventions or other metadata lists from one another.

LEGO enthusiasts grapple with the same problems we face when we are managing a collection of documents, files or content. We seek existing classification schemes such as report or document numbers, metadata that already a part of the content and may already be a familiar tag for the potential users. We must identify or develop topical areas and ways to logically group and connect content items. We look for existing lists, catalogs, naming conventions and taxonomies that we can apply or adapt. And like the

hard-core AFOL who has millions of LEGO elements, we must physically or electronically organize our content in such a way that we can locate and access the thing we need quickly. Like the Bricklink Store owner, we need to ensure that our users can correctly identify the items they need from us. And like the AFOL who must acquire 25 blue gray 3x1 inverted slopes to finish his space ship, we need to know what to search for.

The bottom line for both AFOLs and information professionals is that the best content management process is the one that meets the current need. If three people are using the same collection of LEGO bricks or content files, then a casual, on-the-fly naming and sorting system can work. But when 7,500 sellers wish to move 210 million pieces, they need a working vocabulary, a standardized hierarchy, and working software to complete transactions. Information professionals excel in bringing to life agreed hierarchies, usable naming conventions, integration of diverse metadata, catalogs and systems that deliver content effectively, and even in moderating spirited community disagreements about the right approach. Some of us even play with LEGO bricks.

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