Taxonomies for E-Commerce
Best practices and design challenges

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About Heather Hedden

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• Author of *The Accidental Taxonomist* (Information Today, Inc., 2010)
• Previously
  – employed taxonomy consultant
  – in-house taxonomy manager
  – publishing company vocabulary editor
  – taxonomist for enterprise search tool vendor
  – indexer
A Taxonomy…

- An authoritative, restricted list of terms/names/labels/categories
- Each term is for a single unambiguous concept
- Governed by policies for who, when, and how new terms can be added
- Arranged in some (hierarchical) structure or groupings
- Supports indexing/tagging/categorizing/metadata management of content
- Facilitates retrieval/findability in both browsing and searching
Introduction to E-Commerce Taxonomies

Typical characteristics of retailecommerce taxonomies:
- Separate hierarchy for each department or broad product category.
  - Typically 5 – 20 top categories/hierarchies
  - Typical hierarchy depth of 3-4 levels
  - Typically 3 – 20 terms/subcategories per level
- May also have facets, typically at deeper hierarchy levels.
- Ordering is not always alphabetical, rather popular or logical.
Hierarchies
Subcategories in Hierarchies

- Baby
  - Furniture
  - Strollers & Car Seats
  - Bedding
  - Room Decor
  - Diapering
  - Feeding
  - Baby Registry

- Luggage
  - Backpacks & Lunch Box
  - Totes
  - Duffel Bags
  - Luggage Collections
  - Carry-on Luggage
  - Wheeled Luggage
  - Upright Luggage
  - Kids' Luggage
  - Briefcases & Laptop Bags
  - Toiletry Kits & Travel Accessories

- Electronics & Office
  - Movies, Music & Books
  - Home, Furniture & Patio
  - Apparel, Shoes & Jewelry
  - Baby & Kids
  - Toys & Video Games
  - Sports, Fitness & Outdoors
  - Auto & Home Improvement
  - Photo
  - Gifts, Craft & Party Supplies
  - Pharmacy, Health & Beauty
  - Grocery & Pets
  - Cyber Week Specials

- Electronics
  - Accessories
  - Auto Electronics
  - Cameras & Camcorders
  - Cell Phones & Services
  - Computers
  - GPS & Navigation
  - Home Audio & Theater
  - iPad, Tablets & eReaders
  - iPods & MP3 Players
  - TV & Video
  - Video Games

- Computers
  - Desktops
  - Laptops
  - Monitors
  - Networking
  - Printers & Supplies
  - Tablet PCs
  - See All

- Office
  - Breakroom Supplies
  - Business Office Furniture
  - Home Office Furniture
  - Janitorial Supplies
  - Office Supplies
  - Office Technology
  - Phones & Accessories
  - Work Life
Facets

Facets
= Attributes = Dimensions = Refinements = Filters = Limit by

• Facets are for narrowing category sets that are similar and support the same kinds of attributes.
• Facets work well for retail products that are sufficiently similar: all shoes, all luggage, all laptop computers.
• Facets may:
  – be the only type of taxonomy on a specialized retail site
  – appear at lower (more specific) category hierarchy levels of a general retail site.
  – appear after executing a search
E-Commerce Taxonomy Design Challenges

1. Distinguishing a subcategory from a facet value
2. Different categorization methods and category cross-overs
3. Related items and accessories
4. Sort order options: alphabetically or not
5. Competitor website comparisons
6. Web site vs. physical store organization
7. Business needs vs. taxonomy standards/best practices
Challenge 1. Subcategory vs. Facet Value

Categories and subcategories are:
- Things, products, nouns, items that can stand by themselves
- e.g. *Sweater*

Facets and their values are:
- Characteristics, descriptions, adjectives, dimensions of things, which do not stand by themselves
- e.g. *Blue*
Challenge 1. Subcategory vs. Facet Value

**Problem:** Modifier + Noun

**Should it be:**
Category: Noun
Subcategory: Modifier + Noun

**OR should it be:**
Category: Noun
Facet value: Modifier

**Example:**
Flannel Shirts

Flannel Shirts

Shirts

> Flannel Shirts

Category: Shirts
Fabric (facet): Flannel
Challenge 1. Subcategory vs. Facet Value

Considerations:

• Is the modifier an obvious value of an facet?
  Do customers consider Flannel a kind of fabric or a subtype of shirt?

• Are there other products (other than shirts) in the same website that also have this modifier (such as flannel sleepwear)?

• Is the list of facets already quite long?

• Are the levels of subcategories already deep enough?
Challenge 2. Categorization and Cross-Overs

Multiple categorization examples:
- Women’s Shoes – in Women’s Clothing; in Shoes
- Office Furniture – in Office Products; in Furniture

Cross-over product examples:
- Home Theater – in TV/Video; in Audio/Stereo
- Printer-Scanner-Faxes – in Printers; in Scanners; in Fax Machines
Challenge 2. Categorization and Cross-Overs

Put in both locations – *Polyhierarchy*

OK, but…

• Too much polyhierarchy confuses the tree structure.

  Polyhierarchies work better for specific terms/categories at the lowest level or second-lowest with small sub-hierarchies, (e.g. Fitness GPS Watches in GPS Systems, in Portable Fitness Electronics, and in Watches), not large hierarchy branches.

• Systems may not fully support polyhierarchy

• Breadcrumb trail may be only a fixed path, not dynamic/not user’s path.
Challenge 2. Categorization and Cross-Overs

Breadcrum trail may not reflect the user’s navigation path, but rather only the other, one fixed hierarchy, path of the polyhierarchy.
Challenge 3. Related Items

- E-Commerce Taxonomies tend to be simple hierarchical. They usually don’t have “related terms” relationships.
- *Individual* products (SKUs) can be manually related.
- Product *categories* (taxonomy terms) are usually not related.

Special cases:
- Accessories to products
- Related services

Examples:
- Accessories to Products: Camera Accessories
- Related Services: Delivery and Setup/Installation Services
Challenge 3. Related Items

Issue:
Where to put related items in an hierarchical-only taxonomy
   – As narrower terms
   – In a separate hierarchy
   – Both
Challenge 3. Related Items

Related accessories narrower terms: Whether to rename the parent category to include related accessories

Computers
  . Laptop Computers
  . Desktop Computers
  . iPad, Tablet & eReaders
  . Monitors
  . Mice & Keyboards
  . Printers & Scanners
  . Computer Memory
  . Computer Components

Computer Accessories

or

Computers & Accessories
  . Laptop Computers
  . Desktop Computers
  . iPad, Tablet & eReaders
  . Monitors
  . Mice & Keyboards
  . Printers & Scanners
  . Computer Memory
  . Computer Components

Computer Accessories
Challenge 3. Related Items

Related services listed as a narrower term under products

- Camcorders
  - Compact
  - DVD
  - Flash Memory
  - Hard Drive
  - High Definition
  - MiniDV

- Digital Cameras
  - 9 Megapixels + Under
  - 10–12 Megapixels
  - 14+ Megapixels
  - Compact
  - Digital SLRs

- Digital Memory
  - Secure Digital (SD)
  - Memory Stick
  - Portable USB Drives
  - Card Readers

- Camera Accessories
  - Bags + Cases
  - Lenses
  - Photo Printers
  - Tripods

- Digital Photo Frames
  - Electronics Trade-In Program
  - Photo Processing
  - Service + Replacement Plans
Challenge 3. Related Items

Related items and services listed in a separate hierarchy

Shop By Category
- Accessories
- Camcorders
- Digital Picture Frames
- Digital Point & Shoot
- Cameras
- Digital SLR Cameras
- Memory & Media
- Photo Printers
- Security Cameras
- Web Cams

Other Cool Links
- Learn about Internet Connectable Devices
- TV Matchmaker
- Camera Matchmaker
- GPS Matchmaker
- Electronics Trade In Program
- Battery Finder
- Clearance Electronics

Services
- IN-STORE SERVICES
  - Automotive
  - Layaway
  - Optical
  - Portrait Studio

HOME SERVICES
- Repair
- Home Improvement
- Cleaning
- Installation

BY PRODUCT
- Appliances
- Home electronics
- Lawn and garden

BY ROOM
- Bathroom
- Bedroom
- Exterior/Outdoors
- Family Room
- Garage
- Kitchen
- Home Office

Services for Home electronics
- My scheduled services
Challenge 4. Display Sort Order Choice

Could be alphabetical or could be “logical”

Shop By Category
- Accessories
- Camcorders
- Digital Picture Frames
- Digital Point & Shoot Cameras
- Digital SLR Cameras
- Memory & Media
- Photo Printers
- Security Cameras
- Web Cams

Cameras & Camcorders
- Accessories
- Camcorders
- Digital Cameras
- DSLR Cameras
- Film Cameras
- Web Cameras

Digital Cameras
- Camera Bundles
- Digital SLR
- 14+ Megapixels
- 10-12 Megapixels
- 9 Megapixels + Under Long Zoom
- Film Cameras
- Waterproof

Camcorders
- Compact Digital
- DVD
- Flash Memory Digital
- Hard Drive + Memory Card
- High Definition MiniDV

Shop by Brand
- Canon
- FUJIFILM
- Flip Video
- JVC
- Kodak
- Nikon
- Olympus
- Polaroid
- Samsung
- Sony

Camera Accessories
- Bags + Cases
- Flashes + Lights
- Lenses

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Challenge 5. Comparing with Competitors

1. Need to distinguish comparing design with comparing content organization.

2. There may not be a 100% identical competitor. Each retailer has a slightly different focus.
   - Target – general, but no major appliances
   - Sears – general, plus automotive parts
   - Walmart – general, plus pharmacy
   - Best Buy – electronics focus, plus appliances, furniture, etc.
   - Sam’s Club – general, no clothing; plus pharmacy & grocery
   - Amazon – book and media focus; plus everything else

3. Brand retailers (e.g. clothing) *try* to differentiate themselves.
Challenge 6. Comparing with Physical Stores

There may be a push to organize the product taxonomy in conformity with store layout and organization.
- Loyal customers might understand it.
- But are customers divided by store loyalty or by physical store vs. online shoppers?

Factors may be unique to physical stores:
- Newest/hottest products at the entrance
- Small accessories in the checkout lines
- Larger items in the back
- Use of aisle end-caps for featured items
- Creative use of physical space
Possible taxonomy requests for “business needs” that challenge taxonomy standards or best practices:

- Creating new top level categories for relatively small, hot categories, that belong under existing top categories
- Creating multiple polyhierarchies for a product category to help promote it
- Creating intermediate level categories to group and promote related subcategories, not to serve navigation
Solution to taxonomy requests for “business needs” that challenge taxonomy standards or best practices:

- Create more than one navigation path
  1. Accurate hierarchies (such as in left-hand margin)
  2. Promotional categories (in central space)

- Create a “featured” category that is manually maintained

- List of next level categories may differ in the true taxonomy of the left hand navigation, compared with the central area.

Laptop & Netbook Computers

Shop Laptop & Netbook Computers

- All Laptops
- PC Laptops
- MacBooks
- Chromebooks
- Ultrabooks
- Netbooks
- Refurbished Laptops

Shop Laptops

- PC Laptops
- MacBook
- Premium Collection
- Ultrabook™ Laptops
- Refurbished Laptops
- Netbooks
Conclusions

• Product taxonomies are not as simple to create as expected.
• Taxonomy design may be under constraints.
• Business needs can challenge taxonomy standards.
• Creative solutions may be needed.
• Consider customer perspectives, use cases, and scenarios.
Questions/Contact

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