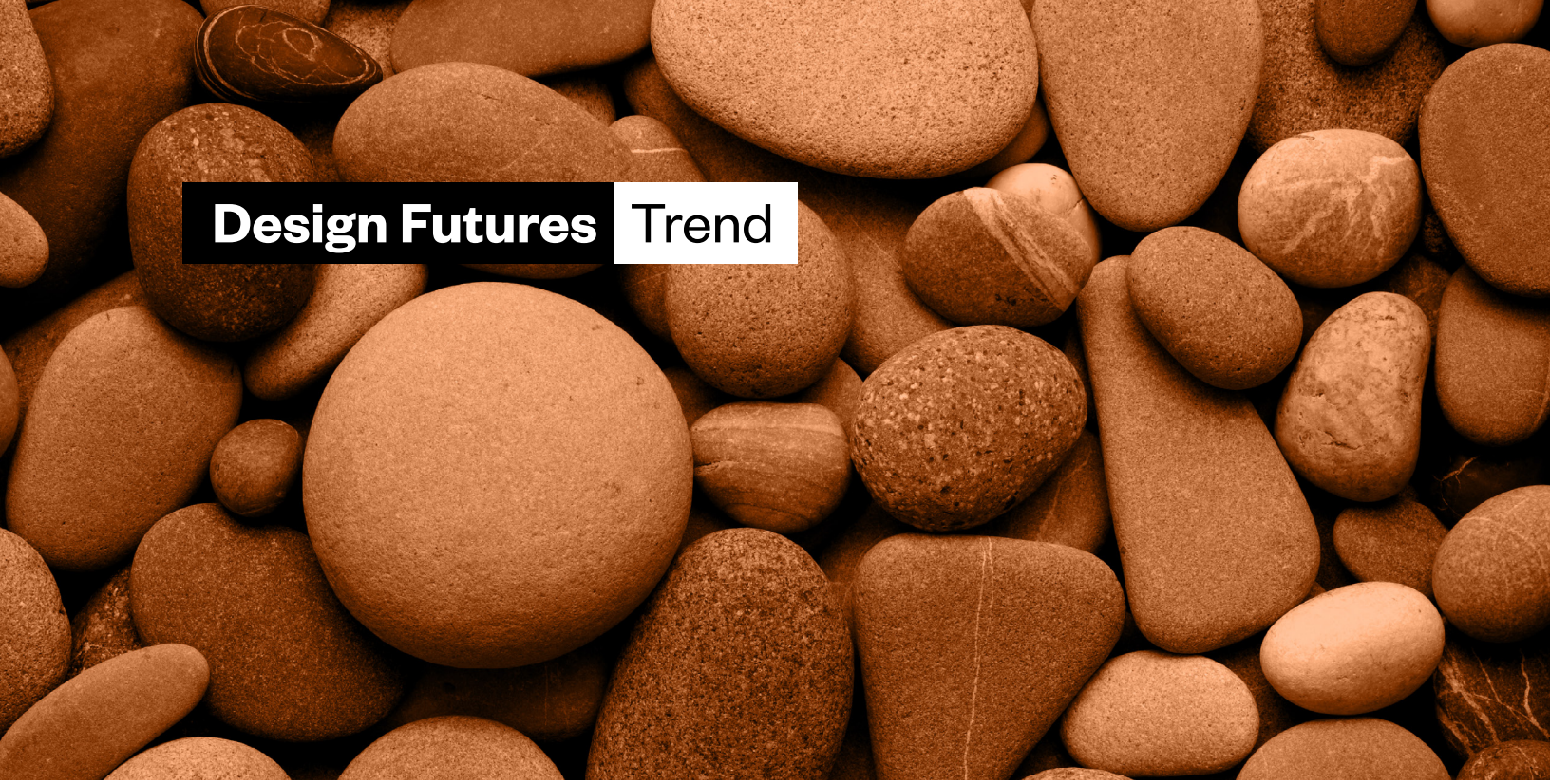

Design Futures Trend

Aggregation and Curation

Meredith Davis

This is one of a series of briefing papers on trends shaping the context for design in the coming decade. It is intended to inform design professionals and educators of processes and concepts adressed by successful design practices.

AIGA the professional association for design

Third parties assemble and re-present messages, products, and services from different sources. Users trim aggregates based on needs and interests, at times without attribution or information integrity. Diminished brand awareness and communication fragmentation occur as original sources lose control over the contexts in which their messages are seen and heard.

In some cases, aggregation enhances experiences by bridging gaps between related information and activities. In other cases, filter bubbles limit exposure to a variety of ideas as algorithms selectively guess what information users would like to see on the basis of location, history, or some past behavior or preference.

In an environment of information overload, people seek ways of managing the flow of content and services. It is hard to miss aggregation that consoilidates top-level stories from other sources matched to readers' interests on news sites such as Facebook and Huffington Post. Netflix aggregates movie content, Facebook aggregates content generated by friends, eBay aggregates items for sale from millions of sellers, Amazon aggregates products from global manufacturers, and Twitter aggregates posts from platform contributors. Aggregators save people time by allowing them to sort massive inventories and databases by interest.

See also:
Trend — Making Sense in the Data Economy

Platforms, such as Pinterest, encourage user curation of content by providing a platform for content assembly, editing, and sharing. Spotify allows subscribers to access playlists curated by music experts or to define their own preferences from millions of tunes. Newsmap allows users to turn off the feed of news stories in categories that don't interest them. The visual characteristics of the Newsmap system quickly tell users the number and currency of articles on any given topic without asking them to read. HP Graphic Solutions supports viewers of BuzzFeed's Tasty cooking videos in curating their own collection of recipes from a larger inventory. Through an Indigo interface the system prints and ships one-of-a-kind, personal cookbooks to curators. Marketers curate content for customers, building brand appreciation by delivering customized information to individuals: coupons based on prior purchases, local programming related to activity interests, and new services based on patterns in reading habits.

The practices of aggregation and curation are evidence that people value help in navigating a complex world. There are new design opportunities in aggregating services that cross business categories, engaging users in the generation of content, and applying commercial aggregation and curation strategies to new areas of human activity.

Evidence of the trend in practice

See also:
Trend — Resilient Organizations

Service design — **Service design plans and coordinates the people, organizational structures, and digital and physical elements necessary for positive interactions between service providers and their customers.** Service designers work behind the scenes to meet the needs of people who have increasing choices and rising expectations for their service experiences.

The complexity of people's everyday lives argues for thinking about communication, products, environments, and services as an ecosystem that helps people reach goals efficiently and effectively. Attending a professional conference, for example, may be linked to purchasing an airline ticket, making a hotel reservation, arranging ground transportation, finding restaurants or copy centers, and documenting expenses. The aggregation of products and services has social as well as physical implications; various routines associated with particular activities. For example, travelers may need to coordinate plans with colleagues or confirm arrangements with an employer before committing to reservations. Emergencies can require canceling all commitments. And a change in departure time can have cascading effects throughout a schedule. While travel agencies traditionally aggregate some of these

services, they may not be available on demand, anytime from anywhere. Self-service represents an increasing percentage of business. *Fast Company* reported that 70 percent of consumers wanted a self-service option and that 55 percent of social media users expected a response to questions and complaints within 4 hours.[1] Designing a service ecology, therefore, looks at the totality of an experience, even when relevant products and services cross the domains of different providers.

Aggregating products and services in ecologies can benefit both providers and users. For example, 3.6 million Americans miss doctor appointments each year because they lack dependable, non-emergency medical transportation. The partnership between 700 healthcare organizations and ridesharing companies Uber and Lyft yields impressive results for Medicare and Medicaid patients in 25 states: 95 percent attendance at scheduled appointments and 30 percent lower wait times and travel costs.[2]

For service designers, aggregation implies reaching beyond the boundaries of a single client's business to forge functional and social relationships among complementary products and services.

Crowdsourcing — Crowdsourcing is a method for aggregating the content contributions of Internet users on focused topics. It saves time and money overmore traditional methods of generating information, diversifies ideas and opinions, and builds community. **Contributors may function as a community, with meaningful relationships among collaborating members, or as data points in an automated system**.

See also:
Trend — Making Sense in the Data Economy

Obvious examples of crowdsourcing are wikis, documents that are produced collaboratively. Wikipedia launched in 2001 and now attracts more than 500 million unique visitors monthly in 299 different languages. The community of users manages quality control through moderated discussions for vetting low-quality content, a network of administrators who have been approved by the community, and several categories of top-level contributors who have technical and final editing privileges. The journal *Nature* found Wikipedia's content to be as accurate as most traditional encyclopedias. *Wired* magazine editor Kevin Kelly describes Wikipedia as "the teachers for making artificial intelligence smart."[3]

Crowdsourcing is also a design strategy for building communities of interest. The Dubberly Design Office was asked by National Geographic to imagine the association's future on its 100th anniversary. Founded as an organization of people interested in geographic expeditions, National Geographic today is best known for its magazine of photographic essays. Among Dubberly's recommend-
ations was to return National Geographic to its membership roots through a community of citizen scientists who actively contribute and curate web information and images from far away places, an inversion of its traditionally passive readers and practice of sending a few experts out into the field.

1. Van Bellegham, S. (2013). "Why the Future of Service is Self-service." *Fast Company*. 5/19-13.

2. Castellucci, M. (2017). "Rideshare Partnerships Help Patients Get to Doc on Time." *Modern Healthcare*.

3. Kelly, K. (2016). *The Inevitable*. New York, NY: Penguin Books

Lego Ideas is a website run by the Lego Group that allows users to submit ideas for Lego products through written descriptions and sample models. Once a project receives 10,000 online supporters within a designated period of time, Lego makes a decision regarding production against published criteria. If the project is produced, creators receive one percent of the product's net sales.

Waze is the world's largest community-oriented traffic application. Using GPS and user input, the system aggregates real-time data from user reports on traffic jams, accidents, and road construction. It suggests alternate routes that avoid delays. Community-shared gasoline prices also allow users to locate the cheapest stations within an area. Today's Internet users expect and trust real-time aggregated data visualization to inform decisions.

The Cooper Hewitt, Smithsonian Design Museum encourages visitors to curate their exhibition visits through the use of a digital pen that sends selected images, design drawings from interactive tables, and videos to a website for later access. Designed by Local Projects and Diller Scofidio + Renfro, the Pen not only heightens visitors' critical thinking, but also allows museum staff to aggregate data on public interest in particular content, objects, and activities. A recent exhibition, *Bob Greenberg Selects*, a collaboration between R/GA and the museum, also provides online access to curated audio conversations with designers such as Michael Bierut, Ellen Lupton, and Debbie Millman.

Crowdsourcing, therefore, is distributed content production and problem-solving that aggregates the collective work of participants to achieve a result that might not be possible under a few employees or individuals. It generally includes bottom-up contributions and top-down curation against a commonly understood set of standards.

Personalized learning —Personalized learning tailors instruction to the needs, preferences, and interests of individuals. In formal educational settings, instructors curate learning experiences that best suit the individual student from a larger aggregate of content and educational approaches. The pace of instruction varies among options, allowing some students to accelerate while others take additional time to master concepts. In massive open online courses (MOOCs), learners select content from an aggregate of university offerings without obligation to adhere to a single curricular structure or disciplinary focus. Informal learning—on sites such as Lynda.com—allows users to select instruction at levels and in formats appropriate to their skills and knowledge.

This customization of learning is an alternative to a one-size-fits-all approach that settles on an "average" user for its content and pedagogy. However, it requires that designers anticipate meaningful differences among users and offer guidance for their curation from a larger inventory of experiences.

Core concepts and principles

Unlike in the past, today's design challenges address diverse user participation, competing constraints, and constantly evolving conditions. A complicated social and technological landscape of interdependent elements and

dynamic forces characterizes contemporary problems. Designers, therefore, must think in terms of ecologies, communities, and variety in developing systems that deliver integrated information, products, and services to people whose needs and wants differ.

Ecologies — Ecologies are defined by patterns in the relationships between people and their environment; processes, interactions, and adaptations. They are dynamic and change under the influences of outside forces and shifting relationships within the system itself. Information, products, and services, therefore, cannot be fully understood outside of the context of the larger system; outside of their respective roles in supporting people's goal-driven activities and tasks. The meanings people assign to smart phones, for example, are less as objects and more as portals to tools and services that mediate their interactions with other people, places, and things. **Value resides in how well things work together, not in the attributes of any single component of the system**.

See also: *Trend — Complex Problems;* and *Trend — Making Sense in the Data Economy*

Faculty project briefs can artificially narrow the scope of investigations for college design students. In defining assignments primarily by format (websites, posters, publications, etc.), faculty focus student attention on a narrow range of issues appropriate to the format. When branding is taught as separate from service, students miss opportunities to understand people's long-term and varied relationships with the company or organization.

Communities — Communities are defined by: shared understanding of where the community came from and where it is going; how people are organized for making decisions and taking action; social relationships among members; and the extent of individual agency regarding what a member can and cannot do. Communities self-regulate—they respond to new conditions through implicit or explicit rules, usually established by the group. Online communities are supported by technological systems that accommodate interactions necessary to establish and sustain these conditions, in contrast to sites where people simply go to access information, resources, or services of common interest. Aggregation and curation can be a mechanical function driven by algorithms (as on news sites) or can arise from real and varied interactions among members of a community.

Variety — Variety is a characteristic of a healthy ecology. Accommodating a range of interactions by diverse members of a community increases the likelihood that a system will respond effectively to differences in individual needs and changes in surrounding conditions. Conversational models—as opposed to one-directional communications relationships between content producers and consumers—support variety in the goals that drive their interactions with technological systems. Complex task interactions may be initiated by user input of keywords, as by Alexa and Siri, or by combinations of natural language generation and data analytics that further customize responses through intelligent systems. Machine learning builds user confidence that the system actually knows and selects an answer to a very particular question. **These systems expand their intelligence through continuous interaction with users; through the aggregation of responses to a variety of user-generated questions that go beyond clicking on displays of preconfigured information**.

See also: *Trend — Making Sense in the Data Economy*

Understanding of ecosystems, communities, and variety deepens when faculty and professionals define investigations in terms of goal-oriented activities and outcomes—motivated interactions between people and their environment—rather than specific technologies or messages.

Challenges for designers

On the negative side, aggregation and curation risk separating users from information and activities that are inconsistent with worldviews represented by algorithms based on previous Internet searches. Internet activist Eli Pariser proposes that this reliance on algorithms for the selection of content isolates people from the larger culture and places them within ideological filter bubbles that may distort their points of view. He warns that it closes people off from new ideas and "creates the impression that our narrow self-interest is all that exists".[1] Pariser further cautions that this invisible editing of information often has polarizing effects on civic discourse.

For communication designers, aggregation and curation also present challenges in maintaining clarity, relevance, and continuity among message elements. Traditional brand strategies pay careful attention to sequencing, often following introduction of a client's story or issue with more detailed calls to action. In the fragmented world of aggregation and curation, any individual unit of information may be seen at any time and as the only experience someone has with the original source. And the identity of the aggregator or curator may dominate the identity of the information source. These conditions call for new communication strategies that depend less on fixed elements and information that can be fragmented and recombined, and more on technological strategies for maintaining the integrity of dynamic messages and services.

Competencies:

College student competencies:

- **Students should identify for consistency the role individual symbols and words play in public perceptions of a brand, even when separated from its original contexts and rules of application.** They should understand how technological systems fragment information and should explore technological solutions for maintaining information integrity.

- **Students should describe clustered experiences with information, products, and services in people's pursuit of specific goals.** Projects should be framed in terms of motivated behaviors and activities, rather than the things designers make. Students should engage in user-centered research to determine potential product/service ecologies that serve particular communities. They should describe how interfaces with technology accommodate variety in the input into a system.

1. Pariser, E. (2011). *The Filter Bubble: What the Internet Is Hiding from You*. New York, NY: Penguin Books.

- **Students should analyze examples in which third-party aggregation isolates people from conflicting perceptions and affirms assumptions in the absence of critical thinking.** Projects should reveal the tension between serving user needs and wants through tailored solutions and the values that arise from diverse perspectives on issues.

- **Students should propose ways in which current curatorial behavior in digital environments might provide insight into communities of interest that use conversational and collaborative approaches to interaction.** They should study the effects of technology in responding to and defining social groups and their cultural behavior.

Professional continuing education should address:

- Using data-aware tools and methods that trace the online content preferences and behaviors of diverse user groups to identify meaningful clusters of related information, products, and services;

- Using data-aware tools and methods that trace the online content references and behaviors of diverse user groups to identify meaningful clusters of related information, products, and services;

- Developing new branding strategies that account for message fragmentation and persistence in various media;

- Building robust ecologies that aggregate information, products, and services from different providers in response to the needs and interests of various user groups; and

- Designing for variety (breadth and depth) in the way technological systems respond to context.

Resources

Evenson, S. (2014). "Designing for Services and Long-Term Innovation."

Evenson, S. and Dubberly, H. (2010). "Designing for Service: Creating an Experience Advantage."

Fjord. (2017). "What is Service Design?"

Howe, J. (2006). "The Rise of Crowdsourcing." *Wired* magazine.

Boudreau, K. and Lakhani, K. (2013). "Using the Crowd as an Innovation Partner." *Harvard Business Review*.

Forlizzi, J. (2008). "The Product Ecology: Understanding Social product Use and Supporting Design Culture." *International Journal of Design*, Volume 2, Number 1.

Shirky, C. (2014). "The Disruptive Power of Collaboration."

van der Bijl-Brouwer, M. (2017). "Designing for Social Infrastructures in Complex Service Systems: A Human-Centered and Social Systems Perspective on Service Design." *She Ji*.