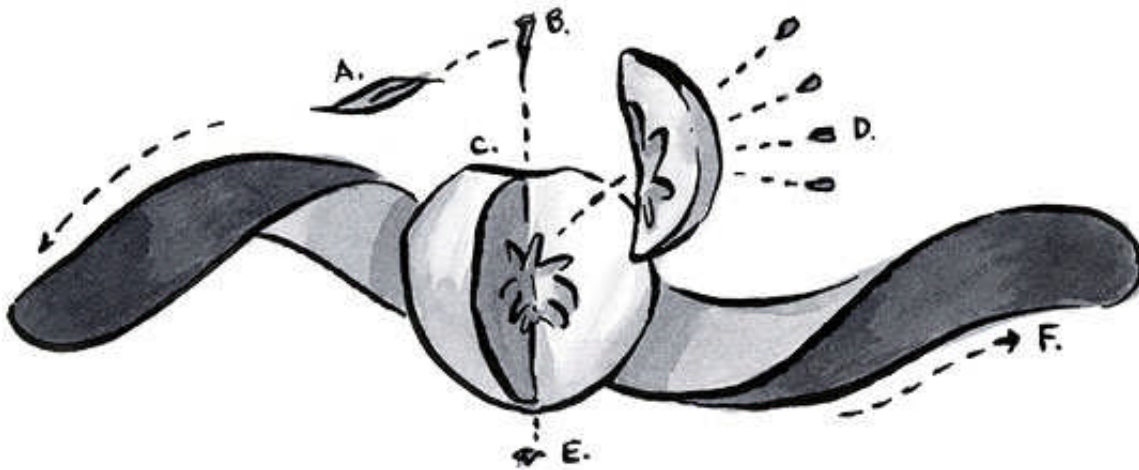


A List Apart: Articles: The UX of Learning

by Tyler Tate



While many desk-shackled students may wish they were napping rather than enduring yet another monotonous lecture, learning is by no means confined within the classroom. In fact, we engage in focused learning activities every day. Think of the last time you ordered a book, booked a flight, or bought a car. How did you choose which book to read, where to go for vacation, or which car was best for you? You may have searched online, read reviews, or asked others for advice to help you make an informed decision. In a word, you *learned*.

Learning is a complex process with distinct stages, each with corresponding tasks and emotions. Understanding how users learn can help us design experiences that support the user throughout the entire process. So let's learn a thing or two about learning itself.

A hierarchy of learning

According to Benjamin Bloom's landmark 1956 study, we can classify learning in a hierarchy of six levels, where each level forms the foundation for the next. At the base of Bloom's *Taxonomy* lies knowledge and comprehension—the plain facts and figures we were quizzed on at school. Once the learner has knowledge and comprehends it, the learner can begin to apply her knowledge experientially as one might do when driving a car for first time. The highest levels of learning involve deeply analyzing ideas and combining them into something new—the realm of the expert.

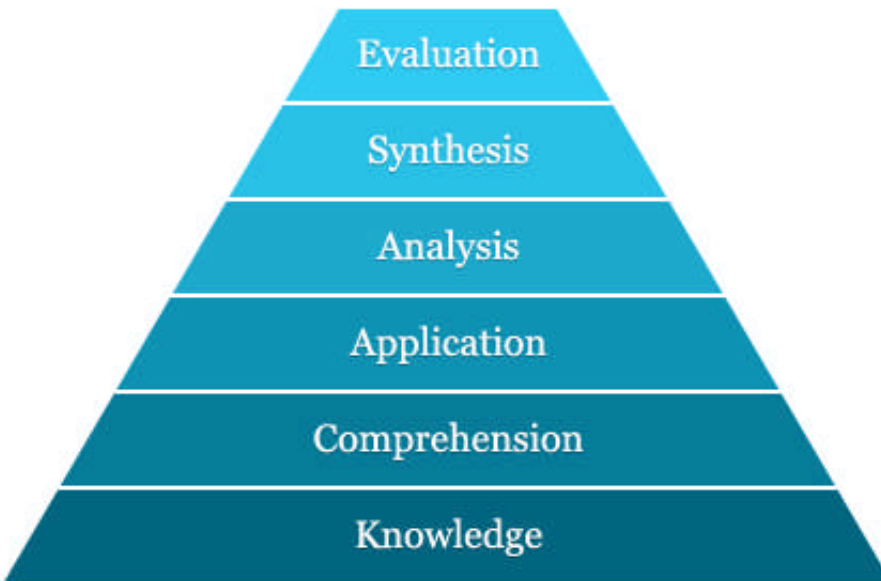


Fig. 1: Bloom's Taxonomy of Learning.

Learning as a process

While Bloom's Taxonomy reveals the many levels of learning, understanding how these levels flow together in practice is crucial. Carol Kuhlthau, a professor at Rutgers University, studied how students researched topics for term paper assignments.. While roughly consistent with Bloom's Taxonomy, her research yielded much greater insight into the sequential nature of learning and its implications on the digital environment. Let's look at Carol's key findings and see how we can apply them to design for learnability.

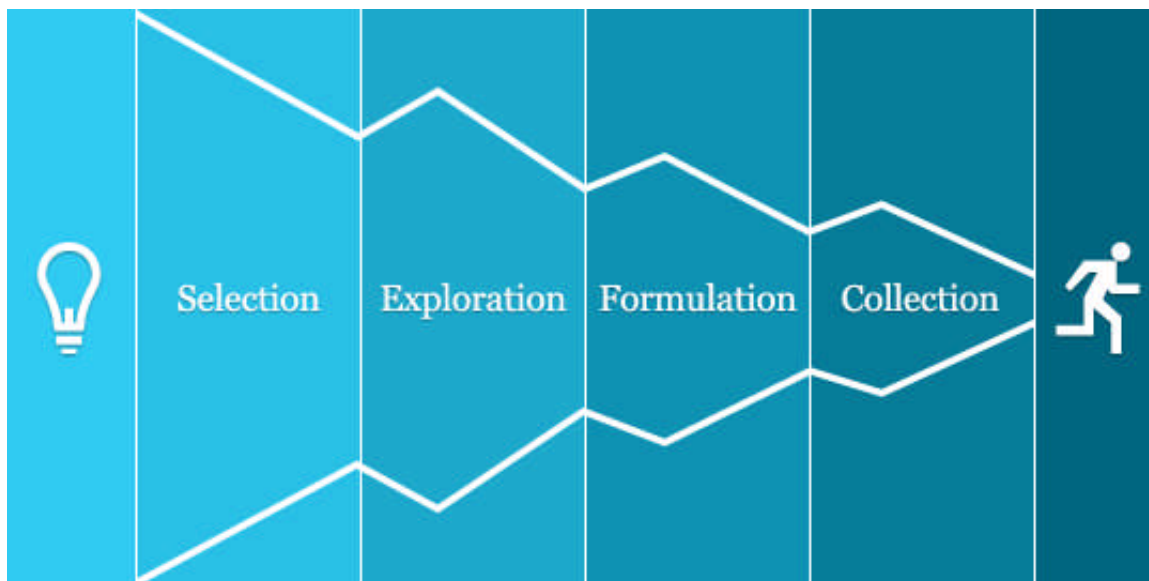


Fig. 2: A representation of the learning process from Carol Kuhlthau's paper "Inside the Search Process."

1. Initiation

Initiation is the phase where you become aware that you need information. It's often accompanied by uncertainty and apprehension. For example, my wife recently told me that

she's tired of taking the bus and wants a car. Hesitant at first, I eventually came around and agreed. Now I have a need to research vehicles.

2. Selection

The selection phase involves committing to constraints that narrow the information search. In our case, we quickly threw out motorcycles, vans, and SUVs, deciding to look only at small, family cars. This phase tends to produce a spike in optimism once the learner makes the selection.

3. Exploration

The optimism of selection usually gives way once more to confusion, uncertainty, and doubt as one realizes the many options still left to explore. Even though we had decided on small family cars, we still had to sift through dozens of makes and models, each with advantages and disadvantages. Kuhlthau's study found that about half of her students never made it past this stage.

4. Formulation

Formulation is the turning point where all the information encountered thus far is formulated into a specific, tangible requirement. In our car hunt we reached formulation when we decided that a four-six-year-old five-door Nissan Almera hatchback with 30,000–50,000 miles was the best fit for our needs and budget. The formulation stage is marked by less anxiety and increased confidence.

5. Collection

Once the problem has been clearly articulated in the formulation phase, the next step is to evaluate the available solutions. Once we had a clear idea of the model we wanted, we used automotive websites to search for cars in our area matching our criteria. Confidence continues to increase throughout the collection process.

6. Action

The final stage of the process is to perform an action based on the newly acquired knowledge. For Kuhlthau's students, this meant actually writing the term paper. For me, it will mean going to the dealership, paying, and driving home a new car.

Designing for learnability

Most websites invest the majority of their effort into streamlining the very last stage of this process: the action phase. It's understandable: businesses make money through conversions. However, the company that best supports the user throughout the entire learning process has the upper hand in converting that loyal user into a paying customer. With that in mind, let's look at digital solutions to seven learning-oriented tasks.

Explore

“Unknown unknowns” characterize the beginning of the learning process. Often, users have no idea what’s out there. Rather than expect the user to search for a precise make and model at this point, we must help the user explore. Browsing and flexible filtering options can expose users to serendipitous discovery, while personalized suggestions can help users set off on the right foot.

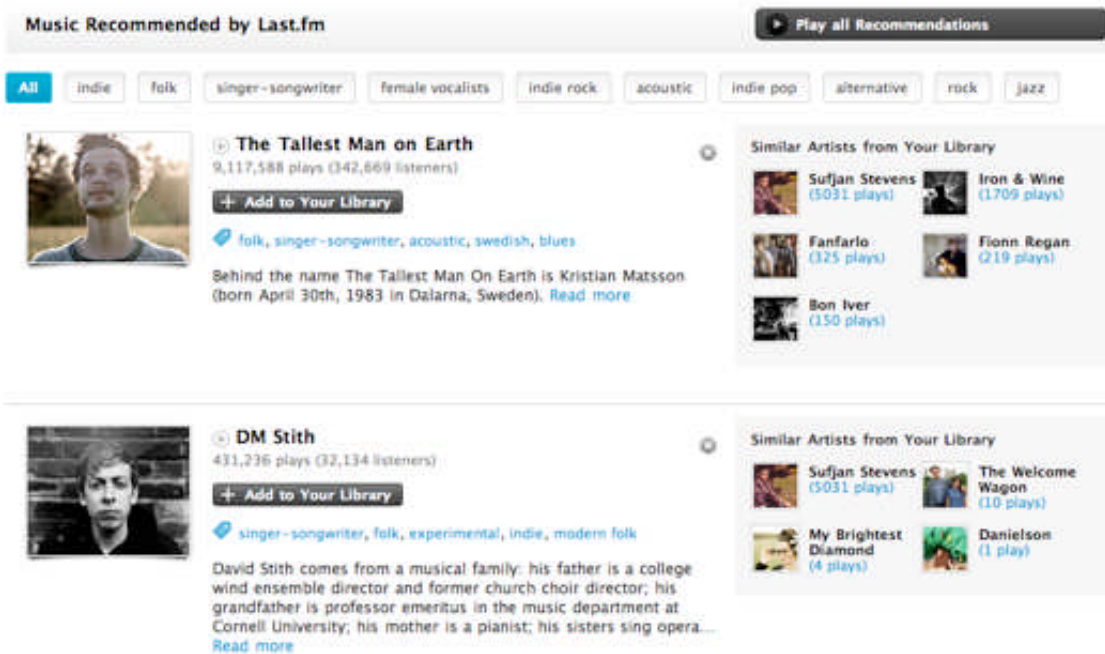


Fig. 3: Last.fm keeps track of the music you listen to and recommends new artists based on how your musical tastes compare with others.

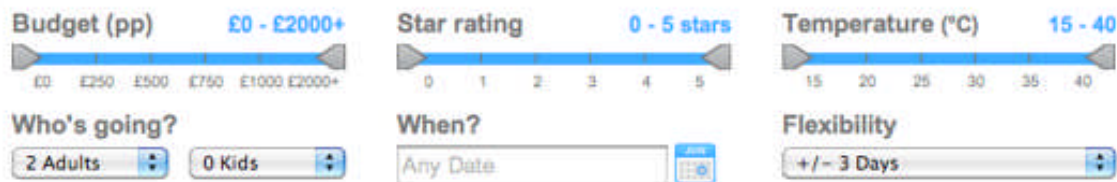


Fig. 4: TravelMatch.co.uk doesn't force you to fill in a date or a destination like most travel websites. Instead, they help users explore holiday options by providing flexible filtering, such as the destination's temperature.

Re-find

Learning can be a long-term activity. Saving a page or item—whether in the browser, a shopping basket, or in a wish list—can help users return to something they found earlier. Showing a list of recently viewed items can also provide a more passive means for helping users re-find.

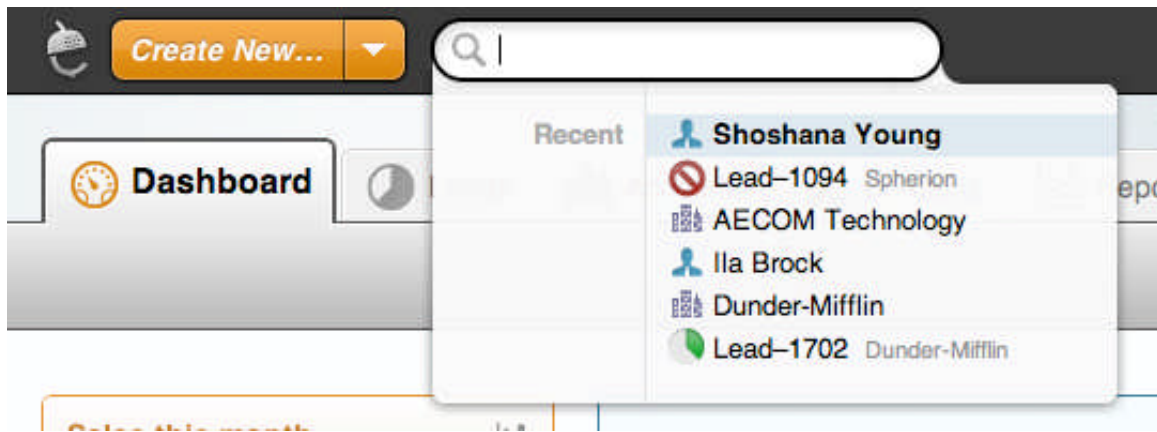


Fig. 5: Nutshell CRM shows a list of recently viewed items when the user focuses on the search box, but before they start typing.

Organize

While simple bookmarking helps users re-find, a higher-level task is to actually understand the information encountered thus far and how it fits together. Often this simply occurs in the mind; other times we may jot ideas down on paper. Whatever the medium, organizing items and ideas into categories is key to the learning process.

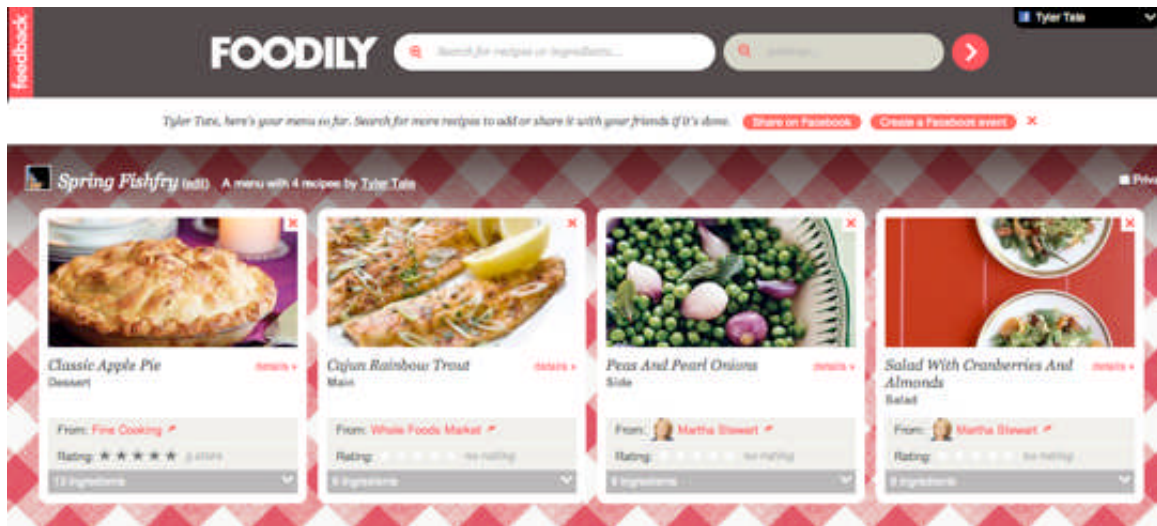


Fig. 6: Foodily not only allow users to save their favorite recipes, but to organize them into meal plans.

Compare

In addition to organizing items into categories, being able to view a side-by-side comparison aids in the analysis process, especially during the collection phase.

Product Comparator

Simply tick up to 3 product boxes to view a side-by-side product comparison.

EOS 5D Mark II EOS 60D EOS 7D



Where to buy ▶



Where to buy ▶



Where to buy ▶

IMAGE SENSOR			
Type :	36x 24 mm CMOS	22.3mm x 14.9mm CMOS	22.3mm x 14.9mm CMOS
Effective Pixels :	Approx. 21.1M	Approx. 18.00 megapixels	Approx. 18.00 megapixels
Total Pixels :	Approx. 22.0M	Approx. 19.00 megapixels	Approx. 19.00 megapixels
Aspect Ratio :	3:2	3:2	3:2
Low-Pass Filter :	Built-in/Fixed	Built-in/Fixed	Built-in/Fixed
Sensor Cleaning :	EOS integrated cleaning	EOS integrated cleaning	EOS integrated cleaning

Fig. 7: Canon's website allows users to compare up to three cameras side-by-side.

Annotate

An extension of organize and compare, annotation enables users to enrich collected items with their own notes and ratings.

The screenshot shows a user interface for Globrix with a navigation bar at the top containing 'mysearches | 0', 'myproperties | 3', 'mypromotions | 0', and 'myprofile'. Below this, two property listings are visible. The first listing is for 'Lewisham Hill, Lewisham, SE13' priced at £277 per week (£1,200 per month), with a note: '"No quite as nice as the others"' and a rating of 4 stars. The second listing is for 'Bennett Park, Blackheath, SE3' priced at £300 per week (£1,300 per month), with a note: '"The kitchen is nice but no tub in the bathroom :-/' and a rating of 5 stars. Each listing includes a 'price watch' button with 'yes' and 'no' options, and a 'delete' link.

Fig. 8: Globrix allow users to rate and write notes on each property that they've bookmarked.

Monitor

Toward the end of processing learning, the user typically has a decent understanding of what they want. And yet that ideal job, house, or car may still be elusive. The ability to save a search and receive an alert when something new appears can be priceless.

From: newproperty@primelocation.com
Subject: [Primelocation.com](#) property update 24/03/2011

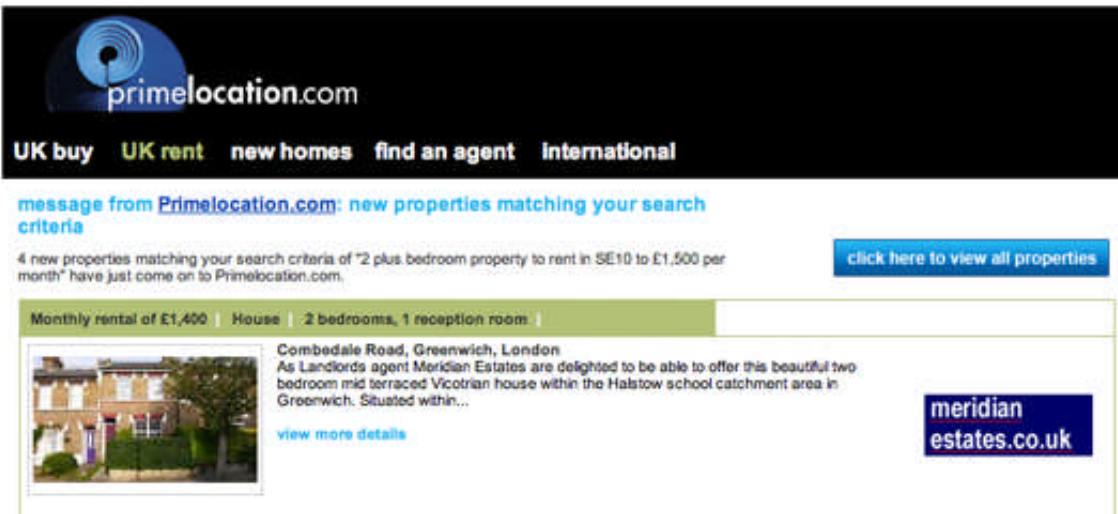


Fig. 9: Primelocation allows users to save a search, as well as to receive a daily email with any new properties matching the user's criteria.

Collaborate

We don't often make decisions in a vacuum. Friends, colleagues, and spouses often get their say as well. Unfortunately, the collaborative learning process is very poorly supported on the web today. During my car search, my wife and I often sent links back and forth to one another through email, a less-than-perfect solution. Shared bookmarks and collaborative annotations and ratings would go a long way in making learning on the web more social.

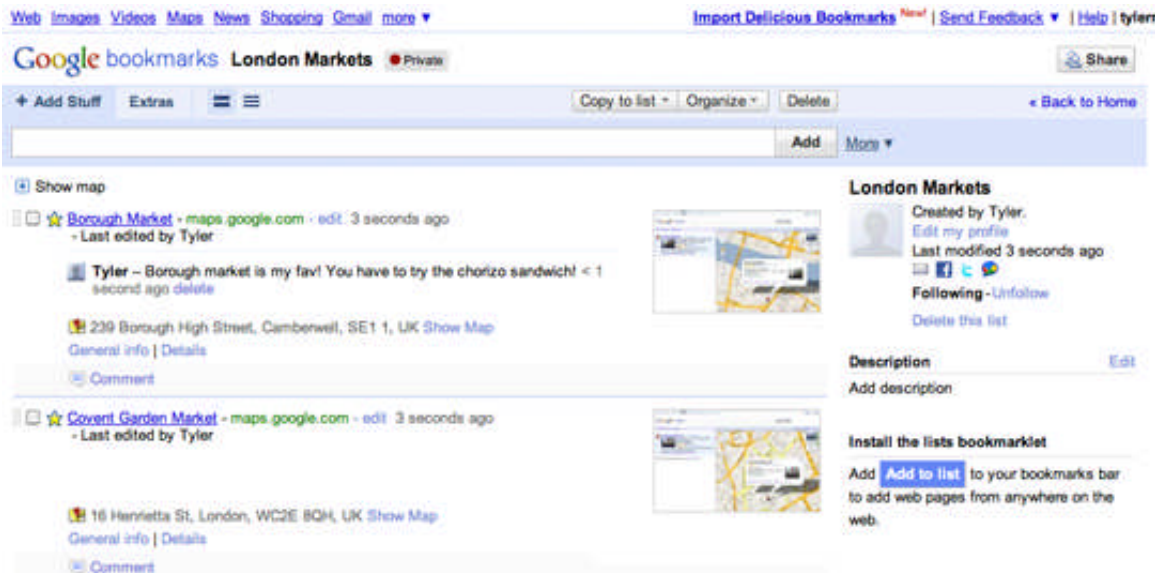


Fig. 10: Google Bookmarks allows users to create lists of bookmarks, share those lists with others, and comment both on individual bookmarks, as well as on the list as a whole.

From the classroom to the computer screen

Far from being monopolized by schools, learning is an essential human activity. Empathizing with

and supporting users as they traverse the many stages of learning fosters happier users and a more profitable business. We could all benefit from psychologist Carl Rogers's wise advice to educators:

A further element that establishes a climate for self-initiated experiential learning is emphatic understanding. When the teacher has the ability to understand the student's reactions from the inside and has a sensitive awareness of the way the process of education and learning seems to the student, then again the likelihood of significant learning is increased.

