Optimizing User Experience
A CNN Newsource White Paper

Creating an optimal user experience for your audience is as much an art as a science. However, understanding your Google Analytics data can provide a strong base for the science portion of the mix, and serve as a checklist of dos and don'ts for any content site.

First, let's break down a good user experience into definable metrics we can observe over time. To do that we'll explore what makes for a satisfactory visit to a site and look at what metrics to attach to each attribute. Let's start with a short list based on common problems that hamper a good user experience:

- Can users find what they are looking for?
- Do pages load quickly and completely?
- Does my site provide a good experience on a mobile device?

Now, let's consider each one along with the metrics that will give us insight into what users are experiencing.

### Can users find what they are looking for?

Users who come to your site to find something specific will leave quickly if they don't. We can track this behavior a couple of ways:

Look for broken links

Broken links cause multiple problems for a site. They are frustrating, of course, for users who can't find what they are looking for. But they also can hurt your search traffic since search engine bots can't crawl the site properly and may not feature all your content on their results pages. The good news is that it is relatively easy to find and fix broken links.

To find broken links on your site, first try to go to a page you know doesn't exist. For purpose of our example we'll imagine a fake Google page, http://google.com/fakepage. Go ahead and type that into your browser and take a look at what pops up. Note the title of the error page. In this case it is "Error 404". Now do the same on your own site, subbing a fake page with your URL in it, and once again note the name of the error page generated. The first few words are enough if the name is a long one.

In your Google Analytics dashboard, click on Behavior, then Site Content, then click on All Pages. To the right you will see a bar above the table labeled Primary Dimension. Click on Page Title to the right. Next, enter the first few words of the error page title into the search bar to the right and below where you selected Page Title. Your screen should look like this:
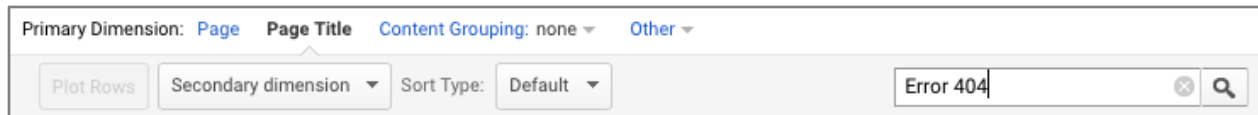
Click the search button to return the error page for your site. Click on it and you will see a table filled with all the URLs that generated a broken link on your site. You'll need to take one more step to access the source of the links. In the image above, you can see a dropdown menu called Secondary dimension. Pull that down, select Behavior, then click on Full Referrer. The resulting table will provide the location of the source for all the bad links recorded by your site so that you can take steps to eliminate or correct them.

Look for dead-end sessions

To find one-page and other short sessions, we're going to go into Google Analytics and look at the engagement metric. To find it, go to your dashboard, click on the Audience menu item in the main menu bar on the left. Next, click on the Behavior heading under the Audience menu (NOT the top-level menu item further down.) When it opens up, click on Engagement to reveal a table on the right. Near the top of that table click on Page Depth. The resulting table will look something like this:

Here you can see that about 78% of sessions consisted of only one pageview, with less than 10% containing two, less than 5% consisting of three, etc. This high-level view provides general information on how long people tend to stay on your pages. To find out which pages people are most likely to leave from, we'll have to drill down further.

	BEHAVIOR
	Overview
	Behavior Flow
▼	Site Content
	All Pages
	Content Drilldown
	Landing Pages
	Exit Pages
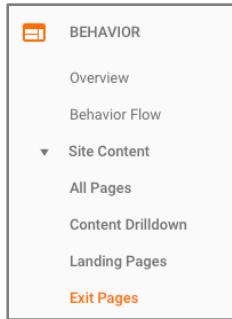
To do that, go back to the main menu on the left and click on the top-level menu item Behavior. Next, click on Site Content, then when it expands, click on Exit Pages (see left.) This will present you with a table showing the pages users left your site from most often. Still, we need to refine the data a little more to make it meaningful. To do that, click on the % Exit heading on the fourth column to rank the table by the highest exit rates first. You'll see many pages at 100%, and most of these are not useful since they are transitional pages or other places with no real content. Let's filter this data to get a better look at the most useful pages.

To filter, click on the advanced search link next to the search box above the table. You'll see some dropdown menus and fields appear. We'll use these to bracket our results. First, pull down the menu that says Page, click on Site Usage, then select % Exit. In the dropdown to the right, select Less than, then type 100 in the box. This will filter out all of those pages without content we saw earlier. We'll also want a bottom range for our search, so click below to Add a dimension or metric. In that dropdown menu once again select % Exit, then type 95 into the box to the right. You should see a screen that looks like the one below:

Include ⌄	% Exit ⌄	Less than ⌄	100	⊗
	and			
Include ⌄	% Exit ⌄	Greater than ⌄	95	⊗
	and			
+ Add a **dimension** or **metric** ⌄				

Apply cancel
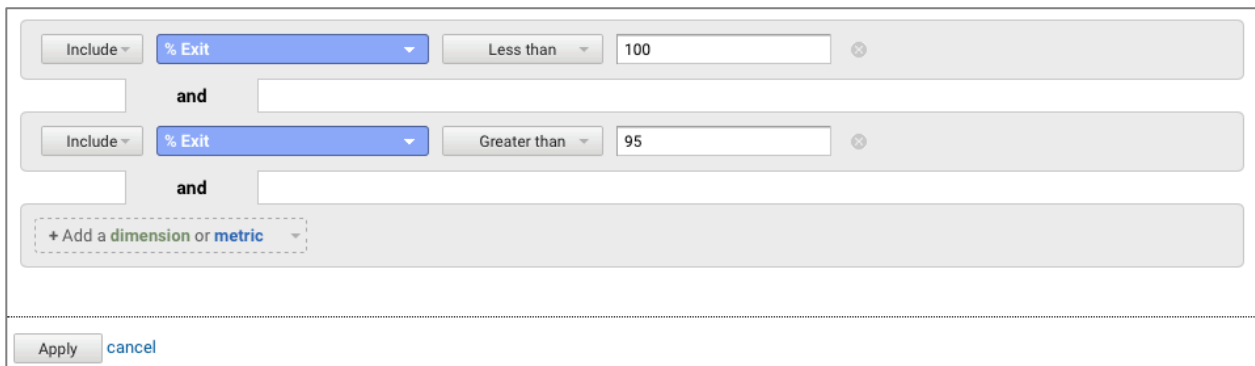
Once you have done this, click the Apply button below to filter your results.

What you're seeing now should be most of the real content pages that had very high bounce rates. If you're not sure what a certain page is by looking at the URL just click on the icon to the right to open up a new window with that page. If there are no pages listed, or just a few, you can modify the second parameter, lowering it to 90% or 85% to generate more pages.

As you inspect these pages look for common elements or problems that may be driving people away. These could be technical issues where a page does not load properly or is misidentified, and the user does not get what he or she expects. The problem might be related to page structure or content. For example, the page may lack links to other related or relevant stories that would make a user click to stay on your site and read more. Try to find what problems exist on the select pages so that they can be corrected and serve to drive more traffic around your site.

<u>Do pages load quickly and completely?</u>

Almost as frustrating as a broken link is a page that loads slowly or doesn't completely load. Google Analytics makes these culprits easy to find as well.

From your dashboard, click on Behavior, then on Site Speed to open its submenu. You'll see a few choices here. We'll start with Overview. Click on it to see the general metrics for your site's page loading speed. You should see a table that looks like this:
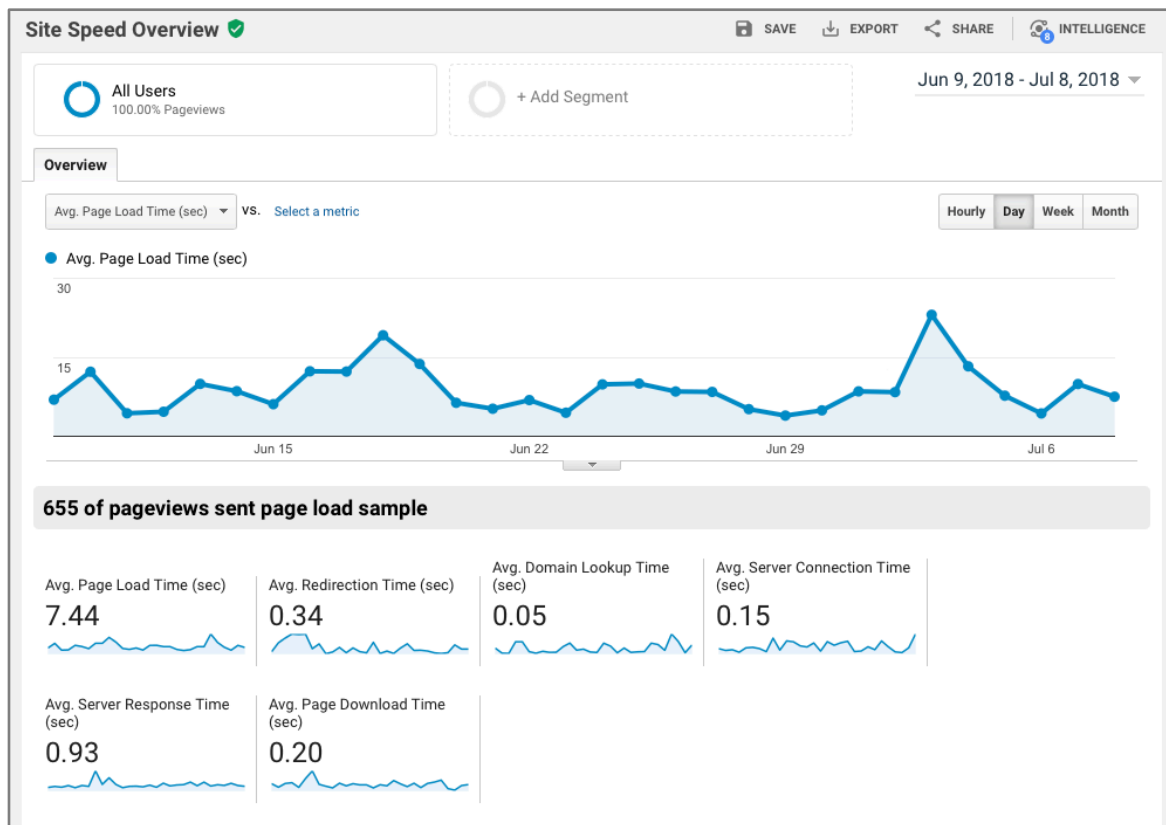
The main number to look at here is the first one, Avg. Page Load Time. But what number should we target?

As with many metrics, opinions vary. Certain pages, like those on search and ecommerce sites, need to load very quickly, in one or two seconds. Content sites will take longer to load due to the amount of material on a given page, with industry averages in the six- to nine-second range. If you are seeing an average page load time longer than that, there may be fundamental site problems you need to address. But, if your average is in or close to that range, let's look for the outliers that are pulling up your average.

To find those pages go back to the left menu and click on Page Timings below Overview. The table that loads on the right will show individual pages ranked by pageviews. However, we want to see the longest loading pages. To do that, click on the Pageviews dropdown menu to the right and select Avg. Page Load Time (sec). This will rank the table with the longest loading pages at the top. You can see how long each took to load and how that compares to your average load time, as seen in the image to the right.

Avg. Page Load Time (sec)	Avg. Page Load Time (sec) (compared to site average)
7.44 — Avg for View: 7.44 (0.00%)	7.44 — Avg for View: 7.44 (0.00%)
60.59	714.87%
58.24	683.29%
55.96	652.61%
47.55	539.48%
35.35	375.40%
28.63	285.01%
26.81	260.59%
24.44	228.68%
23.00	209.25%
21.98	195.62%

Browse through the top few items, looking for a common cause for the long load time. This might be due to a particular content type, such as video. If you find that all the pages with video are taking a long time to load, your video production system may need a tweak, or even an entire overhaul. Look for other culprits such as third-party elements. These could be quizzes or other interactive elements, or data-heavy content such as slideshows and picture galleries. Often the content may be fine, but it is the technology that runs it that is slowing a page. If that's the case, try alternate means of displaying that content to see if page load times reduce.
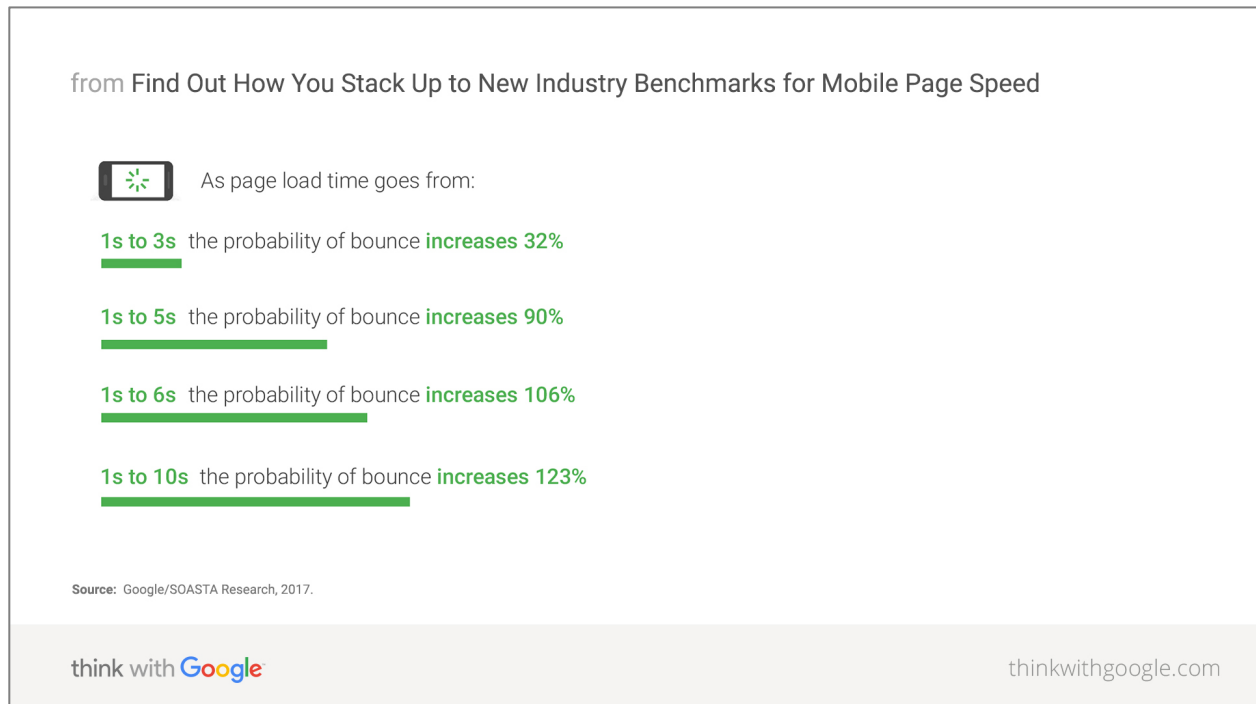
Google can help with some of this remedial work. Going back to the menu on the left, click on Speed Suggestions under Site Speed. This will bring up a table on the right that can be sorted by Pageviews, Avg. Page Load Time, and PageSpeed Score, a Google measure of how much a page might be improved. Click on Avg. Page Load Time to sort by that column. You'll see in each row a link with a number of suggestions for improvements under the PageSpeed Suggestion column. Click on one of those to get a new window with tips for what might be improved for that page, including tabs for both mobile and desktop performance.

As you look through various pages you'll start to see common elements such as images not being optimized or extraneous CSS or JavaScript code present on the page. Handily, Google has suggestions for fixes on many of these common issues. To see those, just click on the Show How to Fix link under each optimization suggestion. The remedies are very specific, giving estimates for page load improvements, and can be very helpful in engineering substantive changes to your page load time and positive site experience for users.

Does my site provide a good experience on a mobile device?

Traffic from mobile devices can make up 50% or more of your total traffic. If you don't know the mobile composition of your users, it's easy to find on Google Analytics. From your dashboard select the main Audience menu, then click on Mobile, then the Overview menu that appears under it. You'll see a table on the right with the breakdown of the devices accessing your site by both number and percentage among mobile, desktop, and tablet devices. (For the purposes of most site designs you can treat desktop and tablet as the same.) You also can click the next menu item, Devices, to see specifically which kinds of devices hit your site. (If you are like most sites it will be overwhelmingly iPhones.)

Now that you realize how many of your users come in using mobile devices, how do you find out if you are offering them a good experience? A positive mobile experience is derived following the same practices described above but intensified in many cases. For instance, mobile users are much more likely to leave a site if a page does not load quickly enough. Google released this chart last year that should strike fear in the hearts of most digital publishers:

from Find Out How You Stack Up to New Industry Benchmarks for Mobile Page Speed

As page load time goes from:

1s to 3s the probability of bounce **increases 32%**

1s to 5s the probability of bounce **increases 90%**

1s to 6s the probability of bounce **increases 106%**

1s to 10s the probability of bounce **increases 123%**

Source: Google/SOASTA Research, 2017.

think with **Google**   thinkwithgoogle.com

The numbers are chilling. A page that takes six seconds to load instead of one means a mobile user is more than twice as likely to leave your site. While it may be impossible to get a page to load in one second, there are steps you can take to keep mobile users on your site while the rest of the page loads:

- Make sure that at least your site branding and a story headline loads within the first second. This will inform users that they came to the right place and may serve to get them to wait a few more seconds for content. (Which elements load first for mobile can be addressed in the front-end code for most sites.)
- Make sure that the first mobile screen has more content than non-content on it. If the first mobile screen is dominated by navigation or ads, users may find it easier to leave than if they see the content they came to the page for.
- Make sure content loads before advertising. While many site designs put ads at the top of the page. This can be an extremely detrimental structure if the ad loads before any content. Users, already wary of ads, can be driven off a page quickly if all they see is an ad with no clear content present. This is exacerbated even further in many cases because ads tend to have large file sizes and can delay the loading of content much longer than other content or navigation elements.
- Avoid data-heavy file types that will hamper use of content. While video and images are important to deploy for all users, including mobile, an overreliance on this content can make

for an unsatisfactory mobile user experience. Displaying video and images further down a page after a user has had time to read some content will allow the rich file types time to load while not interrupting the user experience.

Not all mobile optimization has to do with page load times. Some other factors to consider:

- Use responsive design. Most sites use a responsive template that scales for different browser sizes and device types. In addition to offering the best experience to all kinds of users, a responsive approach allows publishers to focus efficiently on just one code base to keep current and update as styles and technology progresses. If your current site is not responsive you should seriously consider seeking out help in making it so.
- Make clicking and selecting easy. Buttons and dropdown menus that we take for granted on desktop sites may be hard to use or even to see on mobile versions of the same site. If your site relies heavily on these sorts of navigation you might consider changing some of them to text links, radio buttons and other interface elements that work better on mobile devices.
- Kill the pop-ups. While annoying on the desktop, pop-ups can grind a mobile session to a complete halt. If you are using pop-up windows to display content on your site, stop. If your advertisers regularly use pop-ups, consider changing your ad standards to ban them.

Google has some other tips on its mobile-friendly test site: https://search.google.com/test/mobile-friendly. If you run your site through the tests, you'll get additional suggestions, many tied directly to your Google Analytics console to aid in further monitoring and action.

Summary: Optimizing User Experience

To recap:

- How long a user will stay on your site and how likely he or she is to return is largely dependent upon a positive user experience.
- There are several factors that contribute to an unsatisfactory user experience. Some of the most concerning are:
  - Broken links or missing pages
  - Pages that load slowly or do not load completely
  - Bad mobile experiences, often caused by slow loading and page elements that hamper mobile use
- Google Analytics data provide a good starting point to pinpoint problems and make modifications that can be tracked over time to test their effectiveness.

Not all fixes are easy, but with a little work you should be able to tackle some of the most egregious and start improving your session times and bounce rates in short order.

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