



UX Knowledge Base



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Fundamentals of UX Testing 101

Introduction

Building a mobile app is only half the battle... Once that's been accomplished it's time to move on to optimising your app and monitoring the behaviour of your app users. And with over 2.7 billion smartphone users and over 4 million apps worldwide, competition is getting fierce. In order to be successful, businesses have to stay sharp and offer a good mobile app experience to their customers. But how can they know if they're on the right track?

Here we are to help you optimise your app user experience by helping you with some of the pressing issues like-

Who are your users?

What is their onboarding experience?

What are they looking for?

How is the new upgrade received?

Why are they not converting?

What can we do to improve the customer experience?



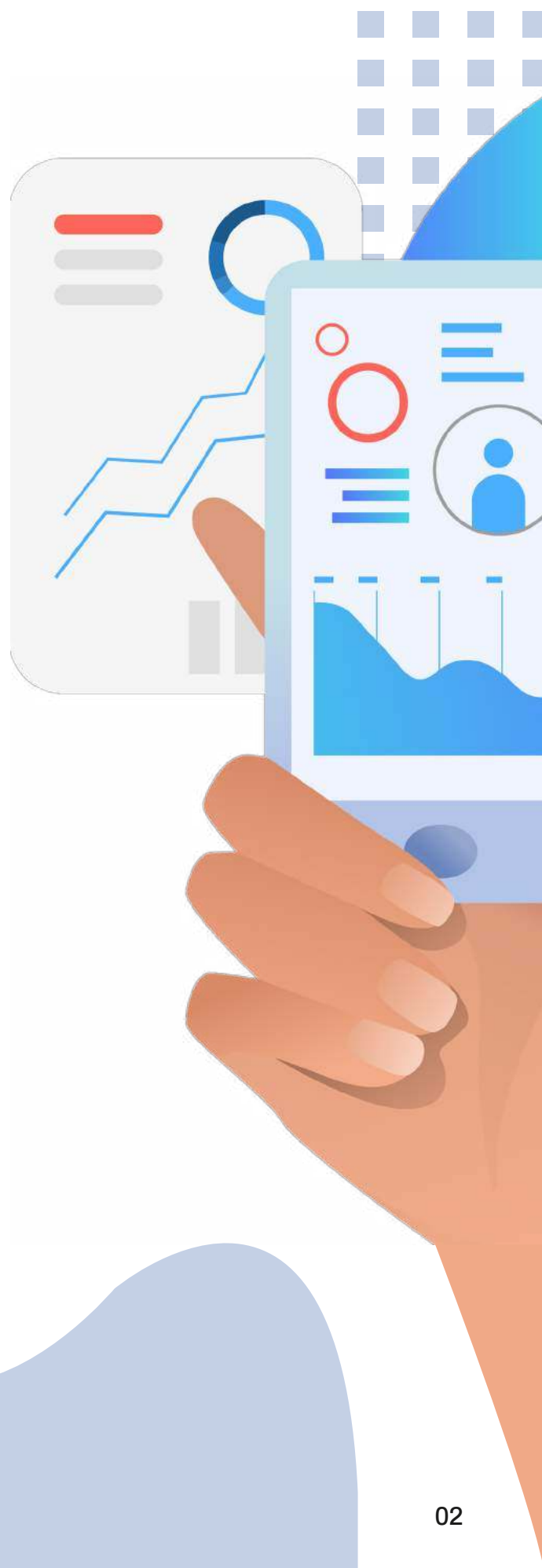
Difference between UX Testing and Usability Testing

User experience testing is the process of collecting qualitative and quantitative data from the user, whilst the user is subject to all aspects of a service or product. Qualitative or quantitative data is collected from the user to improve ux and is done using various methods and usually with the aid of a tool or service.

Simply put, user experience is how you feel about every interaction you have with what's in front of you in the moment you're using the app. It includes measuring users' emotions, gaze movements, preferences, and all key details of behavior during and after use of the product.

Usability is the way of how a product can be used by users to reach specified goals. It addresses whether or not you're able to achieve a task or goals with a product or service. Usability testing is aimed to uncover how much the product (app, website) is easy to use, understandable, is it able to satisfy the users needs effectively.

Many people confuse UX design with usability and vice versa. However, mobile app usability is an aspect of UX that plays into the overall relationship between user and product. UX defines all aspects of a user's perception of a mobile app, including usability.



Importance of UX Testing

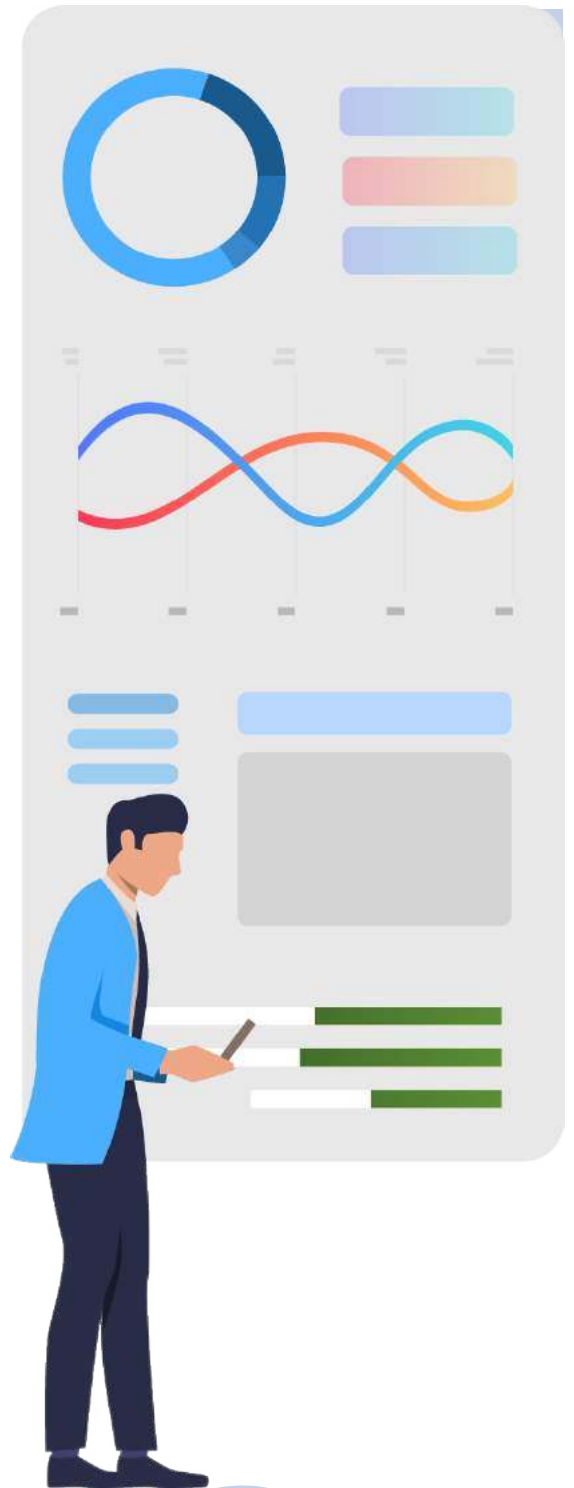
Data only shows part of the story. If you're only going by analytics, you're essentially guessing. Sure, it can be an educated, highly informed guess - but you won't know exactly why things are happening on your site until you see real people using it.

A poor mobile app experience led to the following user reactions:

- 48% are less likely to use the mobile app.
- 34% switch to a competitor's mobile app.
- 31% tell others about the poor experience.
- 31% less likely to purchase from your company
- 24% have a negative overall perception of the company.

UX testing gives companies unparalleled insights into the otherwise hidden lives of app users. UX analytics usually comes in the form of a software that integrates into companies' existing mobile apps to capture, store, and analyze the data. This data is vitally important to marketing, sales, and product management teams who use it to make more informed decisions. Without a UX analytics solution, companies are left flying blind. They're unable to tell what users engage with and why they leave. Thereby making your app more usable.

So analyzing the product's user-flow and overall UX will allow designers to discover many pain points and frustrations—to walk a mile in the users' shoes and uncover opportunities that will improve the product's user experience overall.



UX Testing Advantages

1. Helps uncover UX issues from an early stage.
2. Helps improve end-user satisfaction
3. Makes your app highly effective and efficient
4. Helps gather true feedback from your target audience who actually use your app. You do not need to rely on “opinions” from random people.
5. Improve retention and thereby your revenue

UX Testing Checklist

The primary goal of the UX testing is to find crucial UX problems before the app is launched. Following things have to be considered to make a testing success:

- Start early - Start the UX testing during the early stage of design and development
- Target audience -Select the appropriate users to test the app(Can be experts/non-experts users/50-50 of Experts and Non-Experts users)
- Testers need to concentrate on critical & frequently used functionalities of the system.
- Educate Designers and Developers that this testing outcomes is not a sign of failure but it's a sign of Improvement



UX Metrics you Should be Tracking

User experience is very subjective by nature. We can measure its effects on product engagement (e.g. pageviews, time spent, etc.) and conversions (signups). But how do we directly measure and benchmark UX?

The old paradigm of mobile analytics is geared more towards measuring progress against business goals. While still useful, they're lagging indicators of UX decisions.

Common metrics include:

Pageviews- Number of pages viewed by a single user.

Uptime- The percentage of time the website or application is accessible to users.

Latency- The amount of time it takes data to travel from one location to another.

Active users- The amount of unique users to interact with the app like daily active users(DAU), weekly active users(WAU), monthly active users(MAU) etc.

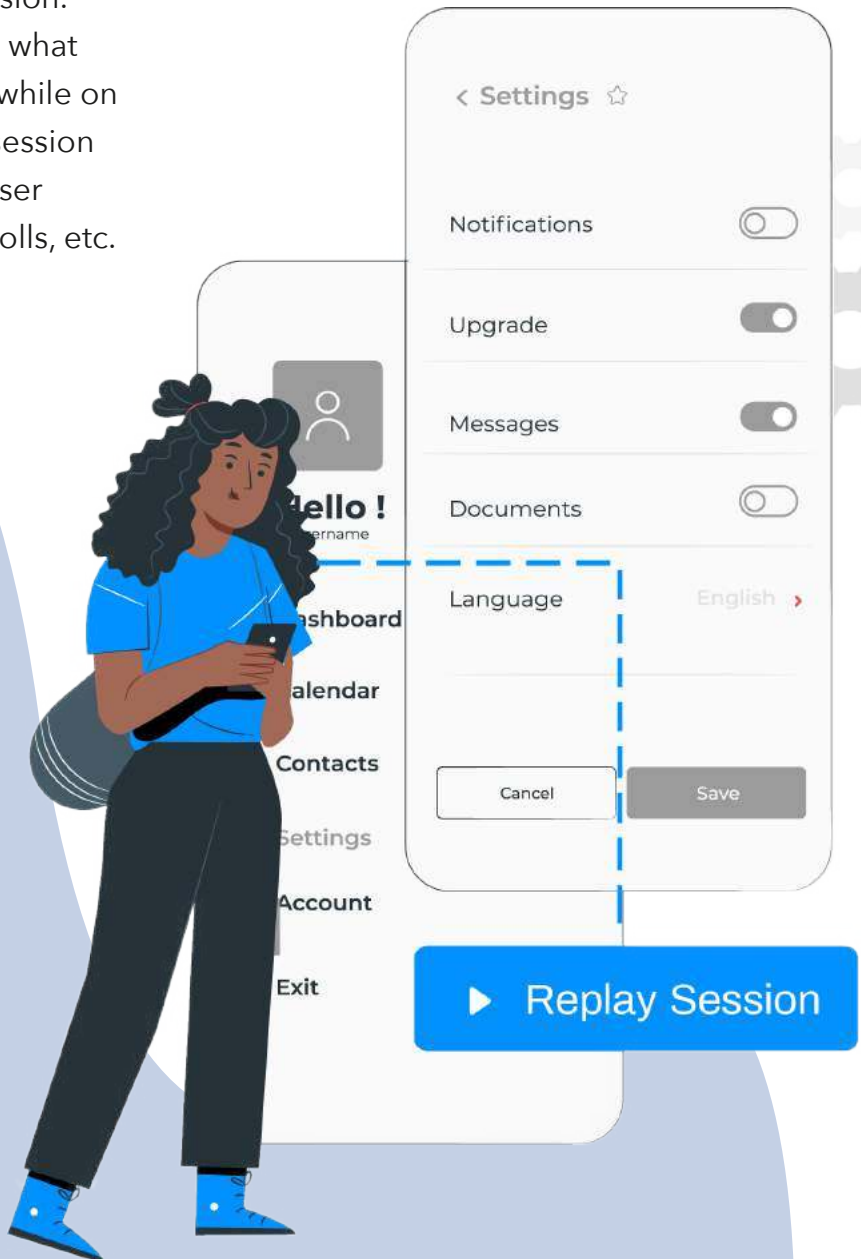
Earnings- Revenue generated by the app.

While businesses should still track these metrics, it has to be remembered that they lack context for measuring UX. For example, an average time on an app of 5 minutes might mean users are highly engaged – or just aren't finding the content they need.

User-centered metrics are hard to come by. Either the parameters are too generic to be useful, or too specific to be applicable across the board.

Session Recordings

A session recording or a session replay is a non-audio recording of a user's journey and interactions on your site. They include user's scrolling, clicks and form interactions and are usually anonymous. It is a process in which every user interaction on your app is recorded and replayed in a video form. Also named as session playback, session recording, and user session replay, it makes a crucial part of your optimization procedure and helps boost your rates of conversion. Moreover, it supports visualizing what an anonymous user encounters while on your app. Using UserExperior's session recording tool, you can record user activities, such as taps, clicks, scrolls, etc. in real-time.

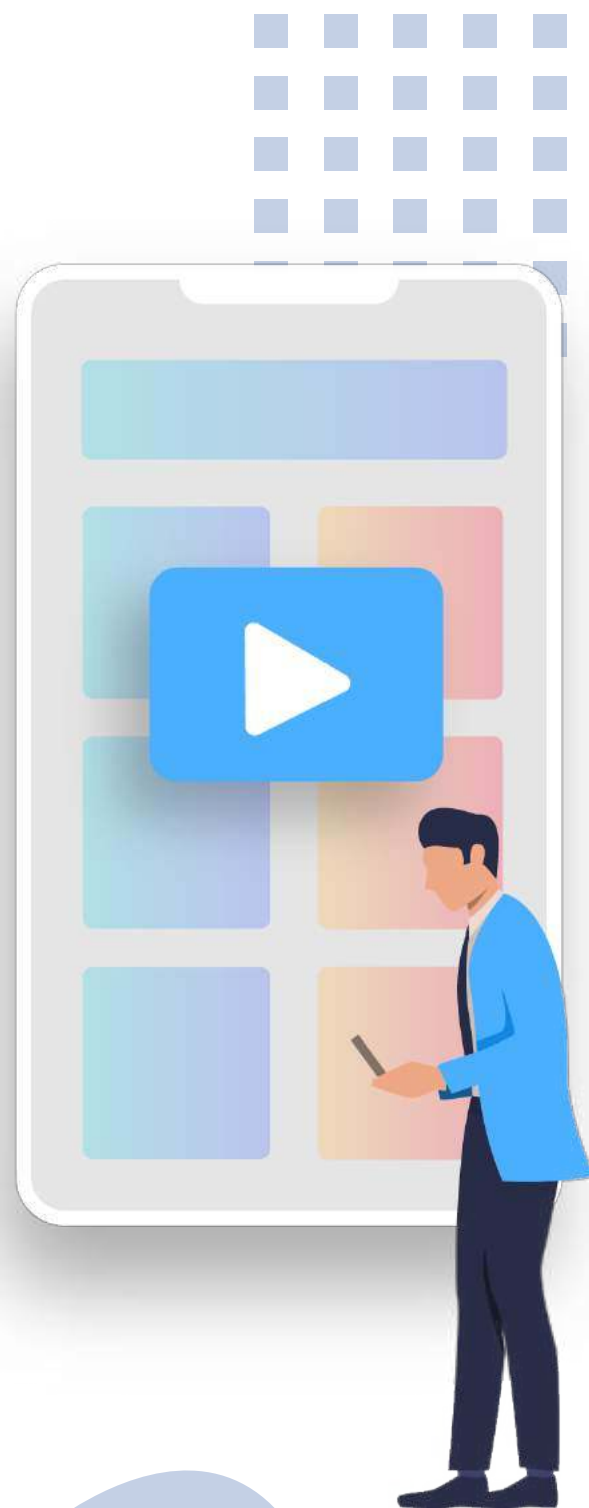


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Helps you to gain a real understanding of how users interact with a website, which then helps fix issues, optimize UX, and ultimately improve conversion rate. Great for identifying user behaviours and trends and has an advantage over user testing, as users do not know they're being observed. Therefore, users display their real on-site behaviour.

You can figure out which part of the app attracts the users the most, makes them go further into the funnel or drop out, distracts them from the desired CTA, ultimately leading to low conversions, and so on. With such data, you can make confident business decisions that are not only logical but also data-driven. You can always revisit those recordings and get crucial insights.



How Session Recordings Improve the App User Experiences

Session recordings provide every micro-interaction a user makes once he opens the app till he leaves.

1. Helps you to understand and empathize with your user experience

Using this tool, you'll put yourself in your visitors' shoes in the most natural and unbiased way. You experience what they're going through as they browse your website, and build a more enjoyable and efficient user experience as a result.

2. Identify the issues, bugs and barriers

You can zoom in on the places where users get stuck, identify the broken elements and other issues. This is clearly one of the fastest ways to identify user frustration and optimise your design.

3. Find the reasons for bounce rate

You can find out the reasons why your user is leaving your app without converting. You can look for the patterns and see if there is any erratic navigation. See if they encountered any bug or a crash.

4. Make a data-driven decision

Having a recording makes it easy to share across teams, watch and helps you to make design decisions and optimizations. A data-driven decision always helps in making better decisions and getting the right people on board.



What to look for in a Session Recording

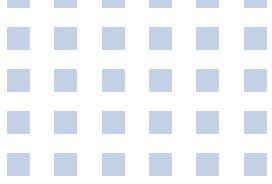
After a few recordings, you will probably begin to spot trends in your visitor behavior and the way they interact and engage with apps. Understand users' entire journeys on the website, including taps, scrolls, and more. Session recording facilitates careful assessment and study of user browsing behavior, discovery of experience breakage, identification of friction areas, which then helps fix what is broken, optimize user experience(UX), resulting in improved conversion rates.

You'll notice the following -

1. The navigation route of the user
2. How visitors interact—or fail to—with buttons and clickable elements
3. Unusual activity, for example, wild scrolling or repeated tapping
4. If it takes too long to complete an action
5. How visitors move around on the page and where they stop
6. The problems with page loading (if any) across devices
7. Broken functionality
8. Incorrect or broken rendering

Insights from Session Replays

- Once you watch the user session usage, identify where the user was stuck or facing any issue, you are more likely to empathize with the user. So identify the areas of friction and spot the opportunities for change and improvement.
- Identify the areas/pages of distraction and why the users are not navigating through the current page to the desired page
- Find out the reasons for rage tapping
If the user is tapping or clicking repeatedly on an element when nothing happens, you may need to check if any element is broken or if your design is confusing people.
- Notice how much time it takes to perform a specific action - if you see people scrolling a lot through a page/screen and moving their mouse around erratically before committing to an action, you might need to investigate if they have all the information they need to continue
- Identify the bugs, glitches or issues, if any
See if there are any functionality bugs, design issues or layout glitches and make the necessary changes.



Advanced Session Analytics

You can combine the behavior and feedback tools to super-charge your work and get more insights.

Session Recording + Analytics

Traditional mobile app analytic tools give you plenty of quantitative data insights about traffic and usage patterns. You can certainly make educated guesses about what's happening based on numbers and charts—but you're still missing some crucial context behind them both. For example: what do you do after your analytics tools reveal that you have a page with lots of traffic but very few conversions? As a first step, you can find a list of relevant recordings, review 10-20 of them, and start observing what people actually do on the page.

Session Recording + A/B Testing

These two are closely linked. You can use insights that you get from recordings to define test hypotheses, and you can also watch recordings of A/B test page variations to understand what is making a page more successful than the other.

Session Recording + Feedback

Quantitative (numerical) data is fundamental to making data-informed UX decisions, but qualitative (non-numerical) data is similarly crucial. After you observe interesting and/or unusual behaviors in your session recordings, you can ask your visitors and customers for direct feedback and learn why they behave the way they do (for example, why they are about to abandon your site). Even a one-question survey can give you powerful insight and lead to business-changing transformation.

Session Recording + Heatmaps

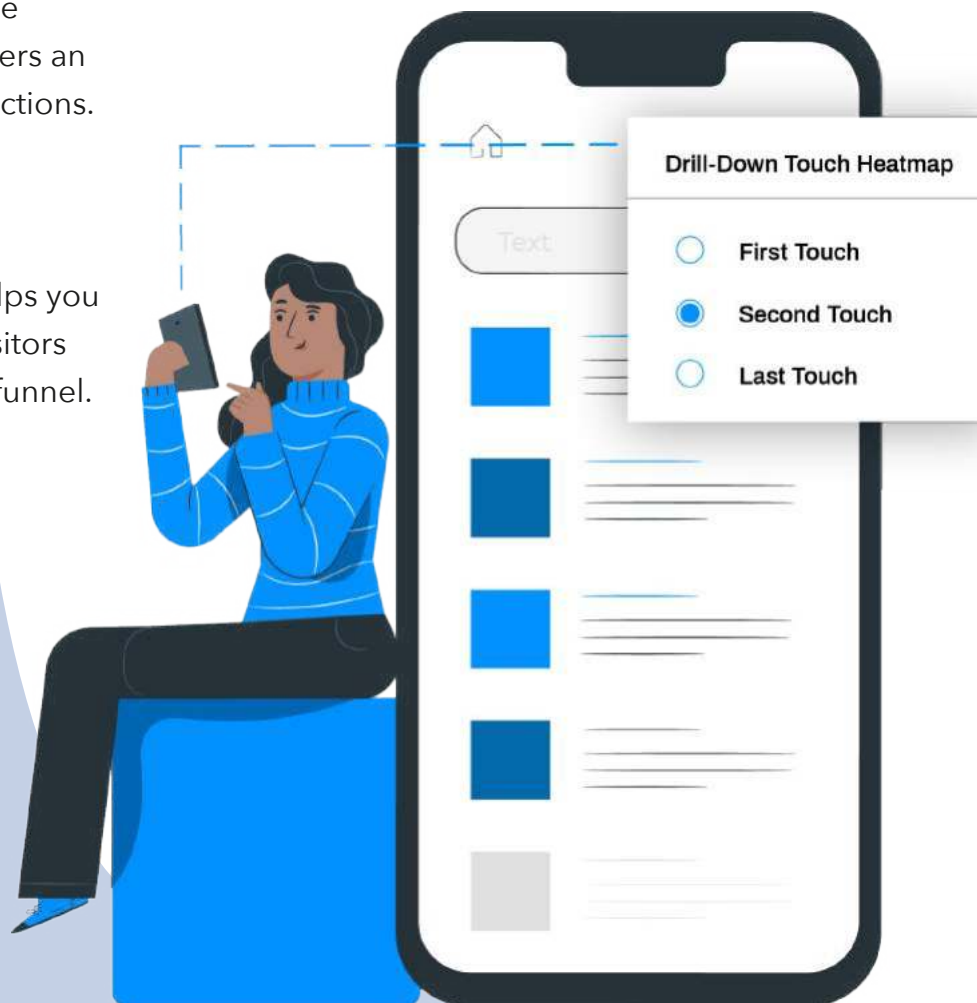
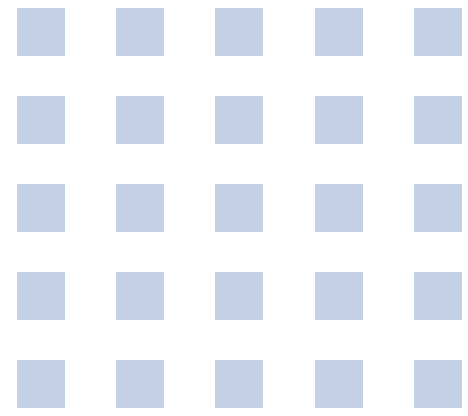
Session recordings are generated for individual users and show you their actions across multiple pages, while heatmaps help you visualize data from page visitors in aggregate. When you are interested in a specific page, heatmaps can give extra clarity to the insights you pick up from a set of recordings. For example: if you notice the same behavior across 5 or 10 recordings, you might be tempted to generalize and think that everybody visiting the page behaves in the same way. A heatmap will easily help you prove or disprove the assumption.

Heatmaps

Heatmaps are one of the most powerful tools when it comes to UX Analytics. They are a graphical representation of where a user or users have clicked, scrolled to, mouse hovered or looked at, on a page. In its most basic sense, heatmaps are a graphical representation of the user's interactions on the mobile screen using colours. Warmer colours indicate the highest activity whereas colder colours indicate the lowest activities.

Basically, heatmaps record your activity and display the areas where you tap the most and spend the most time. By aggregating user behaviour, heatmaps collect data and give the Product Managers and UX designers an understanding of the users' interactions.

Testing your assumptions using heatmaps is a smart move that helps you determine whether or not your visitors are flowing down the conversion funnel.



What is a Heatmap?

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They track the actual time people spend looking at, clicking on, and scrolling through various areas on your app. This highly visual method of analyzing your app will help you get a clearer look at all of your user traffic. It also makes it easy to visualize complex data and use several strategies to display user interaction with your app through a color-coded system. It highlights the areas of the page that receive the most attention.

Your heat map can help determine the direction of your app, how people view your app and what changes are necessary in order to make the most of every user's experience and help them along their journey. They provide crucial insights about your app content and help you to redesign



or re-construct your app to increase user engagement and retention. It's highly visual nature makes it easy to interpret, with no need to consult an analyst to understand what a series of numbers mean for your business.

By integrating this key information into your app design, you can make it easier for all of your users to find the information they're looking for, encourage greater interaction with your app and ensure that your users are satisfied with their app experience, thereby converting them into your customers.

Types of Mobile Heatmaps

Touch heatmaps capture every user's minute interaction with the app. This means that it saves all gestures on their respective screens. This includes simple gestures such as taps and swipes, but also complex ones, like, zoom or trail gestures. There are a variety of heatmaps which help the developer and UX designers understand user behaviour.

Tap Heatmaps

The tap heatmaps gives the Product Managers and UX designers team an insight into the basic gestures. Using these heatmaps, you can understand which element is getting the most attention and which elements are getting ignored. This also helps the UI/UX designers to design in such a way that the user is effortlessly escorted to the right elements and convert.

Rage Tap Heatmaps

The rage tap heatmaps gives the developer team a measure of the user's frustration. When a user tries to interact with a non-clickable element or a slow responding element, the user taps it continuously (over 2 taps) and then drops out from the screen. Using this the developer team can understand what went wrong and remodel the UI to prevent further occurrences.

Long-Press Heatmaps

These heatmaps are dedicated to identifying the long presses on the user's screen. If the action is not expected or the elements covered under long presses are being ignored, these heatmaps can help in determining the ideal solution to fix it.

Furthermore, each heatmap is analysed in the form of the different gestures performed. This gives your team a clear insight into the users' action on the particular screen:

First Touch: The first impression on the app's screen is very important and these gestures help in learning the first touch of the user.

Second Touches: The next set of touches to perform actions are labelled under second touches. These shows where the user has intuitively tapped after the first touch.

Last Touches: This is an important gesture as it helps in determining why the user's left your app. You can analyse the leaving touch of each screen in the heatmaps.

Quit Touches: Quit touches helps your developer team understand the exact app events that led to user's quitting the app. This helps in segmentation of the problem faced into crashes, UI issues, etc.

Unresponsive Touches: Uncover non-responsive areas in the app which users end up interacting with. These unresponsive gestures can be identified in the heatmap and help in determining the cause of unintended attention.

How to Analyse a Heatmap?

Heatmaps help you to understand certain business critical questions like decrease in conversion rates or certain important actionable elements getting ignored. You can also determine:

- **Determine which elements get the most attention:** Using the colour tones it will be much easier to find out which element gets the most attention. This helps in putting the most interactive elements in those spaces.

- **Increase conversions:** Understanding user interaction with the specific application can help increase conversions. Using analytics and driving users to the most actionable elements will make it easier for users to convert.

- **Identify device-specific user behaviour:** User behaviour depends on each device ranging from an iPad to a smartphone. Designers can use heatmaps to tweak the UI for that particular device so that users do not face any issue with the application.

- **Usability testing:** You can use heat map data to define a hypothesis for a future split test, and you can also run heat maps on A/B test variations to provide more insight into why app versions are or aren't successful.

- **Reaching the intended content or failing to see it:** Heatmaps can also tell whether the intended content is being ignored by the user or whether the content is getting the required interaction. These elements can be shuffled around so that they acquire the maximal attention.

Drill-Down Touch Heatmap

- First Touch
- Second Touch
- Last Touch

- **Getting distracted by non-clickable elements:** There are instances where users are distracted by non-clickable elements like texts and panels. The application designers can change the UI using heat maps so that these distracting elements do not hamper users' experience with the app.

- **Funnel Analysis:** Using heatmaps, you can get a detailed analysis of funnel steps when used alongside Session Replays. After creating the funnel, you can identify high drop-out rates on a specific screen and analyze heat maps to find what's causing the drop-out rates.

- **User Frustration:** Helps in identifying if users are frustrated with unresponsive or slow responding controls. through rage interactions.

- **User Behavior:** Gesture sequencing enables the product and UX team to understand if the users are using the app and elements the way it was intended to be used.



Advanced Heatmap Analytics

Heat maps will definitely help you fix issues or make quick changes. But when you need a more in-depth understanding of how to improve the user experience, you'll get more out of heat maps by combining them with other behavior and feedback tools.

Heatmaps + Analytics

With traditional analytics like Google Analytics, you'll get plenty of quantitative data points and learn about large-scale traffic and usage patterns—but numbers and charts will not, by themselves, answer questions you might have about what people want from your site, where they get confused, and where their attention goes. By combining traditional analytics with heat maps, you can start a deeper investigation and find out why some of your metrics occur. Got a page with lots of traffic that doesn't convert? Set up a heat map, go through the heatmaps analysis checklist, and start seeing what's making people stumble.

Heatmaps + Feedback

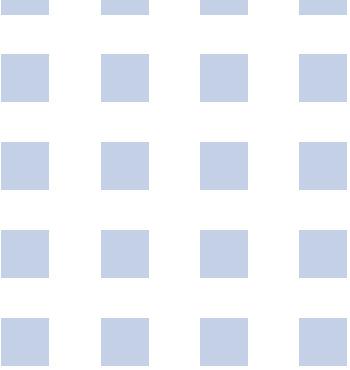
Use heatmaps to find design issues and other glitches and ask your users for feedback to improve the user experience.

Heatmaps + A/B Testing

As a visual tool, heat maps help you make informed, data-based decisions for A/B testing, updating, or (re)designing your website. Both are so interlinked: you can use heat map data to define a hypothesis for a future split test, and you can also run heat maps on A/B test variations to provide more insight into why page versions are or aren't successful. The idea is to create different versions of your web pages, ads, landing pages, etc. in order to compare how they perform.

Heatmaps + Session Recordings

While heat maps help you visualize data from page visitors in aggregate, session recordings are created for individual users and show you their actions across multiple pages. Session recordings are renderings of user browsing sessions, and they help you bring more clarity to some of the insights you pick up from a heat map. Instead of making assumptions about the clicking, tapping, and/or scrolling you see on a heatmap, try viewing some session replays and see how your users actually interact with your site.



User Pain Points

The users across the globe, go and download an app, out of need only. Their set of problem areas is known as the pain-points, which they try to overcome by using your mobile app.

Henceforth an app must serve the main purpose of helping the users to get the solution of their problems.

But not every user gets the right direction to solve their problems through a mobile app, and chuck the app out of their device in no time.

So many apps fail due to the negligence paid to the users' pain points.

Application Not Responding (ANR)

An ANR will occur if you are running a process on the UI thread which takes a long time, usually around 5 seconds. During this time the GUI (Graphical User Interface) will lock up which will result in anything the user presses will not be actioned. After the 5 seconds approx has occurred, if the thread still hasn't recovered then an ANR dialogue box is shown informing the user that the application is not responding and will give the user the choice to either wait, in the hope that the app will eventually recover, or to force close the app.

Crash

A crash is when an exception within the app has been thrown which has not been handled. For example, if you try to set the text of an EditText component, but the EditText is null and there is no try catch statement to catch the exception that your app will crash and will be force closed. The user will not see what caused the crash, they will be shown a dialogue telling that the app has force closed unexpectedly and will give them the option to send a bug report.

Rage Taps

Rage taps are a simple, universal indicator that the app user experience could be improved. Rage Clicks/taps are moments when users repeatedly click, click, click—and tap—on a website, mobile app, or any other digital experience because they're frustrated. Rage taps on your app can be a clear signal of a frustrated app user. They are a digital signal of a user's annoyance with your site's UX. For many product managers, this metric is a game-changer.



Identification of User Pain Points

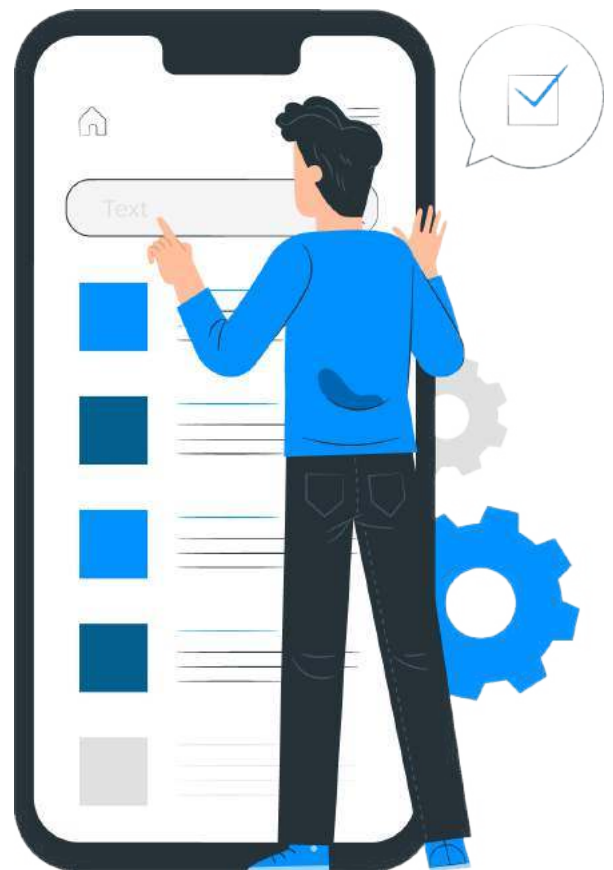
Not every user actually complains when he/she is dissatisfied; most simply churn without saying anything. This lack of feedback leaves you in the dark—pondering high bounce rates and low conversion rates in confusion.

1. Find out who your target audience

First and the foremost you need to understand that every business is different, and so are its customers. Every bit of your mobile app must speak only about your users' needs only and you must identify what the specific set of the audience are eventually looking for from your mobile app and how your mobile app can materialize those needs through the app platform.

2. Check the existing apps in the market

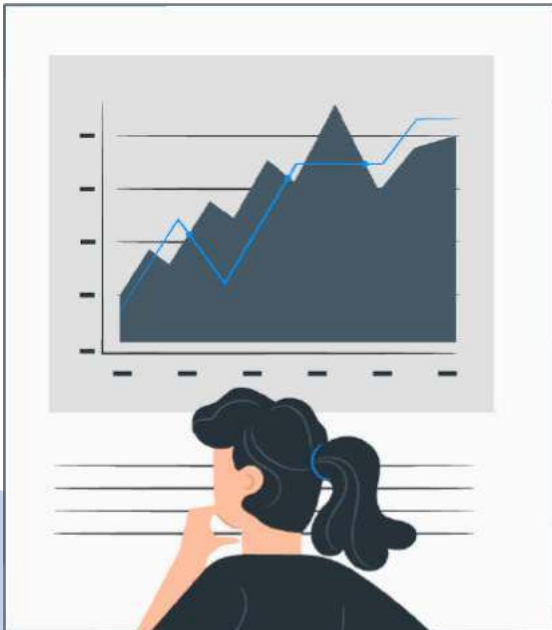
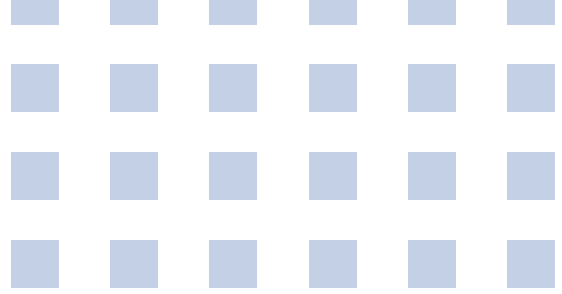
There are many apps available in the market, and some are well-suited to your specific app genre as well. By taking a look at those apps, would help you find out how far the existing solutions are liked or rejected by the users. You can check how these app solutions have tried to answer the users' pain-points and how well users are enjoying those features. There are a couple of analytical tools to give you a check on these parameters, but there is one other way to check out and that is through reading the feedback of the users, and understanding the accurate state of mind of your users, while using those apps. In accordance with, you can make the required changes in your app concept and help it to come out as a real-time solution provider to your users.



3. Conduct User Acceptance Testing

Your beta testers give you honest feedback about the usability factor of the mobile app, and which features can be molded still to get the desired final outcome.

An app journey initiated on these parameters opens a floodgate of opportunities to your business and helps it to get the best out of your mobile app concept. Henceforth, you must not avoid these steps at any given condition and must find out how your app can really help in solving the users' pain-points.



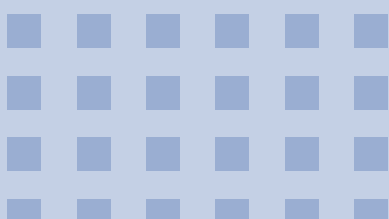
Analysis

Video replay of the session would help you to analyse where the crash and ANR occurred.

Alternatively you can also get the complete stack traces of the crash and ANR to debug the issue.

When you watch sessions that contain Rage taps, there's a high probability of uncovering an insight on which you can take action— a.k.a. the elusive “actionable insights”— because Rage Clicks happen alongside the frustrating experience.

Crash & ANR analytics are provided in one single dashboard indicating the number of users impacted, screens where crash/anr has occurred, the impacted device models and OS versions.



Funnel Analysis

Conversion funnel analysis helps you to visualize and understand the actions which a potential user exactly takes in your app. This process is often described as a funnel because, as a marketer, you are guiding the users towards your conversion point.



Analysing App Funnels

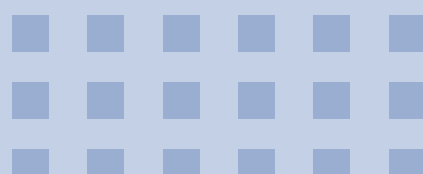
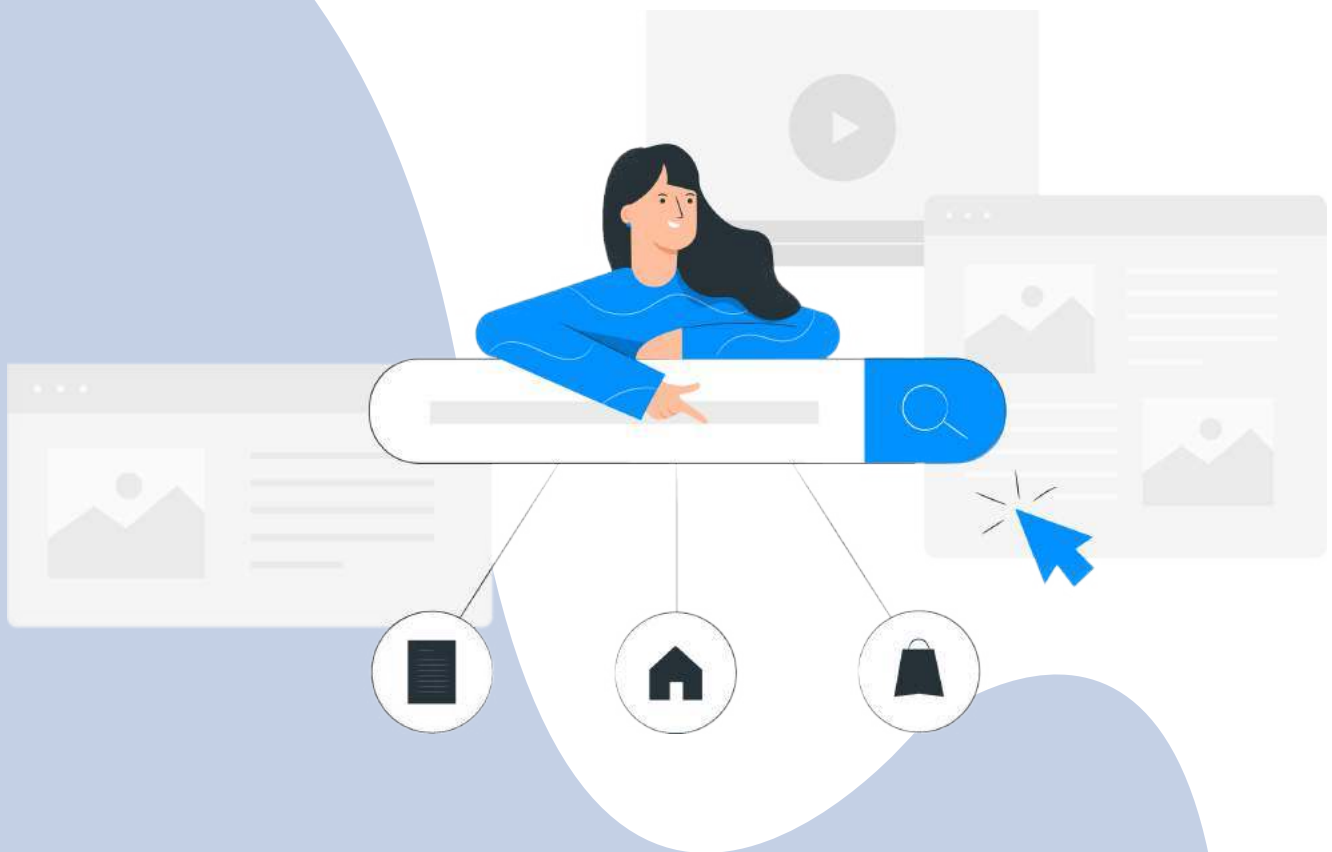
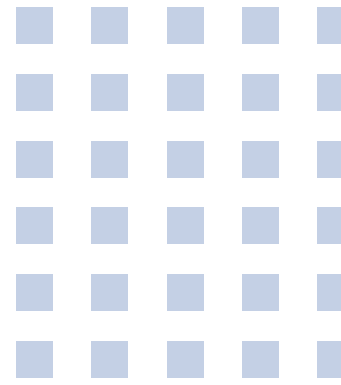
Funnels don't just provide you with conversion numbers, they provide you with insight into how your users behave. Your app funnels have the potential to show you much more than just conversion rates when you dig into the data. Further analyzing them will point to potential areas in your app where users are having issues. They can also help you measure the value of your existing marketing campaigns and discover opportunities for new ones.

Number of users and conversion rates – these two metrics alone help paint the picture from stage to stage and serve as a snapshot of your funnel's health. Tracking these helps you identify the users engaged in the funnel and how successful that funnel is in eventually converting those users. However, they alone can't tell the story of your users, and it's important to dig deeper to add context.

One way to start is by assessing the funnel's performance across specific date ranges to monitor both week-to-week performance and exact dates of marketing campaigns. Always take the time to click into the details of each event, as there is something valuable to learn about optimizing every stage of the funnel. That's where you'll find detailed information around user drop offs, screens viewed within the funnel, and data by different dimensions in a given time period.

A/B Testing

Also known as split testing, is a marketing technique that involves comparing two versions of a web page or application to see which performs better. These variations, known as A and B, are presented randomly to users. A portion of them will be directed to the first version, and the rest to the second. A statistical analysis of the results then determines which version, A or B, performed better, according to certain predefined indicators such as conversion rate.



How do we perform A/B Testing on Mobile Apps?

A/B testing is more complex with mobile applications. This is because it is not possible to present two different versions once the application has been downloaded and deployed on a smartphone.

Workarounds exist so that you can instantly update your application. You can easily modify your design and directly analyze the impact of this change.

Here is how you can do

Create a strong hypotheses- A correctly formulated hypothesis is the first step towards a successful A/B testing program and must respect the following rules:

Hypotheses must:

- Be linked to a clearly discerned problem that has identifiable causes
- Mention a possible solution to the problem
- Indicate the expected result, which is directly linked to the KPI to be measured.

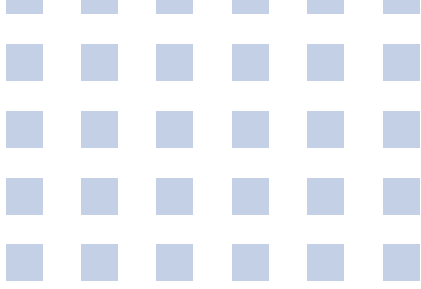
A/B Test Analysis

Two things should be taken care before you analyze the test results.

1. Sample size/Site Traffic
2. Test duration

The statistical tests used to calculate the confidence level (such as the chi-square test) are based on a sample size close to infinity. Should the sample size be low, exercise caution when analyzing the results, even if the test indicates a reliability of more than 95%. With a low sample size, it is possible that leaving the test active for a few more days will greatly modify the results. This is why it is advisable to have a sufficiently sized sample.

And even if the site traffic makes it possible to quickly obtain a sufficiently sized sample, it is recommended that you leave the test active for several days to take into account differences in behavior observed by weekday, or even by time of day. A minimum duration of one week is preferable, ideally two weeks. In some cases, this period can even be longer.



Advanced Analysis

An A/B testing solution lets you statistically validate certain hypotheses, but alone, it cannot give you a sophisticated understanding of user behavior.

It's therefore essential to enrich A/B testing with information provided by other means. This will allow you to gain a fuller understanding of your users, and crucially, help you come up with hypotheses to test.

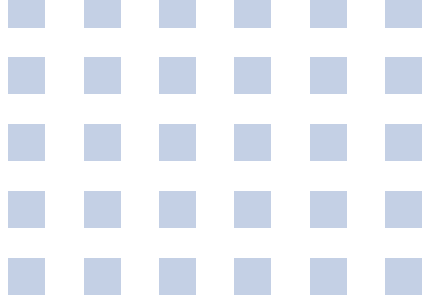
Heatmap and session recordings

Both of these methods offer more visibility on how users interact with elements on a page or between pages.

User Feedback

User feedback through surveys, opinions, ratings and reviews could help you.





Gestalt Principles

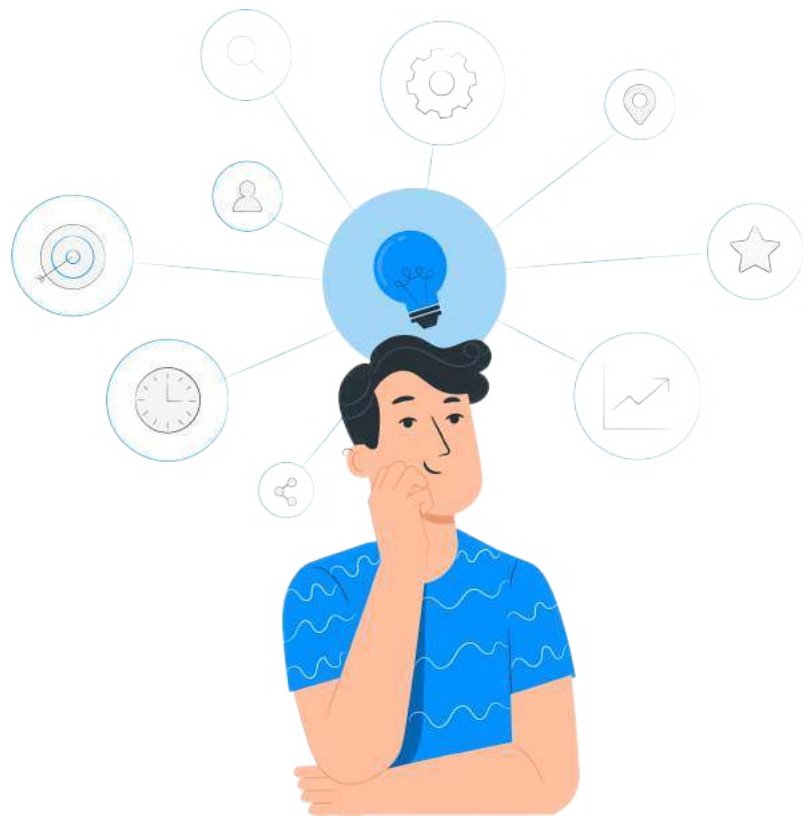
The Gestalt Principles are a set of laws arising from 1920s' psychology, describing how humans typically see objects by grouping similar elements, recognizing patterns and simplifying complex images. Designers use these to engage users via powerful -yet natural- "tricks" of perspective and best practice design standards.

In the simplest terms, gestalt principles are based on the idea that the human brain will attempt to simplify and organize complex images or designs that consist of many elements, by subconsciously arranging the parts into an organized system that creates a whole, rather than just a series of disparate elements. Our brains are built to see structure and patterns in order for us to better understand the environment that we're living in.

Background

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Why is Gestalt Theory Important?

Gestalt principles can quickly elevate a design that seems haphazard or like it's fighting for a user's attention to one that offers a seamless, natural interaction that makes your site feel familiar while guiding users toward the action you want them to take.

Laws of Gestalt Principles

The laws of Gestalt principles will surely help you in UX UI design, using these laws in your design can improve speed, functionality, and clarity of the system

1. Similarity
2. Continuity
3. Closure
4. Proximity
5. Figure/ground
6. Symmetry and order

There are also some additional new laws associated with Gestalt principles. Common fate, common region.



1. Law of Similarity

It's human nature to group like things together. In gestalt, similar elements are visually grouped, regardless of their proximity to each other. They can be grouped by color, shape, or size. Of course, you can make things dissimilar if you want to make them stand out from the crowd. It's why buttons for calls to action are often designed in a different color than the rest of a page—so they stand out and draw the visitor's attention to the desired action.

2. Law of Continuity

The law of continuity posits that the human eye will follow the smoothest path when viewing lines, regardless of how the lines were actually drawn. This continuation can be a valuable tool when the goal is to guide a visitor's eye in a certain direction. They will follow the simplest path on the page, so make sure the most vital parts they should see fall within that path. Since the eye naturally follows a line, placing items in a series in a line will naturally draw the eye from one item to the next. Horizontal sliders are one such example, as are related product listings on sites like Amazon.

3. Law of Closure

It's the idea that your brain will fill in the missing parts of a design or image to create a whole. In its simplest form, the principle of closure allows your eye to follow something like a dotted line to its end. Closure is quite often seen in logos, like that for the World Wildlife Fund. Large chunks of the outline for the panda are missing, but your brain has no problem filling in the missing sections to see the whole animal.

Another very important example of closure at work in UX and UI design is when you show a partial image fading off the user's screen in order to show them that there is more to be found if they swipe left or right. Without a partial image, i.e., if only full images are shown, the brain doesn't immediately interpret that there might be more to be seen, and therefore your user is less likely to scroll.

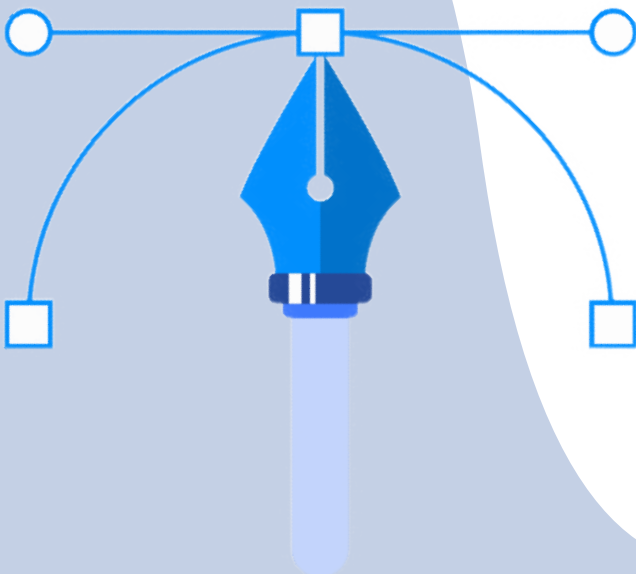
4. Law of Proximity

Proximity refers to how close elements are to one another. The strongest proximity relationships are those between overlapping subjects, but just grouping objects into a single area can also have a strong proximity effect. The opposite is also true, of course. By putting space between elements, you can add separation even when their other characteristics are the same.

In UX design, proximity is most often used in order to get users to group certain things together without the use of things like hard borders. By putting things closer together, with space in between each group, the viewer will immediately pick up on the organization and structure you want them to perceive.

5. Law of Figure/Ground

This is similar to the closure principle in that it takes advantage of the way the brain processes negative space. You've probably seen examples of this principle floating around in memes on social media, or as part of logos. The figure/ground principle can be very handy when designers want to highlight a focal point, particularly when it is active or in use—for example, when a modal window pops up and the rest of the site fades into the background, or when a search bar is clicked on and the contrast is increased between it and the rest of the site.



6. Law of Symmetry/Order

The law of symmetry and order is also known as *pragnanz*, the German word for “good figure.” What this principle says is that your brain will perceive ambiguous shapes in as simple a manner as possible.

7. Law of Common Fate

This principle states that people will group together things that point to or are moving in the same direction.

In nature, we see this in things like flocks of birds or schools of fish. They are made up of a bunch of individual elements, but because they move seemingly as one, our brains group them together and consider them a single stimulus.

This is very useful in UX as animated effects become more prevalent in modern design. Note that elements don't actually have to be moving in order to benefit from this principle, but they do have to give the impression of motion.

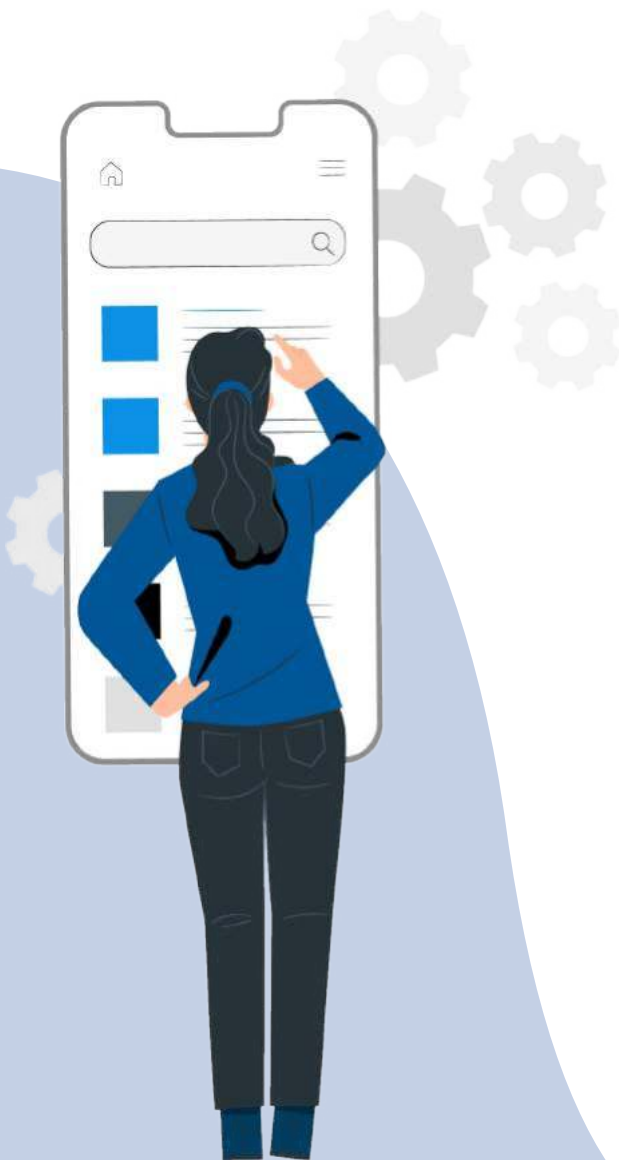
Gestalt Principles & UX Design

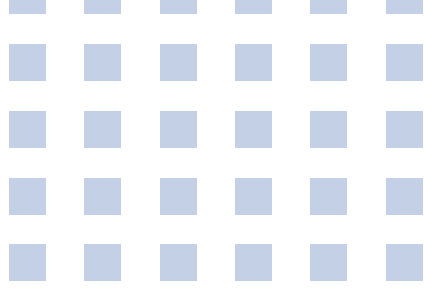
The Gestalt principles are an important set of ideas for any UX designer to learn, and their implementation can greatly improve not just the aesthetics of a design, but also its functionality and user-friendliness.

Learning to incorporate the visual perception principles of gestalt into your design work can greatly improve the user experience. Understanding how the human brain works and then exploiting a person's natural tendencies creates a more seamless interaction that makes a user feel comfortable on a website, even if it's their first visit.

More notably in interfaces, users must be able to understand what they see—and find what they want—at a glance. A good example are the principles of proximity and common region, as seen in many landing pages where colors and graphics divide the page into separate regions. For designers, the true trick of Gestalt is never to confuse or delay users, but to guide them to identify their options and identify with organizations/brands rapidly.

Designers must appreciate how the mind strives for ordered pictures and how easily ill-ordered elements frustrate users. Designers must remember that while the Gestalt Principles are universal to the human experience, fine-tuning their application demands attention to color use and other cultural considerations.





Glossary

A/B testing

Also known as split testing, is a marketing technique that involves comparing two versions of a web page or application to see which performs better. These variations, known as A and B, are presented randomly to users. A portion of them will be directed to the first version, and the rest to the second. A statistical analysis of the results then determines which version, A or B, performed better, according to certain predefined indicators such as conversion rate.

App Onboarding

The onboarding process is a user's first impression of your app, and when designed correctly, increases the likelihood of successful adoption. When a user launches your app for the first time, the onboarding process reinforces your app's value and provides instructions that highlight key benefits and features. A strong onboarding process as per a case study, could increase your retention rate by 50%
When done well, app onboarding helps build strong relationships with users. If done poorly (or ignored altogether), you risk users never understanding how to use your app thus having a negative experience and possibly abandoning your app for good.

Audience Insights

The Audience insights is a UX professional's best friend. It is a comprehensive breakdown of who your user is? It provides details like, demographics, interests, location, which device they use, frequency or recency of the user, time of most engagement, etc.
For instance, if a considerable number of users visit the website at night, one could opt for a Dark/Night time variation of the site or app.



Behavior Flow

Behaviour flow is an insight into the actual journey taken by users from the time they land on a website. It helps us identify the pages that bring the highest volume of the traffic. When you compare the behaviour flow with the time spent on site, it helps identify the pages that act as a 'bridge' and those that act as 'conversion hubs'. Thoroughly analyzing the behaviour flow will help a designer in optimizing the user's journey into meaningful, logical and easy steps that encourage them to fill a lead form, make a purchase, or read a blog in its entirety and then read more blogs on your website.

Bounce Rate

Bounce Rate is defined as the percentage of visitors that leave a webpage without taking an action, such as clicking on a link, filling out a form, or making a purchase.

Cohort Analysis

Cohort analysis is how you'll identify how well your users are being retained and the primary factors that will drive growth for your app.

Conversion Rate Optimization

'CRO', is the process by which online companies optimize their digital assets in order to drive more visitors towards a desired action.

Design Audit

A Design Audit can help businesses answer compelling questions regarding their business and user satisfaction metrics. If we check the usability and viability of the user experience, it's important first to identify design bottlenecks that are hindering the cause. It can be anything that increases the cognitive load on the user and nudges them to bounce off the platform. What are users

looking for, where are they getting stuck and at what point in the design interface do they leave without converting? A Design Audit can help you gather relevant answers to all of your process pain points. In 2020, audits will be the common diagnosis for most legacy businesses to optimize their online presence and increase their ROI.

Event Tracking

"Events are user interactions with content that can be measured independently from a web page or a screen load." – Google Analytics
This comes in very handy when to measure downloads, flash elements, video plays, ad clicks, pop-ups, etc. Depending upon the results, you can then iterate the design and test again.

Gestalt

It is a German word that refers to "whole", "pattern", or "form". Gestalt theory has been founded in the early 20th century by German psychologist Max Wertheimer. Gestalt psychology is a school of thought which proposes that the whole of an object is more than its individual parts. That is, we cannot find meaning from breaking things down into parts; we need to appreciate the whole. When elements are assembled together, they turn into parts of a whole. Thus, in perceiving objects which have many elements, we tend to apply certain methods and arrange the parts into a structured system, and our minds tend to create a global whole to acquire and maintain meaningful perceptions.

Goal Conversion Rate

Goal Conversion Rate is an insight that you must keep a track of, as it indicates whether user's are performing the tasks or actions that you want them to. Some examples of goals are: a thank you page, confirmation of the

order page. When you define and configure your goals properly, Analytics will provide critical insights such as how many conversions took place, what is the conversion rate, etc. This provides crucial information about how well your website is performing and gives you cues about what UX changes you could make to improve the conversions. Combine Goal conversion data with Funnels, a path that you expect traffic to take, to get deeper insights into how users reached that goal. When steps are specified, Analytics can track where users enter from or exit in their journey towards the goal specified by you. For example, when you gather from the flow that most users tend to exit the website from a specific page, you know there is a problem there that needs to be fixed. This is of great help for a UX professional.

KPIs (key performance indicators)

KPIs reflect the overall goals of your business—such as revenue growth, retention, or increased user numbers. Metrics are all the measurements that go towards quantifying these higher goals.

Page Views

Pageviews are a great insight into measuring user engagement. Generally, more pageviews would mean that more users are engaging with your website. But that is not always

the case. If the pageviews are very high as compared to conversion rates, it could mean that although the user moves from one page to another, they are not able to find the information they need in order to convert. This could mean a confusing layout, multiple features laid out in a haphazard manner or a Call to Action that is not clearly visible to the user.

Session Recording

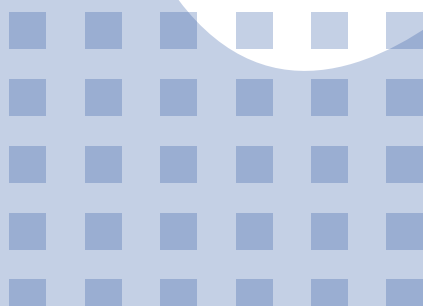
Live recording your visitors while they navigate your website is a brilliant opportunity that allows your team to better understand their behavior and interactions. Using this tool, you'll put yourself in your visitors' shoes in the most natural and unbiased way.

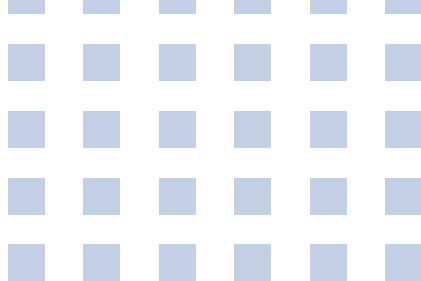
Rage Taps

Rage Taps are moments when users perform repeated tapping on a mobile app, or any other digital experience because they're frustrated. They happen when an element's response is slow, broken or not responding.

UX metrics

UX Metrics are a set of quantitative data points used to measure, compare, and track the user experience of a website or app over time. They are vitally important for ensuring UX design decisions are made and evaluated using fair evidence rather than opinions.





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