Design Methods

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Design methods

- This section explains some design methods and how they are used by designers. We talk you through everything from brainstorming to physical prototyping.

Assessment criteria

Scoring individual ideas against common criteria in order to select ideas.

Why

Agreed assessment criteria are useful for taking into account the concerns of multiple stakeholders and selecting ideas.

How

Brainstorm, refine and agree a set of assessment criteria. These need to be structured so that they encourage individual participants to consider the perspectives of other stakeholders when making their assessments.

For example, if you were selecting a product design to take forward into production you might give each of the ideas a score of 1-5 on the criteria of: technical feasibility (the concern of stakeholders in engineering), cost (the concern of finance), passion for the idea (the concern of the project team), portability and size (which might be some of the concerns of the customers).
Score all your ideas against individual criteria before totalling the final score for each idea.

Being your users

A method to define the expectations of both the client and the design team at the start of a new project.

How

Identify your target user group, then carry out research to identify user scenarios and typical tasks users undertake.

Put yourself in the user's situation for a couple of hours, a day or even a week. Carry out the tasks that they would do, in the environments where they would do them. This could mean, for example, working on a supermarket checkout or driving an unfamiliar car for a week.

Make detailed notes or keep a diary to record your thoughts.

You could...

...use empathy tools to simulate specific user characteristics. For example, wearing gloves and tinted glasses can simulate some of physical effects of old age, or a pregnancy suit with a weighted 'bump' can simulate what it would be like for a pregnant woman to use your product or service.

Brainstorming

Brainstorming is working together to help you generate ideas more quickly and effectively.

How

Start with a warm-up. Brainstorm a fun problem such as 'How can we get every Monday morning off work?

State the problem clearly and concisely.
Don't lose anything. Write your ideas on flipcharts, or on the wall.
Number your ideas, and set a target, say to get to 100.
Keep the focus sharp. Edgy and precise statements are better than fuzzy ones.
Keep the ideas flowing, be responsive and keep trying to approach the problem from different viewpoints.

Brainstorming will be most effective if you keep to these ground rules:

- Defer judgment - build on ideas to make them better.
- Don't criticise!
- One conversation at a time
- Go for quantity - the more ideas the better
- Have wild ideas - every idea is valid
- Stay focused on the problem in hand
- Be visual - draw ideas or represent them with whatever is to hand.

Resources

Flipcharts and pens
Refreshments and biscuits - it can be hard work and you need to keep energy levels up

Character profiles

Having character profiles visible and to hand during the design process will stimulate ideas and aid decision making. They can also help in justifying innovations to stakeholders in the project.

How

Based on actual research of your user groups, or a brainstorm, identify the key charactersthat you are going to design for.

Give the characters names and visually represent how they look and dress, their aspirations, behaviour, lifestyle and any challenging peculiarities.

It is important to create profiles of extreme users as well as typical ones. It can also be useful to write 'stories' about a typical day in their life. Display the profiles prominently. They will help you to stay on course and stop you designing for yourself. At decision points, ask yourself, 'What would Mary or John think of this?'

You could...

...make composite profiles by merging the characteristics of real users you have met.

Resources

Photographs and images cut from magazines, a sheet of flipchart paper or foamboard

Choosing a sample

Choosing a sample is a design method that helps you create a strategy to find the most appropriate or effective group of users to recruit will make the most of limited time and budget.

Why

It's not possible to research each and every one of your users. Creating a strategy to find the most appropriate or effective group of users to recruit will make the most of limited time and budget.

Creating a sample is the first step for many methods of understanding users, including one-to-one interviews and focus groups.

How

Start by brainstorming the user attributes that you think influence behaviours in relation to your project. Then choose the most important attributes to determine a useful range of people to study. For example, if you were designing a bike for female commuters you might want to study people who commuted by different means (train, car, bus), and in geographical areas with different weather, as well as people of different size and strength.

Other common attributes to consider might be age, life stage, ethnicity and socio-economic background, as well as

Cluster and vote

Cluster and vote is a method to identify patterns in a problem area or in a series of ideas. This in turn will help you select solutions.

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Comparing notes

Comparing notes gets messy things in order and is a useful aid to decision making.

Why

When presented with many pieces of information it's not always obvious where to start. Getting messy things in order is a useful aid to decision making.

How

Write all your ideas on individual sticky notes

Reduce the number of notes by rejecting low priority items and combining notes that deal with similar things

Compare pairs of notes in turn and put the most important one higher up the list

Use the same criteria in each comparison to find the most important notes in each pair

When no more swaps can be made the list will be in order of importance

For example, if you wanted to determine the most important factors in choosing a pushchair you could take all the potential considerations from your research (or brainstorm them) and then Compare Notes to determine the most important considerations.

This method also works for ranking things other than by importance, for instance in order of speed, cost, quality or desirability.

You could...

Drivers and hurdles

Drivers and hurdles helps you identify where to concentrate energies for most effect in the next stages of your project.

Why

Use this method to understand people's perceptions, manage their expectations and identify where to concentrate energies for most effect.

How

Gather together a diverse group of stakeholders in your project. Brainstorm what the workshop participants perceive to be the barriers (hurdles) and motivators (drivers) to a project's success. Collect the ideas on two separate sheets of paper. Establish what the project can and can't address, and agree which drivers it would be best to focus on in order to overcome the hurdles.

Resources

Flipcharts, marker pens, sticky notes

Fast visualization

Visualising ideas will make them easier to understand and modify, and will in turn stimulate new ideas.

How

Get people who can draw to sketch ideas during a group brainstorm.
The drawings don't need to be perfect: they only need to have just enough detail to communicate the idea.
Visuals are then shown to the group and used to stimulate discussion and more ideas. The visualisers themselves are most effective when they are part of a team which also has a facilitator.

Resources

Someone who can draw, paper, marker pens

Focus Groups

Focus groups is a design method that helps you get a broad overview of users' reactions to, and ideas about, a topic.

How

Focus groups usually involve six to ten respondents in a group discussion lasting two to three hours, moderated by a skilled facilitator.

The facilitator will lead the group through a series of exercises designed to uncover their thoughts on the given topic. Good preparation of these exercises is vital, as is creating a democratic, supportive and informal atmosphere. The aim of focus groups is to get people talking freely and informally, so it's important that the people feel comfortable with the others in the room, otherwise they might go quiet.

The sample of people you choose to come to the session will usually represent part of your user group.

You could...

...ask someone to visualise responses to users' comments and bring them into the group for further discussion.

...use a video link or two-way mirror to allow the development team to observe. The session could also be videotaped for future reference.

Resources

Facilitator

Hopes and fears

Hopes and fears helps you be aware of expectations and will make them easier to manage.

How

Ask everyone, designers and non-designers alike, to express verbally their

hopes and fears for the project or workshop in hand.
Write hopes and fears on separate sheets of paper and pin them up as a reminder to be revisited throughout the workshop.
Discuss the outcomes of the exercise and establish from the outset which hopes and which fears the project can and can't address.

Resources

Flipcharts, marker pens

Observation

Observation is a design method to identify the problems that can arise when people interact with products, services and environments.

How

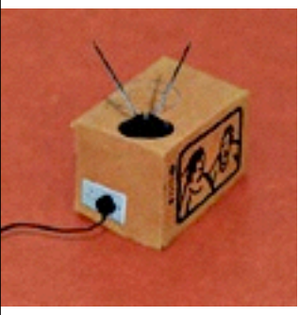
Depending on your project, you might want to make general observations of something that already exists - for example, how people move around a shopping centre, or how people in the street use their mobile phones. Or you might need to create specific situations to test a design. This could mean observing how people complete a specified task on a computer in a simulated environment, or observing how people use a prototype of a new product.

You could...

...record your observation through photos or video. This lets you analyse the material after the event (and even catch important details you might have missed, like the expressions on people's faces). Photographs or videos can also provide evidence to show to other partners or stakeholders in your project.

Resources

Optional: camera, video camera



Physical prototyping

Physical prototyping is a design method to help you to iron out any unanticipated problems with your creative ideas.

Why

Prototypes give you insights into how a product or service will be used, before you create a finished version.

How

First decide which aspect of the user experience you want to test, and choose an appropriate representation to test it. This will vary according to the stage of development your project is at.

At an early stage a 'quick and dirty' prototype that people are not afraid to criticise is best for testing principles.

At a later stage a you may want to create 'works-like' prototypes to detail aspects of build and functionality and a (possibly separate) 'looks like' prototype to test response to form. For example, you might first test the principles of a new office workstation by building it in foamboard using hot glue. In later stages you may test a detail of the mechanism by building 'works-like' mechanical prototypes and the form of the furniture by building separate 'looks-like' models at scale and with no moveable parts.

Build your prototype using available material and test it with end users, or role play how you might use the design yourself.

Project space

Creating a project space can help you make sense of large amounts of information, keep it organised, give your project visibility and communicate the story of your project to others.

How

Find - or make - a dedicated project zone. You could use the area around your desk, a corner of your studio or, if you have the space, a separate room.
Use the walls to organise your research spatially.

Hold all your meetings and creative sessions in this space so you are surrounded by stimuli.
Use the space to construct a story about your project so that you can share it with others and invite them to contribute.
Try not to be too precious or perfectionist about the way you present your work as people are more likely to make constructive comments on work in progress than something that looks polished.
As the project progresses, you can reorganise the space to tell the relevant story for the stage of the project.
Make the space comfortable to work in with appropriate lighting, sofas and tables as appropriate - and make it fun.

You could...

...use large sheets of foamboard to form the walls of your space. Then you can pin up images very easily, and move the space itself should you need to.

Quantitative surveys

Quantitative surveys is a design method to understand the 'big picture' and provide you with statistics that can help to inform the direction of your project.

How

There are two types of quantitative survey:

1. Omnibus surveys are regular monthly surveys, allowing you to place a number of questions on a shared questionnaire. This is the cheaper option but limited in scope.
2. Ad hoc surveys are bespoke pieces of work and allow you to ask as many questions as you need.

Both of these will involve commissioning a specialist market research agency. It's best to look for one familiar with the territory so that they will produce a usable report that directly responds to the needs of the project.

Don't forget - the information you need may already be available at reference libraries. See Secondary Research.

Resources

See www.mrweb.co.uk for a list of agencies and their capabilities.

Role playing

Role playing means physically acting out what happens where users interact with products or services.

Why

Taking the role of the user and acting out their interactions with a design can prompt more intuitive responses and help you to refine your design. Role playing is particularly useful for prototyping interactions between people, for example in a service context.

How

Define a character or characters who will use or deliver the end product or service you are designing. Isolate key moments where these users interact with your product or service, and then act them out - with or without props. Use your intuitive responses prompted by the enactment of the scenario to refine your design.

You could...

...Use role play as a method to test physical prototypes.

Resources

Props if required, such as clothing, walking sticks, glasses, pushchairs, furniture

Scenarios

Scenarios is a design method that helps you develop ideas that involve interactions with multiple users over a period of time.

How

Define a set of characters who will use the product or service you are designing. Consider the details of their lives - their job, their regular activities and their attitudes.

Identify key moments where these users interact with your product or service, then realise them as scenes in a short text or a storyboard.
Test the scenario on users or yourself.
Use what you learn to improve the design further.

To investigate the full scope of user interactions, you may need to construct three or four scenarios around the needs of a different character and improve them with each iteration.

You could...

...act out your scenario by role playing

Resources

Someone who can draw, sheets of paper, markers, a video camera or computer depending the realisation method you have chosen

Scribble-Say-Slap brainstorming

Scribble-Say-Slap brainstorming is a design method to generate a large number of ideas from a large group of people in a short period of time.

How

Assemble a group of not more than 20 people who see your problem from different perspectives.

Appoint a facilitator and several helpers. It's the facilitator's job to set the rules and keep the ideas flowing. The facilitator starts with an explanation of the brainstorming rules before writing up the problem statement and encouraging people to generate ideas in response.
Participants write down their ideas (Scribble) on sticky notes before shouting them out (Say) and sticking them up (Slap).
The helpers are there to take completed sticky notes from participants and stick them on a wall.
After brainstorming a smaller group can cluster the ideas for voting (see Cluster and Vote).

Resources

A facilitator and helpers, marker pens, sticky notes (lots of them), flipcharts, a whiteboard or a large sheet of paper.
Refreshments and chocolate biscuits (optional)

Secondary research

econdary research is a design method for finding a range of published information about your customers, your competitors and political, social and economic trends.

How

Search online or at your local reference library (where you can ask for help). Some online systems allow you to automatically repeat your search daily or subscribe to RSS feeds, enabling you to keep up with developments in your area.

Particularly good sources of information are:

- National press and trade periodicals
- Specialist blogs
- Conference reports
- Market research, market reports and official statistics
- Business reports from commercial publishers (such as KeyNote, Euromonitor, Mintel, Datamonitor, and The Economist Intelligence Unit)
- Public sector periodicals, reports and papers
- Trade associations and organisations
- Colleges and universities
- Think tanks

Resources

Some libraries will require a reader pass, some websites will require a subscription. Most current market research reports will have to be paid for, however last year's reports can

User diaries

User diaries is a design method to gain insight into people's lives, particularly patterns of behaviour.

How

Supply users with a diary and ask them to keep a written record of their impressions, circumstances and activities related to the relevant aspects of their lives. The diary can be kept over a week or sometimes longer. Be careful not to ask leading questions that will distort the results you get: keep your questions open-ended and your language simple.

You could...

...give your users single-use cameras. These are an effective way to get users to

record incidents, or environments. Photo diaries, which can be used in conjunction with a written diary or as a stand-alone piece of evidence, can be as simple as pictures of users' houses, or the contents of their fridge, but still provide valuable insights to users' habits.

...provide a pre-printed notebook or diary with prompts or questions. Make sure the visual design makes it easy to complete.

...talk through the diary in a follow-up

Workshop toolkit

A workshop toolkit is what you need when it's difficult to predict all the eventualities of a workshop - so it's best to be prepared for a wide range of activities.

How

Make yourself a box with the following resources in it... (and don't forget to have refreshments on hand to keep everyone going.)

Resources

- Thick and thin marker pens of different colours; pencils
- Sticky notes - different colours, sizes and shapes
- Notepads and paper of different sizes
- Flip charts - sticky ones are best
- Pins and masking tape
- Digital camera, Polaroid camera and film
- Foamboard, cardboard, cutting mat, knives and glue for prototyping

Building design
a profile of Zaha Hadid

Bergisel ski jump

Having hosted the 1964 and 1976 Winter Olympics, Innsbruck was an established and important ski jumping venue in Austria, but by the 1990s the jump's 30-year old construction no longer conformed to international regulations. A particular problem was that athletes had begun to jump much greater distances than previously and so the jump needed to be redesigned.

To address this the Austrian Ski Federation launched an international tender in 1999 to find an architect to design a new jump on the Bergisel Mountain in Innsbruck. The project was part of a wider refurbishment programme for the whole Olympic Arena.

Idea

Zaha Hadid Architects won this competition by proposing a building that would function as much more than just a ski jump. Like much of Hadid's work, she approached the brief by generating ideas that broke out from the form of the client's institution. To this end, Hadid's Bergisel ski jump is a hybrid building comprising a specialised sports facility and public spaces, including a cafe and viewing terrace.

At a length of around 90m and a height of almost 50m, the construction casts a dramatic, serpentine silhouette against the backdrop of the Alps. The building is a combination of tower and bridge, structurally divided into a vertical concrete column and a spatial steel structure which integrates the ramp and cafe. The 'head of the snake' loops away and back 180-degrees to allow the uppermost areas to overlook the ski jump itself, with the viewing gallery and cafe nested 40m above the mountain's peak.

Impact

When the Bergisel ski jump was completed in 2002, replacing the previous jump completely, the immediate impact of Hadid's building was probably visual: a new landmark construction overlooking the Alps and downtown Innsbruck, strung with chains of lights gently shifting colour at night.

But in design and engineering terms the structure was a complicated undertaking, requiring linked underground, surface and aerial construction. Its design achievements were quickly recognised with the project winning a clutch of high-profile awards including the Austrian State Architecture Prize and Tyrolean Architecture Award in 2002 and the Gold Medal for Design from the International Olympic Committee and an Austrian Decoration for Science and Art, both in 2005.