

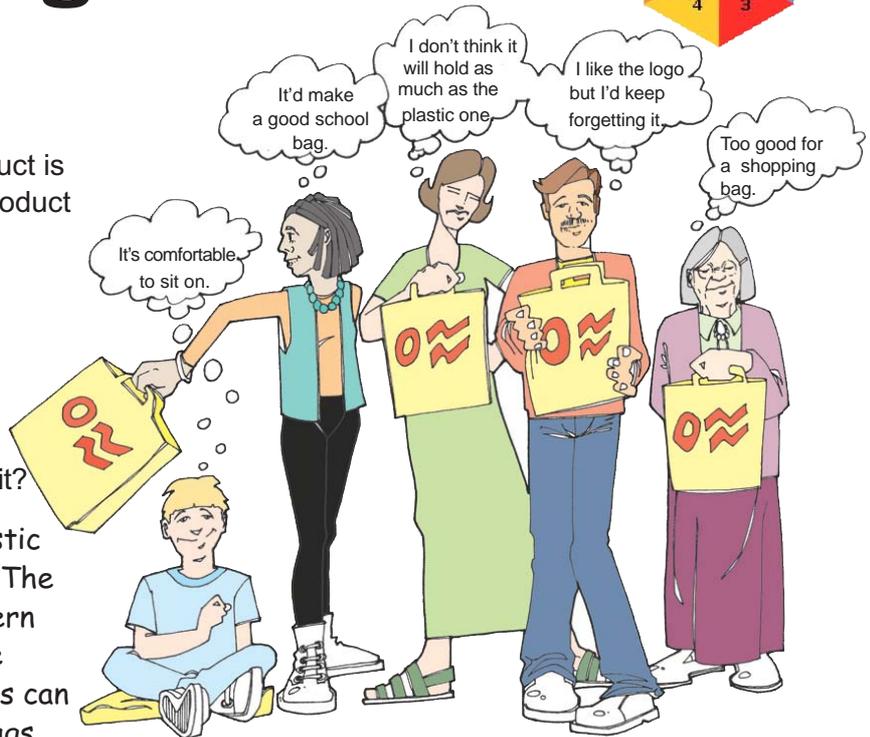
Evaluating design ideas

User trip

One of the simplest ways to evaluate a product is to take a user trip. This involves using the product and asking a few basic questions.

- ▲ Is it easy or convenient to use?
- ▲ Does it do what it is supposed to do?
- ▲ Do I like it?
- ▲ Would I want to own it or continue to use it?

A supermarket has replaced the usual plastic carrier bags with ones made from cotton. The supermarket sees this as part of its concern for the environment policy - cotton can be recycled and is biodegradable and the bags can be reused many times. So, although the bags are more expensive to produce initially, in the long term it will cost less and promote a good image of the supermarket. Will the public support this change? Our user group, Georgie aged 3, Maisie aged 13, Jo aged 28, Jack aged 39 and Dot aged 72, have been asked for their views and are taking a user trip. How do you think they will respond to the change?



Winners and losers

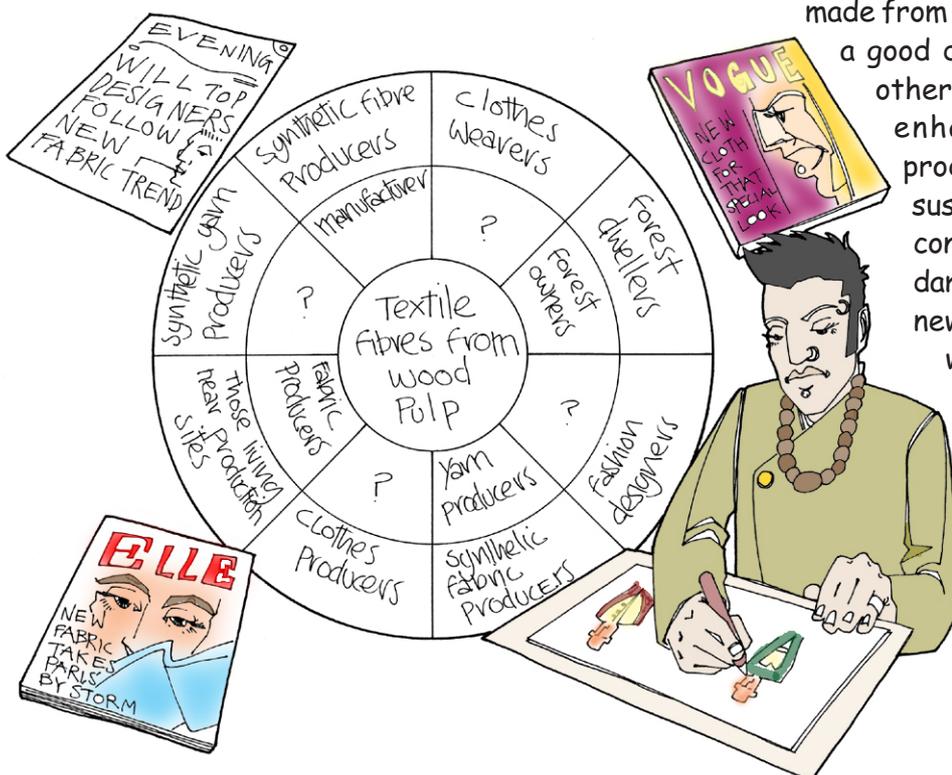
The outcomes of design and technology will provide benefits for some and disadvantages for others. Designing and making a product will affect lots of people directly and indirectly.

The development of a new textile fibre would result in winners and losers. Imagine that a company managed to develop a process for manufacturing fibres from wood pulp. The fabric made from this fibre is soft and strong with a good drape. It can be combined with other fibres to produce fabrics with enhanced performance. The production process uses wood from sustainable forests and is carefully controlled to prevent environmental damage. The company producing the new material would see itself as a winner.

This Winners and Losers Chart identifies some of those people directly and indirectly affected by the production of this new product.

Who do you think are winners and losers?

Who else will be affected?

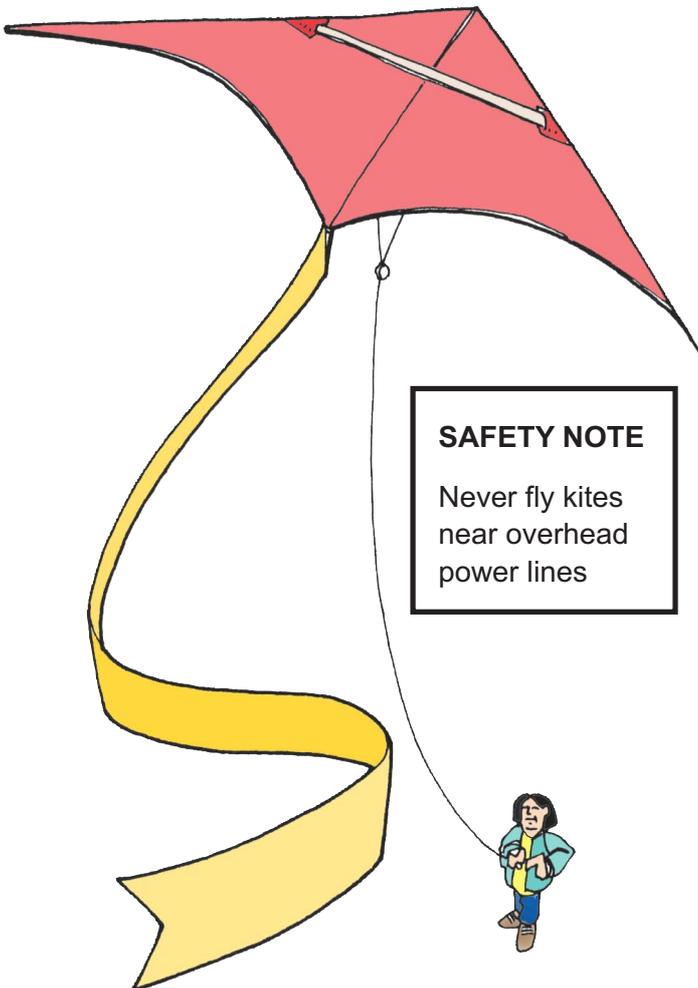
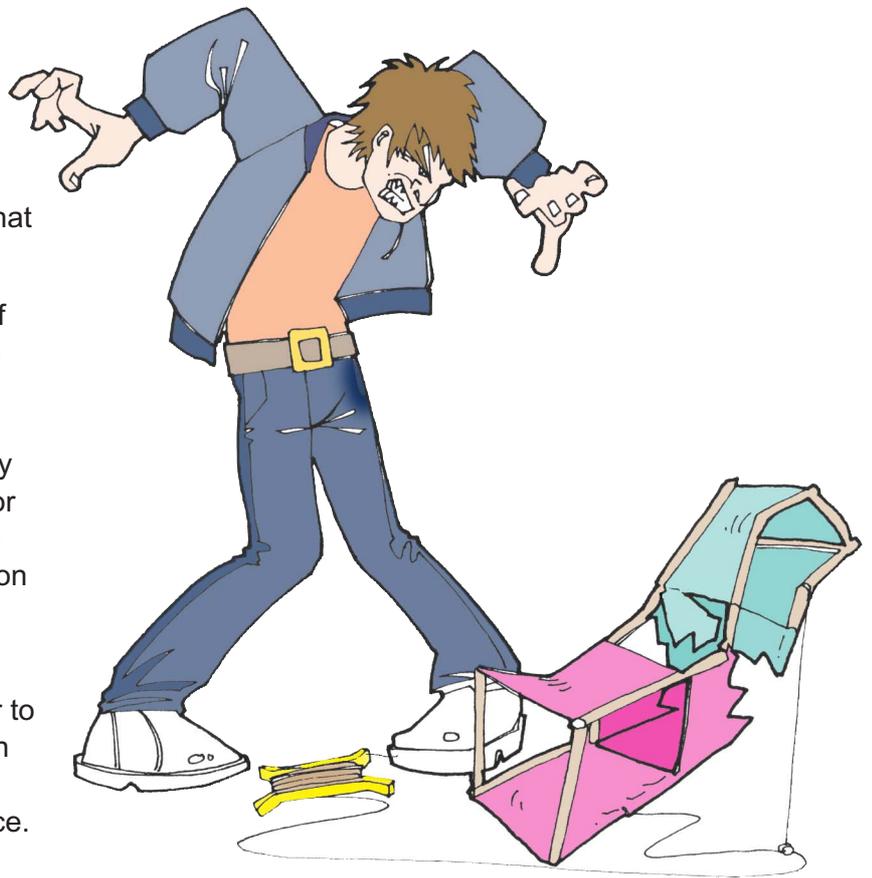


Performance testing

Evaluating a product will involve comparing how well it works against its performance specification. You have to ask: does it do what it was designed to do? Here is an example.

A toy manufacturer is keen to sell a range of kites as there has been a sudden interest in kite flying due to a large international kite flying festival taking place. Market research findings have indicated that lots of people try kite flying but do not take it up as a hobby for three reasons. Their first kites are difficult to fly, difficult to put together and break easily on hitting the ground.

To overcome these problems the manufacturer has commissioned a designer to develop a beginners' kite. Here is the design specification. It provides us with a checklist against which we can assess its performance.



What It has to do:

- + be easy to fly in wind conditions varying from light to strong.

What it should look like:

- + have a modern, striking look.

Other requirements:

- + be easy to put together and take apart;
- + be easy to store and carry the parts;
- + be robust enough to take crash landings without breaking.

These questions will help you to compare the performance against the specification.

- ▲ Is it easy to fly in different wind conditions?
- ▲ Does it have a modern, striking look?
- ▲ Is it easy to put together and take apart?
- ▲ Is it easy to store and carry the parts?
- ▲ Is it robust enough to take crash landings without breaking?

You can find the answers to these questions by watching people use the kite and by asking them questions about it.

Is it appropriate?

Appropriate technology is suitable technology. You can use these questions to find out if a product or technology is appropriate.

- ▲ Does it suit the needs of the people who use it?
- ▲ Does it use local materials?
- ▲ Does it use local means of production?
- ▲ Is it too expensive?
- ▲ Does it generate income?
- ▲ Does it increase self-reliance?
- ▲ Does it use renewable sources of energy?
- ▲ Is it culturally acceptable?
- ▲ Is it environmentally friendly?
- ▲ Is it controlled by users?

It is unlikely that any product or technology will score highly against all these questions. Many will seem appropriate in one context and inappropriate in another. Here is an example.

A small rural community in a developing country has a craft tradition of producing felt caps and pillbox hats. Small family groups produce the felt by hand, dye it with natural dyes, hand-cut the pieces, sew them together and decorate with embroidery using hand-stitching. The wool for the felt comes from local sheep. The shearing, carding and cleaning equipment is produced by local craftspeople. The felt making vats and dyeing vats are also produced locally using readily available materials. Only the needles, sewing and embroidery threads are brought in from outside the rural community. The hats are sold to a global charity that promotes exports from developing countries. This is an example of a labour-intensive activity.

Think what might happen if the technology of simple mechanical sewing machines were introduced. The effect of these could be to rapidly increase the rate at which hats could be produced. This might not cause a problem if the rate of embroidery and cutting could keep up, or if those workers no longer required to sew pieces together could work on cutting or embroidery instead. In this situation the total amount of hats produced might not change, just the distribution of workers in the division of labour.

However, it might be that the effect of using the sewing machines releases enough workers to increase the rate of felt production. This might lead to an overall increase in the numbers of hats produced. Now consider what might happen if only one or two family groups had access to sewing machines. They might become very prosperous, being able to meet sudden or larger than expected orders quickly, while those without the machines might find that they could not compete. Over a period of time this might lead to the industry being taken over by those who had the sewing machines, whilst those without them might become unemployed.

It is difficult to gauge the effects of introducing a technology, even one as simple as a sewing machine. Another possible effect is that the introduction of the sewing machines allows the workers to complete their tasks in a much shorter time, leaving them free time to become involved in other activities not normally available to them. This can cause considerable social upheaval in small communities.