

Innovation comes in many forms and degrees. The simplest form of innovation are variations of an existing product that may cause us to look at its function in a new way. Improvements on existing products can be considered innovative even if it is simply a matter of changing what it looks like. The highest form of innovation is pure invention where the product has no precedent. This must be considered to be a rare thing and unlikely to happen in our classroom. Most people only have one truly good idea in their whole life. Our task as educators is to help our students recognise good ideas and what to do with them when they come. This may be years after they have left our classroom.

It is valuable to help students identify and use some of the strategies for innovation which are not in the pure invention category.

Product evolution

All products live somewhere along an evolutionary line. It is easy to track the evolutionary line of ubiquitous products like automobiles, vacuum cleaners and ball point pens. Improvements in these products have been due to:

- New technologies
- New user groups
- New niche uses
- New materials
- New production techniques
- New trends and styles

Analysing the factors influencing changes or improvements in the evolutionary line of existing products can help designers think of further improvements.

New technology

Finding applications for new technologies is innovative. Turn to scientists who are developing new technologies and don't know what to do with them. The magazine *New Scientist* is full of nascent technologies. There are materials we don't see around much because no one has thought of a good application for it. Foamed aluminium is an example. Why did it take 100 years from its discovery before aluminium was used commercially for chairs and the like. The reason is that only a few designers took aluminium on as a challenge. There are plenty more materials and technologies we just don't know what to do with yet.

Green Design

Designers can take some responsibility when it comes to caring for the planet. Most products use energy in their production, use and disposal and designers can work to minimize the energy a product sucks up. In fact just about every product can be made 'greener'. Here are some of the strategies:

- Minimise energy consumption in production, use, disposal;
- Design for easy disassembly

- Design for extended useful life
- Design for a new use after initial usefulness is over
- Design new products from old (re-use)
- Design from materials easily recycled
- Design the product from recycled materials
- Make the product lighter so that energy used in transport is minimized
- Clearly identify different plastics for easy recycling

New shapes

Products rarely have to look like what we expect them to. Some designers are able to challenge our notion of 'good' design through innovative use of materials and processes. It is salutary to remember that every well accepted idea was once new, and new ideas are rarely embraced quickly. Designers should be ready to look for opportunities to be different, sometimes just for the sake of being different. Students should definitely be allowed to have this fun.

New user group

Most products are designed for the masses. They suit most people quite well – but what the people who are not 'most people'. There are many in our community who are unable to use many products because of special needs. Sometimes these products are adapted to the new user group because the size of the user group is worth a marketing campaign (eg: the children's market). Other minority user groups go unnoticed. The aged and disabled often have difficulty with everyday products such as knives, handles, displays. This strategy is about taking an existing product and identifying a specific user group and redesigning the product for their specific.

Portability

If some products were easier to carry they would be given a whole new usefulness. Make it lighter, foldable, bendable, extendable, inflatable or put a handle on it. This normally takes a bit of technical know how and a deal of experimentation.

Miniaturization

In the 80's thin was the thing. Why make a calculator so thin that it could easily break? Because you could. It seemed that the best thing technology had to offer was to make things smaller. This was welcome in the case of the mobile phone, but questionable in the case of the calculator on the watch where the buttons were too small for any kind of human interaction. Making things smaller can be smarter, but not always.

Down-teching

Instead of making products smarter why not make them dumber? A wind up radio for example doesn't need batteries and can therefore be used by any remote community. This could be vitally important in the case of a natural disaster. As members of the developed world we too often forget the majority of people live in very poor conditions. The *Freeplay* wind up radio costs about \$80 which is expensive for a radio, but this covers the cost of a second radio which is then donated to a remote community.

Increased safety and comfort

Occupational health and safety regulations are becoming increasingly important. And designers can play an important part in providing safe environments. This strategy is about analysing potential dangers and then minimizing them through good design.

Combining functions

What activities go together (eg: sitting and reading), and can they be catered for in one multi-functional product? The Swiss army knife is a good example of this. This is a powerful strategy, but its success often comes down to the practicality of the final product. Multi-functionality can compromise functionality.

Activities:

Find pictures of examples for each of the nine strategies.

Rate the nine strategies in order of how innovative they are.