

PIES

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Dr David Barlex Director of Nuffield Design & Technology continues his occasional series looking this issue at identifying and understanding needs in clients and end users

The PIES approach to understanding needs

A fundamental requirement for anyone wishing to design any sort of product or service is an understanding of the needs of those who will use that product or service. You can teach pupils about needs by introducing them to the acronym PIES.

PIES stands for **physical, intellectual, emotional and social**.

These are categories of need.

P We all need food, water and air to breathe. We need to keep warm and be protected from the weather. We need regular exercise. These are physical needs.

I We need to learn new things and to be stimulated. We use games, books, television, radio and so on, to meet these intellectual needs.

E We all need to feel safe. We need to feel that people care about us, and to have ways of expressing our feelings. These are emotional needs.

S Most of us like to spend time with friends, talking and doing things together. These are social needs.

Pupils can explore different situations and identify the needs of people in those situations. It is important that these situations are familiar to pupils so that they can develop an understanding based on their own experience.

Waiting at a bus stop late at night, waiting for a train at large busy railway station and waiting for a delayed flight at an airport are three useful examples. It is a small step to considering what products (or services) will meet the needs identified by the pupils. Your pupils will quickly realise that the retail outlets of railway stations and airports sell goods and provide services that meet the identified needs. The bus stop is definitely the poor relation here with few if any products or service available although this is changing in some cities with displays of information indicating when the next bus is coming.



Intellectual needs ↑

We play games, read books, watch telly, listen to the radio to meet our intellectual needs

↓ Meeting the needs of the user

Considering products and services in specific locations



Having considered situations the next step is to consider products from the PIES perspective and ask what needs this or that product meets? It is unusual for a successful product to meet a single need. Considering a mobile phone, laptop computer and a newspaper soon makes this apparent. The mobile phone for example can clearly be used to meet social and emotional needs but now with integral games intellectual needs too and by using it to dial up a take away it can be used to meet physical needs as well. No wonder it is such a ubiquitous product!

More students can be engaged with the difference between needs and wants and understand that what we can have to meet our needs will depend on the resources at our disposal at both the personal and societal levels. We all need food but those from societies where food is scarce will want only basic requirements whereas those from wealthy societies in which food is abundantly available will want a wide variety of different food products to meet their perceived needs.

Once students have a firm grasp on the PIES approach to thinking about needs and wants they can use this understanding in two particularly useful ways as follows:

- ➔ *Looking at situations to see where needs are not being met or are being met in a limited or unsatisfactory way. This will provide opportunities for students to develop their own design briefs.*
- ➔ *Looking at products or services and identifying the needs that are being met and considering how meeting these needs might be improved or the product changed to meet more needs also provide opportunities for students to develop their own briefs.*

As students become more experienced they will begin to see that products and services are 'used' by different users. In the case of a child's toy the most obvious user is the child that plays with the toy but other users are parents who will want to be assured that the toy is safe to play with and others who might play with the child who may wish to have a role in the way the toy is used. Developing design ideas to meet this wider range of users' needs, clearly requires a more sophisticated approach to designing than developing an idea that meets the needs of a single user. This is an approach to which abler students should aspire and be guided by their teachers so that the intricacy with which they use the PIES approach is made explicit.

A good start in the classroom might be analysing products or designs and identifying the PIES needs that are met by them and perhaps even quantifying the levels of need met. This can be done as a discreet part of a wider lesson or as planned individual lesson identifying needs.

A wide range of teaching resource material is available free of charge from the Nuffield Secondary D&T website www.secondarydandt.org



The Mobile Phone ↗

A versatile product with much functionality.



↳ Toys

Who really is the user?
What are the perceived needs?

Fur Coat ↘

A product with a limited demand. What PIES needs might it meet?

