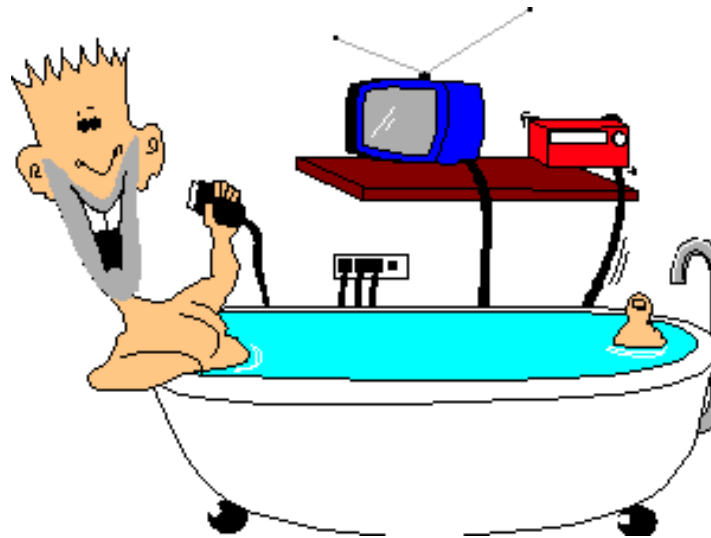


FORESEEABLE MISUSE and other intangibles



by Richard Nute
Product Safety Consultant
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Misuse

A significant proportion of accidents are caused by consumer misuse rather than through any defect in the products themselves.

Freehills Update, 09 September 2005

Foreseeable Misuse 1

“Manufacturers are required to anticipate the possible uses of their products and are responsible for foreseeable misuse by the consumer.

“Foreseeable misuse includes foreseeable product alterations by the consumer.”

Hancock & Hancock, Tampa, Florida Personal Injury Attorney

Classifications of “Use”

If we have a classification of

**Use, or
Intended use**

then we must have classifications of

**No use, or
Unintended use (misuse)**

Intended Use

Use of a product... in accordance with specifications, instructions, and information provided by the supplier.

...when used as intended by the intended user

[J-81-2004]
IN THE SUPREME COURT OF PENNSYLVANIA
MIDDLE DISTRICT
CONCURRING AND DISSENTING OPINION
MADAME JUSTICE NEWMAN
DECIDED: May 25, 2006

Unintended Use (misuse)

Use of a product for a purpose other than the intended use.

Classifications of Unintended Use

If we have a classification of

Foreseeable Unintended Use (misuse)

then we must have a classification of

Unforeseeable Unintended Use (misuse)

Classifications of Foreseeable Unintended Use

If we have classifications of

Reasonable Foreseeable Unintended Use

Reasonable Unforeseeable Unintended Use

then we must have classifications of

Unreasonable Foreseeable Unintended Use

Unreasonable Unforeseeable Unintended Use

Reasonable Foreseeable Unintended Use



Use of a product, process, or service in a way which is not intended by the supplier, but which may result from readily predictable human behavior.

...readily predictable behavior?



...readily predictable behavior?



...readily predictable behavior?



...readily predictable behavior?



...readily predictable behavior?



...readily predictable behavior?

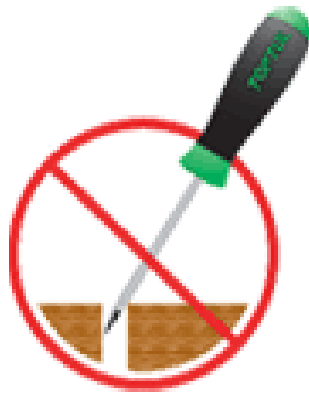


What is the readily predictable behavior?



Unintended use:

Warning against predictable behavior



**DO NOT USE SCREWDRIVERS AS
PRY BARS, LEVERS, PUNCHES,
OR CHISELS.**

What is the readily predictable behavior?



What is the readily predictable behavior?

“The Mess Hall could be an interesting place when the food was served. In one incident at chow an enrollee was stabbed by a fork while reaching for a piece of bread, so much in a hurry was everyone.”

“I just learned the hard way why one should load silverware into the dishwasher with the sharp sides pointed *down*. As I was emptying the dishwasher, I was stabbed by a fork ... and I now have 4 holes in my thumb. All in a straight line.”

“I was stabbed by scissors for not sewing good, stabbed by a fork for not pouring my sister a cup of milk.”

What is the readily predictable behavior?



What is the readily predictable behavior?



Unintended Use: Warning against predictable behavior



Do not hit wrench with a hammer to increase driving force.



Do not add to wrench handle to enhance leverage.

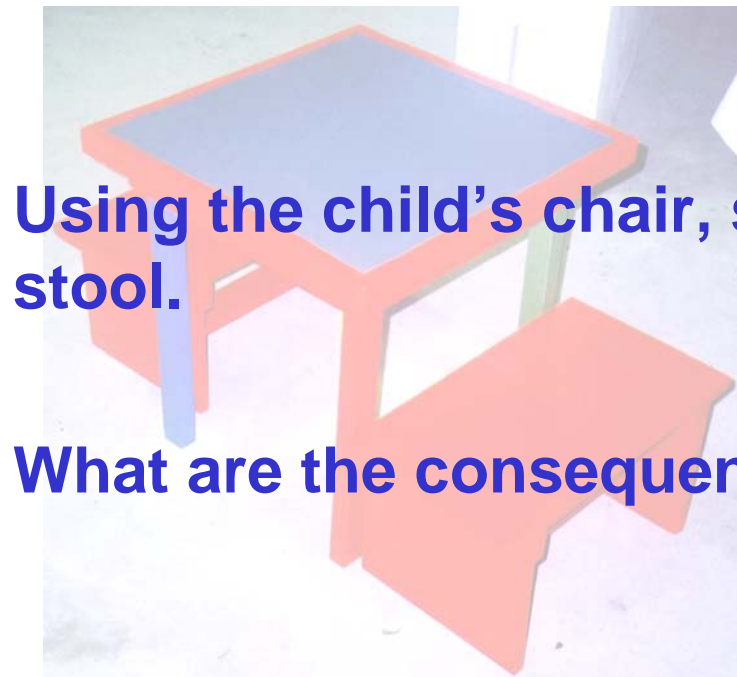


Do not thin out certain facet of the wrench to increase the operating space.

What is the readily predictable behavior?



Readily predictable behavior



Using the child's chair, stool, or table as a step stool.

What are the consequences?



Foreseeable Misuse (readily predictable behavior)

“...while the risk of foreseeable misuse may be reduced through product design, it may not be able to be eliminated altogether without significantly reducing the product’s functionality or making it cost prohibitive.”

Productivity Commission
Ministerial Counsel on Consumer Affairs (MCCA)
Australia

Unreasonable Foreseeable Misuse

- **Deliberate self harm or harm to another.**
- **Reckless disregard for the person's own safety via non-heeding of warnings, removing safeguards, or product use under the influence of drugs or alcohol.**
- **Product not being serviced or maintained as required.**
- **Where the potential injury is well-known and the benefits from safe use are significant in comparison to the cost of preventing misuse. Knives, for example, are inherently dangerous objects.**

Reasonable Foreseeable Unintended Use

Unintended Use (misuse)

that is

foreseeable

by a

reasonable person

and is likely to result in

injury

Readily predictable human behavior

When you first see a device you have never seen before, how do you know how to operate it?

The appearance of the device could provide the critical clues required for its intended use (or even unintended use).

Readily predictable human behavior:

Affordance

An *affordance* is a perceived possibility for action. It is the design aspect of a product that suggests how the product should (or could) be used (or misused).

Affordances provide strong clues to the operation of a product.

- **Knobs are for turning,**
- **Balls are for throwing or bouncing, and**
- **Chairs are for sitting on.**

When affordances are utilized, the user knows what to do by just looking; no instructions or pictures are required.

Three fundamental properties of an affordance

1. An affordance (intended or unintended use) exists relative to the action capabilities of a particular person.
2. The existence of an affordance (intended or unintended use) is independent of the person's ability to perceive it.
3. An affordance (intended or unintended use) does not change as the needs and goals of the person change.

You are approaching a door through which you eventually want to pass. The door, and the manner in which it is secured to the wall, permits opening by pushing it from its 'closed' position. We say that the door affords (or allows, or is for) opening by pushing.

On approaching that door you observe a flat plate fixed to it at waist height on the 'non-hinge' side, and possibly some sticky finger marks on its otherwise polished surface. You deduce that the door is meant to be pushed open: you therefore push on the plate, whereupon the door opens and you pass through.

Here, there is a perceived affordance, triggered by the sight of the plate and the finger marks, that is identical with the actual affordance. Note that the affordance we discuss is neither the door nor the plate: it is a property of the door (the door affords opening by pushing).

- **Actual Affordance** is the affordance specifically designed into the product to enhance its use; it is a fundamental property that determines just how the product could possibly be used (or misused).
- **Perceived Affordance** is the affordance perceived by the person through his personal interpretation of the appearance of the product.

Animal AFFORDANCES



What are the *AFFORDANCES*?



What are the *AFFORDANCES*?



When you first see a device you have never seen before, how do you know how to operate it?



What are the *ACTUAL AFFORDANCES*?



What are the *ACTUAL* AFFORDANCES?



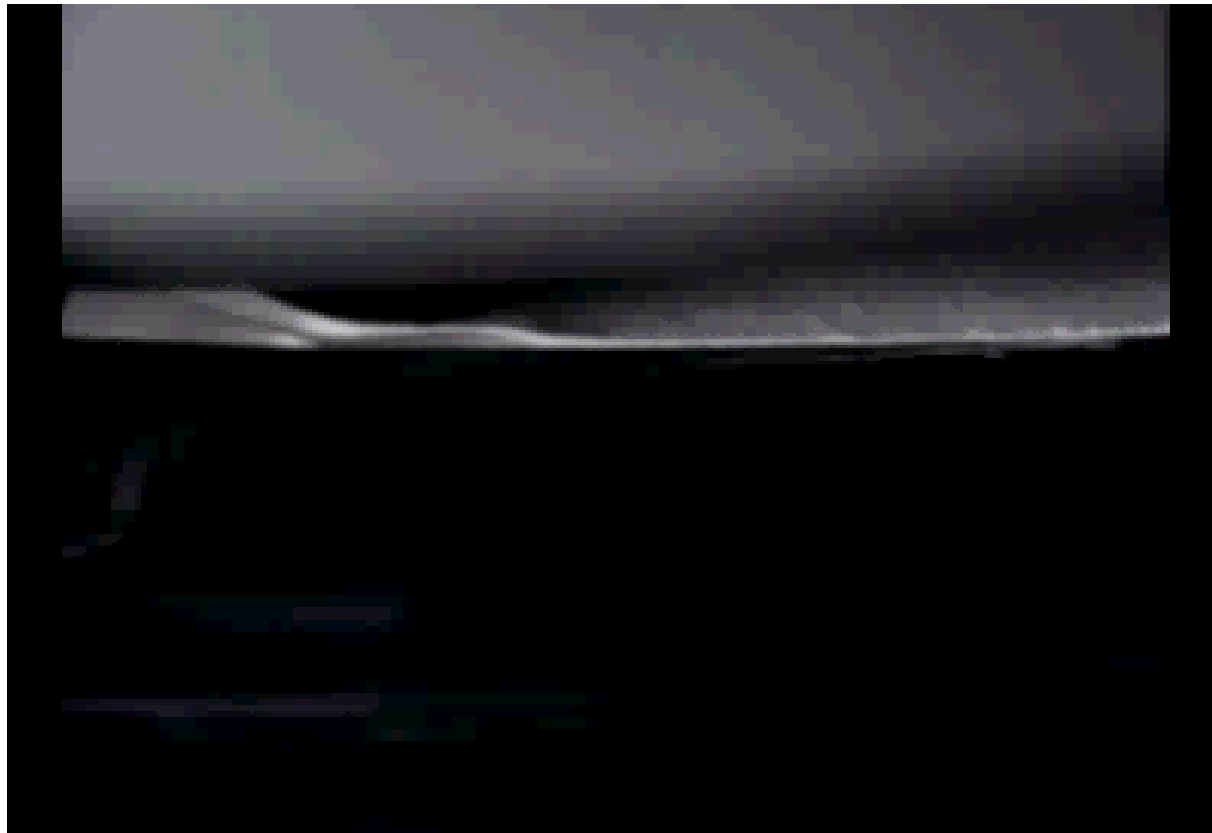
**“The user knows what to do by just looking;
no instructions or pictures are required.”**



What are the actual and perceived **AFFORDANCES?**



Inkjet printing on fabric...
Readily predictable behavior?
Unintended use? Perceived affordance?



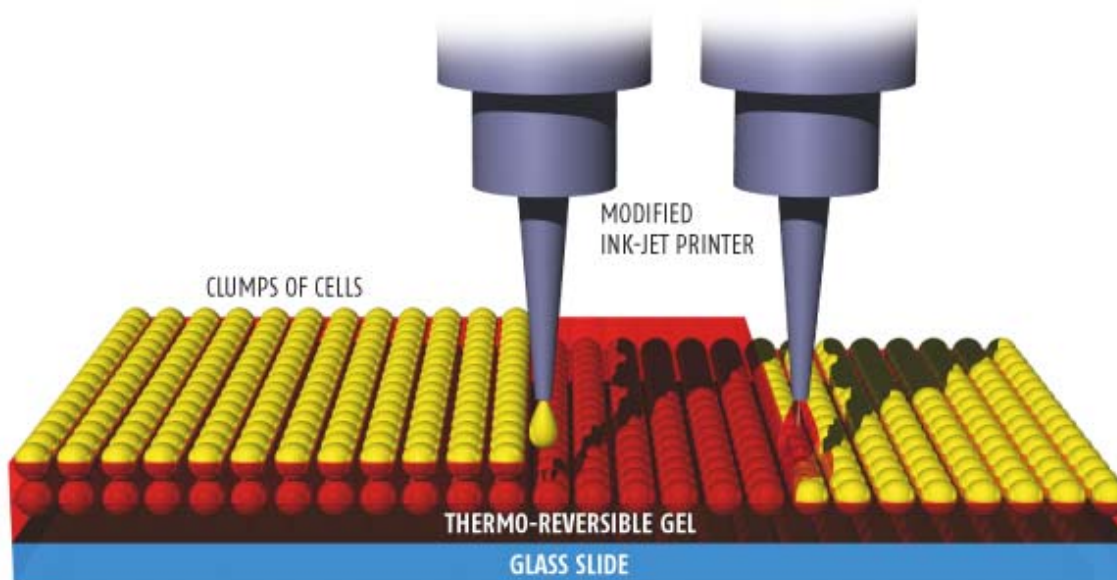
Printing cells using inkjet printers...

Readily predictable behavior?

Unintended use? Perceived affordance?

PRINTING ORGANS

Organs could be built up layer by layer by printing clumps of cells onto a gel that turns solid when warmed. Once the cells have fused the gel can be removed simply by cooling it



Conclusions

- **Intended use** is use of a product in accordance with specifications, instructions, and information provided by the supplier. When affordances are utilized, the intended use of a product is known by just looking at the product; no instructions or pictures are required.
- **Unintended use** is use of a product for a purpose other than the intended use, but which may result from **readily predictable human behavior**. When affordances are utilized, the unintended use of a product is known by just looking at the product.
- An **affordance** is a perceived design aspect of a product that suggests the intended use and may suggest unintended use.

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