Interface and interaction design
There are various ways through which users can control products, all with their own pros and cons. As a designer its important to try and explore new interaction possibilities, rather than sticking with the already known ways. These new ways of interaction should largely be based on research in usability and user experience.
A rather new way of interacting with products is through websites and mobile applications, these ways certainly have benefits. However, a designer needs to keep in mind that computers and phones are not always present. In line with the previous, designers need to make sure that they create interfaces which require less attention and cognitive load. These non-obtrusive interfaces need to be universal, open for different ways of input, and created to allow connection with multiple devices.
The following points need to be considered when designing new interfaces. (I only picked the most important ones for me)

- Physical controls can be convenient, when you need fast, direct, precise adjustments. But these controls cannot be changed easily.
- Lights are easy to perceive and not intrusive, but it's hard to communicate information with just lights.
- Screens are very functional, they are updatable and create dynamic interfaces. However the amount of possibilities and functions which one can add to screens makes it more difficult for designers to keep their interface simple.
- Context-sensitve interfaces will reduce complexity because it makes decisions for the users. However, one has to keep in mind that they might misinterpret data or might be seen as patronising.

Understanding People and Context
As mentioned in the previous summary, research is a very important part of creating new designs. This paper elaborates upon that.
Products and services are highly dependent on cooperation amount direct actors, stakeholders and context. Thriving products meet users roles, expertise and needs. This is mainly the case for immediate users, they are interacting with the actual products. However, stakeholders, people who do not directly interact with the products, also play a big role in design. They decide which functionalities products need to have.
There are multiple contextual factors which influence the succes of a product. (I only picked the most important ones for me)

- Operational factors, are necessary to make a product work as desired.
- Sociocultural factors, can influence how people see your product, whether they'll use it or not.
- Ecological factors, are to do with the ability to replace parts or maybe re-use materials.

As mentioned before, designing a product goes hand in hand with research. This research should go far beyond just asking what people want. In general you want to know every single thing about your users, dreams, desires, and assumptions. Once you know these things it will help you making a project that will thrive. Not to mention the waste of time and money if you do not have this knowledge.

However, doing to much research can cost valuable time and money too, therefore this chapter mentions the *just enough* investigation. This means, you should do sufficient research but start prototyping quickly. These prototypes can help you understand your users and their world even better.

Emerging Technology and Toy Design
First of all, it is very important to mention the difference between a toy and a toy product. This may seem strange but there is an actual difference. A toy is defined as an object which is used for play. However a toy product is an item that is especially made for the purpose of play.

In todays world being a toy designer has become a really diverse job. You'd need to keep up with emerging technology, in particular affordable technology, also you need to understand them, know how to manipulate them and know of new production technologies. Having these abilities opens a whole new world of possibilities.

Additionally, there is some challenges in toy design which a designer should keep in mind.

• There are two costumers, the buyer (parents) and the user (children). Both need to be convinced with your toy product.
• Toys require to pass international safety laws.
• The toy industry is seasonal, most toys are sold during the holidays. Additionally, the trends are always changing. This means that there is very limited time between designing and having the product ready on the shelves.
• Nobody wants to pay too much for toys as children change their interests quickly, this needs to be taken in consideration when choosing materials.
• Licensing is really hard.

Emerging technology starts to play a bigger role in toy design every day. As a result of this, big companies have their own engineering divisions dedicated to research and development. This change requires (upcoming) toy designers to have more and more knowledge about computers. This opens a broad variety of possibilities, think for example of interactive and learning toys, cool huh?!

Learning and Thinking with things
The rapidly evolving technologies have brought great possibilities, however they also have some disadvantages. Think for example about the notion of tangible interfaces. Almost every agenda is now moved to a digital medium. We've all adapted and learned how to work with these but this doesn't necessarily mean that we're better off now.

This mainly has to do with an important distinction between the following:

• Thinking, then doing.
• Thinking through doing.

It is now widely accepted that human beings are better at thinking through doing. This brings up some possibilities for emerging technologies. An example is the Vitamins Lego calendar on which users manipulate tangible things which will later be translated to the digital world using a phone.

New technology can also be used in toys and learning applications. Phones become more sophisticated with all kinds of sensors and technology becomes cheaper every day. The paper mentions multiple examples like Sifteo and Motion Math which use emerging technology to educate users.

This chapter offers five timeless design principles for good learning objects which need to be mentioned:

• Encourage playful interactions, some playful interaction is needed. This matches with the notion of "thinking through doing".
• Supports self-directed learning, a user needs to be able to choose what to learn and how to learn.

- Allows for self-correction, learners need to be able to observe cause-and-effect, this reveals that an incorrect choice has been made.
- Making learning tangible, learning goes quicker when manipulating things.
- Offers intelligent recommendations, provide recommendations based on previous actions.