design: igniting minds and impacting lives

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background
design, and the resultant development of new technologies, has given rise to profound changes in society:
- transforming how we access and process information;
- how we adapt our environment;
- how we communicate with others;
- how we are able to solve problems;
- how we work and live.
some things to think about

the nature of design

• what is design?
• what is the role of science and technology in design?
• what are the characteristics of a good designer?
**design thinking concepts**

- solution-focused thinking
- divergent and convergent thinking
- design thinking stages
  - immersion
  - ideation
  - prototyping
solution-focused thinking

Problems  Solutions

If you tell people where to go, but not how to get there, you'll be amazed at the results.

George S. Patton
divergent versus convergent thinking

divergent thinking
- identifying issues
- strategy and planning
- create choices

convergent thinking
- risk/reward evaluation
- decision making
- project management
- make choices

unlimited possibilities  projects  measurable results
“[Design thinking is] a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity.”

Tim Brown, IDEO
design thinking

• structures thought processes of designers, and draws on abductive reasoning

inductive

generalize existing ideas

deductive

narrow down existing choices

abductive

create space to generate new ideas
preliminary immersion
define and reframe problem
develop understanding of the context

in-depth immersion
identify needs and opportunities
“what do people say?” “how do they act?” “what do they think?” “how do they feel?”
analysis and synthesis

information → insight → idea

insight is a finding that results from immersion – the identification of an opportunity

an idea is a solution generated in response to one or more insights
ideation

The way to get good ideas is to get lots of ideas and throw the bad ones away.

Linus Pauling, Nobel prize winner
prototyping

prototypes (fidelity) + testing (context) = prototyping (validation)

"I didn't actually catch anything, but I do feel I gained some valuable experience."

Developer watching videotape of usability test: "NO! That's not how you're supposed to use it!"
the interdisciplinary nature of design

This is an interdisciplinary program in which physics students try to hit psychology students with pendulums. Promising!

My professors had an ongoing competition to get the weirdest thing taken seriously under the label "interdisciplinary program."
design thinking
immersion
analysis and synthesis
approaches to learning
critical thinking
research
organization
metacognition
transfer
affective skills
IB learner profile
inquirer
thinker
knowledgeable
balanced
design thinking

approaches to learning

creative thinking
communication
reflection
critical thinking

IB learner profile

communicator
open-minded
principled
caring
design thinking
prototyping

approaches to learning
critical thinking
research
affective skills
social skills

IB learner profile
risk-taker
reflective
design in the IB
MYP design conceptual framework

Key concepts
- development
- communities
- systems
- communication

Related concepts
- adaptation
- resources
- perspective
- innovation
- sustainability
- collaboration
- markets and trends
- function
- ergonomics
- evaluation
- invention
- form
- innovation
- sustainability
- collaboration
- markets and trends
DP design technology topics

- sustainability
- commercial production
- classic design
- user-centred production
- design
- human factors and ergonomics
- innovation and design
- innovation and markets
- raw material to final product
- modelling

- resource management and sustainable
design as a tool
design as a universal language
design as a way of thinking
design as a way of knowing
design as a way of doing
design as a way of life
questions

how was design important in the past?

how is design important today?

how will design be important for the future?

which aspects of design literacy, design thinking and the nature of design are important for 21st century learners?