

Puzzle learning

...et forsøg på at skabe en sammenhæng i et multi-fagligt og -kulturelt studie.



Hvem er jeg?

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Uddannet

Civilingeniør i Arkitektur & Design, Speciale i *Industrielt Design*.
Har undervist fuldtids siden 2004 i Aalborg, fra 2008 i Odense.
P.t. *Adjunkt* på SDU.

Fagområde

Underviser og vejleder i Industrielt design og produkt udvikling.
Er interesseret æstetik, form, men især også *processer*, *kreativitet* og *læring...*

Har arbejdet med Puzzle Learning som en del af *PGU uddannelsen...*

Læringssyn

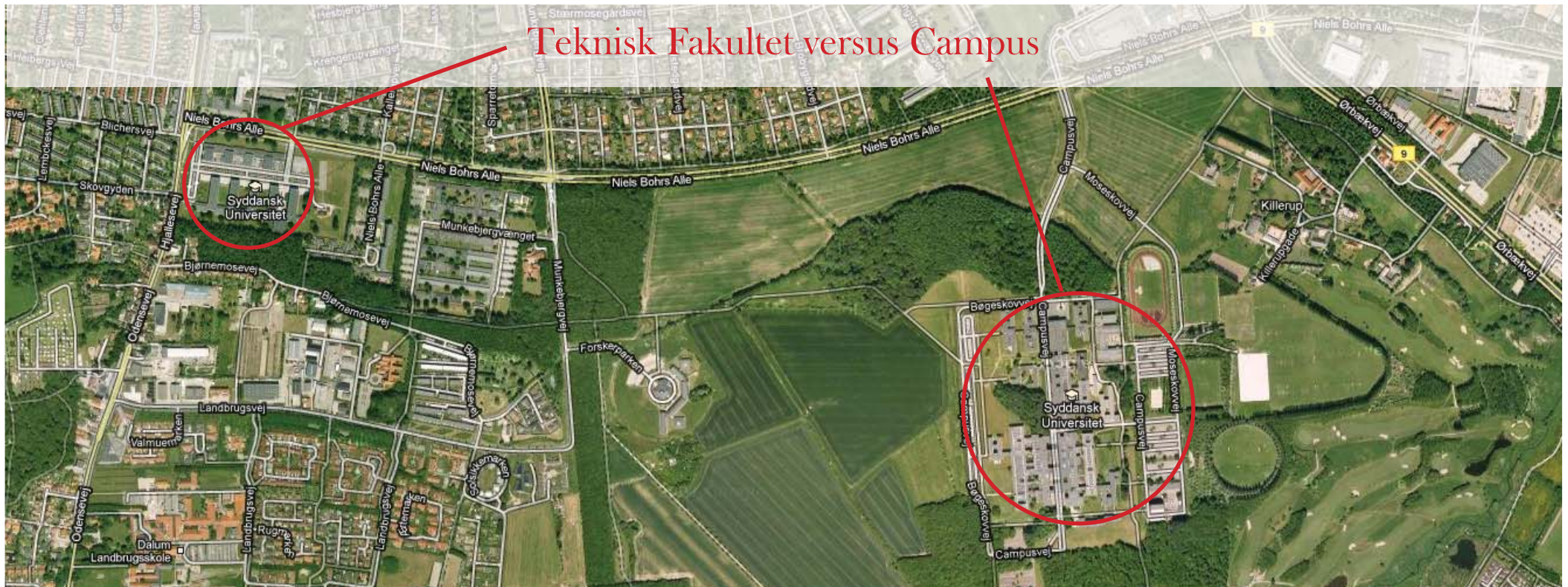
Så mig selv som som katalysatoren, der fremmer de studerendes læring, uden selv at influere på denne...men er nok mere på vej over i en ledende/styrende/manuducerende/inspirator rolle...

Baggrund/PDI

Product Development & Innovation/Bachelor

Underviser, Vejleder OG Semester Koordinator/2. sem.

- store fag- og undervisnings-kulturelle forskelle imellem *Fakultet* og *Campus*



Baggrund/DESMI

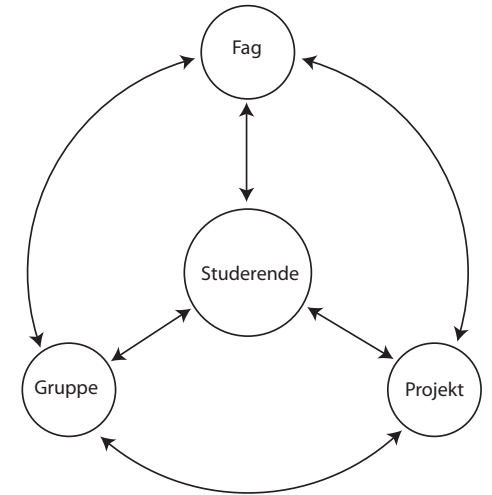
Undervisning versus Projekt

Pædagogisk grundsyn - de studerende **lærer fag, igennem praktisk projekt arbejde.**

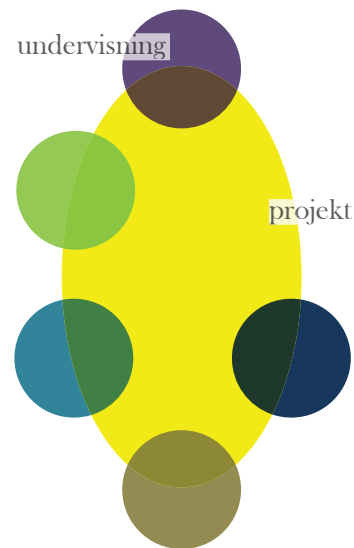
En **transfer**-proces fra undervisning til projekt, til studerende.

Ofte er det dog op til den enkelte studerende at håndtere denne proces.

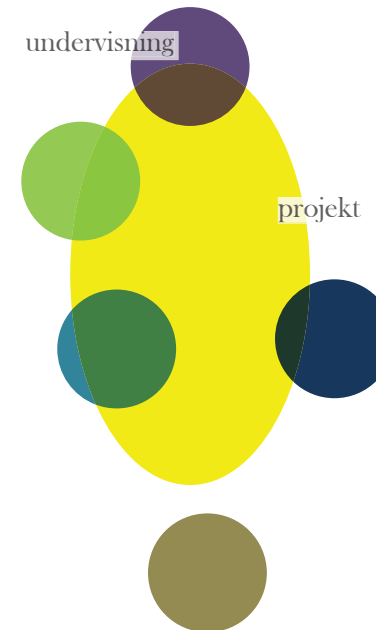
Det var min erfaring at RELEVANT undervisning til tider, reelt IKKE blev brugt i projektet.



i teorien...



i praksis...



Puzzle Learning/Knowledge map

- Læring som konstruktion... læring som et puslespil.
- Puzzle er et dynamisk visualiserings-redskab, der bl.a. kan vise de studerendes læring undervejs i projektet.
- Visualisering af abstrakt viden ved fysisk representation.
- Det handler om at lave et Knowledge map af de studerendes projekt, der forbinder undervisning og gruppens egen læring.



Teori

Konstruktivisme

- studerende konstruerer deres egne udgaver af virkeligheden, fremfor blot at absorbere versioner præsenteret af underviseren.

[Prince. Micael J. 2006]

Single- and Double Loop Learning

- Learning as detection and correction of error.
- Single loop learning -> “correction of error is accomplished by not changing the underlying values and policies as practised.” [H. Tsoukas; N. Mylonopoulos. 2005. p. 29)]
- Double loop learning -> “correction is accomplished after changing underlying values and policies”

[H. Tsoukas; N. Mylonopoulos. 2005. p. 29)]

Transfer

- forskellen på overførsel og hukommelse
- tidligere erfaringer.

[Bransford, John D. 2000]

Kilder:

• Prince. Michael J., Richard M. Felder. 2006 *“Inductive teaching and learning methods: definitions, comparisons, and research bases”*, Journal of Engineering Education: Volume 95. Issue 2, Pages 123-138

• H. Tsoukas; N. Mylonopoulos. 2005. *Organizations as Knowledge Systems Knowledge, Learning and Dynamic Capabilities*. ISBN: 9780230524545. Palgrave Macmillan

• Bransford, John D. 2000. *How people learn: Brain, mind Experience and School*. Washington DC. National Academies Press.

Puzzle Learning/Knowledge map

I praksis

Eksperimentet er udført på 2. sem. PDI.

Alle undervisere er blevet bedt om at lave et word dokument, hvori der er

- én overskrift for hver væsentlig del/emne af deres undervisning
- tilhørende kort beskrivende tekst
- eventuelle søgeord, så de studerende har mulighed for selv at sætte sig ind i emnet/teorien etc..

Jeg lavede dernæst layout + samlede de enkelte “brikker” i et samlet dokument.


- Der er 7 undervisere på semesteret, hvoraf én ikke leverede materiale tilbage.
- Én af undviserne har efterfølgende givet udtryk for at have brugt konceptet i planlægningen af sin undervisning.

The rational consumer

This block looks into consumer behavior that is governed mainly by the mind (cognitive, rational elements). It explores how consumers make decisions to buy something and how this decision process can be influenced by marketers.

Keywords
Cognitive buying behaviour
Attitude
Attitude change
Decision making

EXPECTED OUTCOME:



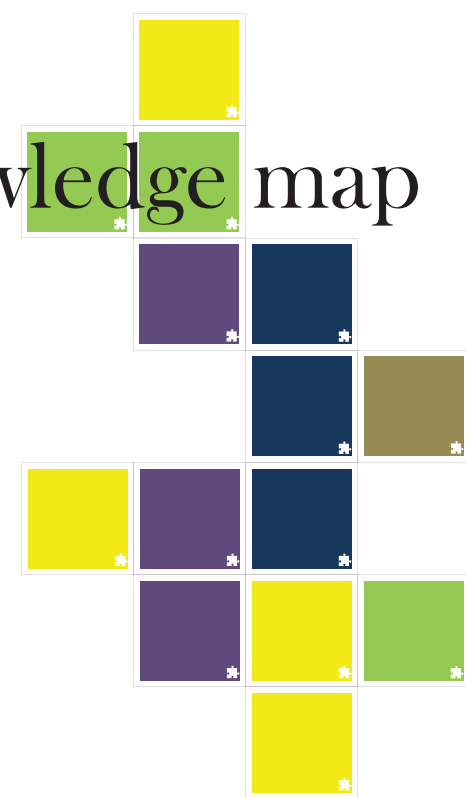
Puzzle Learning/Knowledge map

I praksis

De studerende fik ved semesterstart udleveret et dokument der beskrev konceptet, baggrunden for det, det forventede udkomme + alle brikkerne. Det var helt frivilligt for dem om de ville bruge tid på det. Guleroden var at de ville være klogere når semesteret var slut...

Brikkerne skulle placeres i forhold til hinanden på en sådan måde at de viste hvordan, gruppen forventede at ville bruge den undervisning der blev givet i løbet af semesteret. Hertil kommer den viden de regnede med selv at skulle tilegne sig.

Der var 5 grupper af studerende
Alle grupperne har overvejet konceptet.
3 har reelt forsøgt at bruge det i starten af projektet.
Ingen brugte det til slut (næsten...)



Forventede resultat

- større forståelse af værdien i at skabe en mere direkte sammenhæng imellem undervisning og projekt.
- dybere læring iblandt de studerende.
- skabe et fælles referencepunkt imellem lærerne og de studerende, på tværs af de forskellige kurser.
- de studerende er i tvunget til at bruge det underviste, men de er tvunget til at relatere projektet til denne og for derved at opnå en større forståelse for undervisningen.
- forståelse for at læring opstår både i undervisning OG projekt.

MEN sådan gik det desværre ikke...



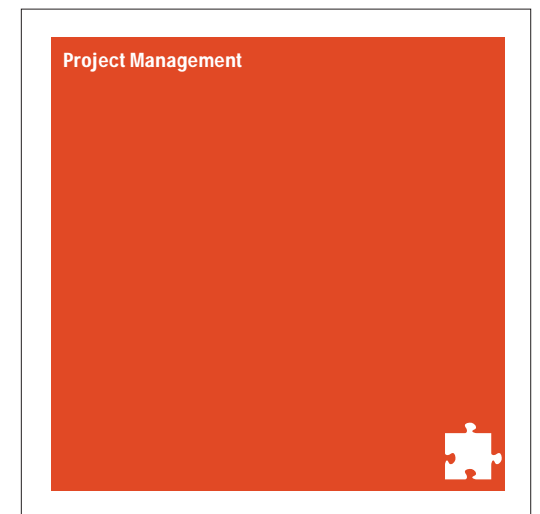
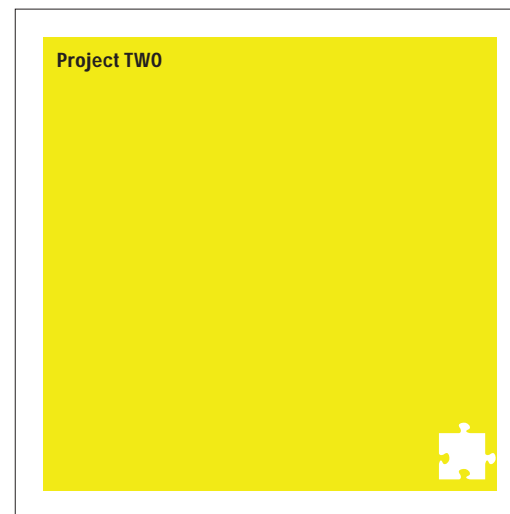
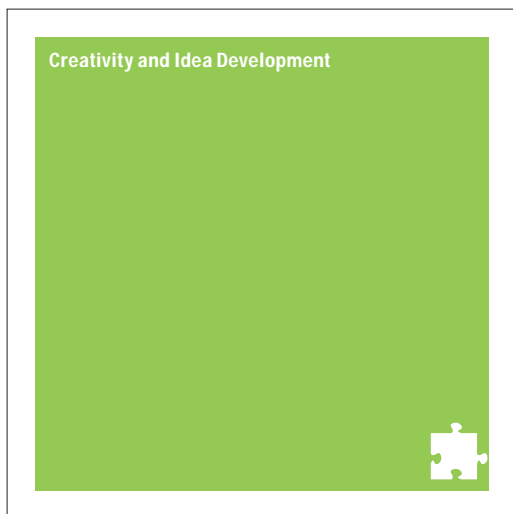
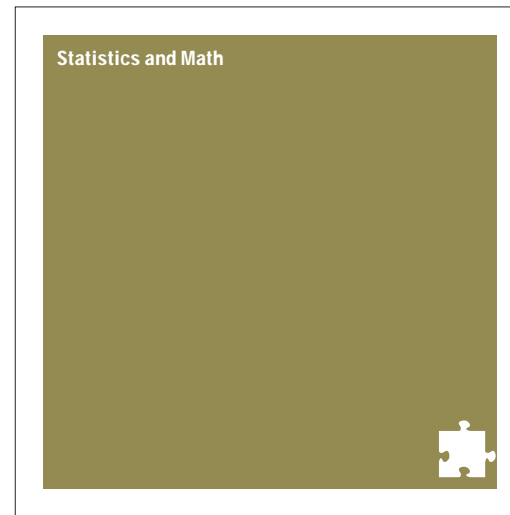
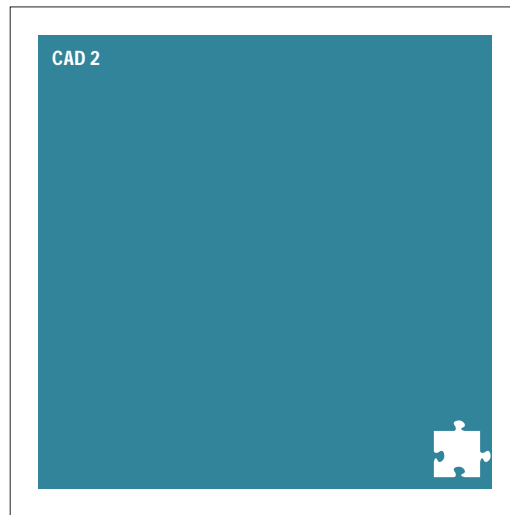
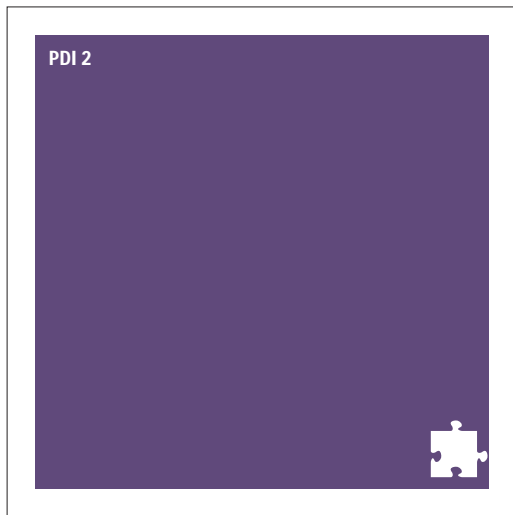
Kompetence udvikling af underviser(e)

- det er et stort projekt, der bør initieres/bakkes op fra ledelse
- kræver større involvering fra undervisere
- konceptet skal forenkles - evt. introduceres i etaper (1., 2. 3. sem.)
- giver måske mulighed for en holistisk forståelse af semesteret, på tværs af de enkelte kurser
- giver mulighed for større overblik i uddannelsesplanlægningen

Personlige erfaringer

- legemsliggørelse af abstrakte begreber
- bedre forståelse af kollegaers undervisning
- for komplekst et projekt at udføre ved siden af det normale arbejde
- pædagogikken bør synliggøres for de studerende

Legend



Technology Management & Marketing Strategies

Type of content: theory, case study & methods

The session deals with goals, types, elements and processes of technology management & marketing strategies of firms.

Building on the first "technology part" of the PDI course we focus on the demand or pull side of technology management: customers and users of technological innovations.

One example: core competency strategies versus diversification strategies.

Expected Outcome:

Organization of Technology Management & Marketing

Type of content: theory, case study & methods

The session focuses on different organizational models of technology management & marketing inside and outside the firm

For example: matrix organization, bottom up & top down models, technology networks, joint ventures / public private partnerships

Reference: Saren & Ford

Expected Outcome:

The Outside Perspective: Customers & Users

Type of content: theory, case study & methods

The session focuses on basic theories and methods dealing with user driven technology management & marketing.

For example: lead user method & open innovation techniques

Reference: Saren & Ford

Expected Outcome:

Technology Resources & Scoring

Type of content: theory, case study & methods

The session focuses on approaches and methods how technological resources and potentials of firms can be measured – both quantitatively and qualitatively, from the inside and the outside perspective.

6 methods are introduced in theory & practice (case studies, practical exercises): sensitivity technique, balanced score card, technological balance sheet, value analysis, technology focus groups / surveys & technology portfolios

Reference: Saren & Ford

Expected Outcome:

Students' Presentations & Exam Preparation

Type of content: presentation of assignments

The students present and discuss their assignments regarding the commercialization of products (and/or services) based on "intelligent furniture" concepts (introduced in the first part of the PDI course).

Connected to their first assignment in the PDI course the students develop and present a short business case/concept for the commercialization of a chosen technological solution.

Expected Outcome:

What is technology

type of content: theory

We will try to define what technology is and you will end up with your own definition of technology.

Expected Outcome:

Technology mapping

type of content: hard, practical work and a little bit of theory

We will try to define what technology mapping is. Through your assignment you will gain experience in tracking, sorting and presenting information within a given technology area

Expected Outcome:

Patents and technology

type of content: introduction to understanding patents

Patents are a structured way of describing technology. You will learn to read and search patents and get some experience in reading patents

Expected Outcome:

Where technology come from

type of content: theory

We will discuss what gives rise to technology and how it evolves. You will learn to dissect technology into its bits and piece

Expected Outcome:

Technology strategy and technology audit

type of content: theory

We will put the information on technologies into a strategic framework of a company and set up some criteria for evaluating the companies technologies

Expected Outcome:

Expected Outcome:

Ideation_Basic (Associations...)

Type of content: Theory, Methods

What is creativity? + 5 creative methods to develop ideas.

Search words: Creativity, divergent/convergent, creativity barriers, Mindmap, Six Thinking Hats, Focusing, - Brainstorm, Forced Analogy, Problem Reversal.

Expected Outcome:

Sketching I (Perspective Techniques)

Type of content: theory, methods, exercise

Basic warm-up techniques + how to construct 1-, 2- and 3 point perspectives.

Expected Outcome:

Ideation_Specific (From idea to problem...)

Type of content: Theory, Methods, Exercise

Creative psychology and the concept of flow. Thinking differently through Lateral Thinking. AND from problem to solution or from solution to product? - The concept and use of Creativity Templates.

Search words: Flow, Lateral Thinking, Creativity Templates

Expected Outcome:

Ideation_Less Basic (Scenario...)

Type of content: Theory, Methods, Exercise

Using Scenarios to move the imaginative context.

Search words: BrainWriting pool, Storyboard, Fantasy Storywriting

Expected Outcome:

Sketching II (Shadowing)

Type of content: theory, methods, exercise

Basic warm-up techniques + How to make sketched objects appear like 3D, using light and shadows.

Search words: shading

Expected Outcome:

Sketching III (Advanced Figures)

Type of content: theory, methods, exercise

Basic warm-up techniques + Using the "box method" to draw complex objects + product presentation techniques in general.

Search words: sketching, drawing, industrial design sketch

Expected Outcome:

Facilitation (Theory)

Type of content: Theory, Methods, Exercise

Why use a Facilitator? The role of the facilitator. How to plan a workshop - considerations, methods, tools. How to intervene.

Search words: Facilitation, Facilitator, Workshop

Expected Outcome:

• + • Workshop

To be announced!

Expected Outcome:

Facilitation (Practice)

To be announced...

Expected Outcome:

Expected Outcome:

Expected Outcome:

Introduction to Business Markets

Type of content: Theory, Methods

Keywords: B2B, buyers, marketing management, institution, commercial companies, government, purchasing procedures and practices

Expected Outcome:

Firm analysis

Type of content: theory, methods, exercise

Keywords: core competencies, internal resources, capabilities, core products, integration of resources

Expected Outcome:

Organizational Buyer Behavior and Markets Opportunities: Current and Potential Customers

Type of content: Theory, Methods, Exercise

Keywords: selection and evaluation of segments, decision-making unit, strategy levels and plan

Expected Outcome:

The Character of Business Marketing and Purchasing and Materials Management

Type of content: Theory, Methods, Exercise

Keywords: organizational buying process, Economic and technological forces, relationship marketing, customer profitability

Expected Outcome:

Industry analysis

Type of content: theory, methods, exercise

Keywords: environment, suppliers, buyers, government, rivalry, strategy

Expected Outcome:

Stakeholders

Type of content: theory, methods, exercise

Keywords: stakeholders, value creation, complexity of relationship/network

Expected Outcome:

Consumption is more than buying

How do consumers experience products and product information?

This block is about the basics of consumer behavior. It includes a basic view on what is so important (for consumers and marketers) in consumption and how consumers make sense of all the stimuli they are confronted with in the market.

Keywords:

Pre-purchase, purchase, post-purchase
Consumption as a process
Perception
The five senses

Expected Outcome:

The social consumer

This block looks into consumer behavior that takes place in a social setting. Consumers are influenced also by the shopping situation (salesperson, retail environment) and by other persons like friends, parents, experts etc.

Keywords:

Situational influences
Peer groups
Opinion leaders
Family

Expected Outcome:

The emotional consumer

This block looks into consumer behavior that is governed mainly by emotions. It explores how consumers buy something without necessarily making a rational decision to buy it and how these emotional aspects can be influenced by marketers.

Keywords:

Motivations
Value
Desires
Self/identity

Expected Outcome:

The rational consumer

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Attitude
Attitude change
Decision making

Expected Outcome:

The consumer groups

This block is focused on defining consumers into target groups, based on demographic, social, economic and psychological traits that they have in common and differentiate them from other consumer groups.

Keywords:

Income
Social class
Age subculture
Lifestyle marketing

Expected Outcome:

The cultural consumer

This block is emphasizing the cultural setting of consumers and consumption. Culture gives products different meanings, and it sorts out different consumer behaviours as appropriate, required or even forbidden. Our society itself is often described as a consumer culture.

Keywords:

Culture
Consumer culture
Myths
Rituals
Culture production systems

Expected Outcome:

Technical Documentation

Expected Outcome:

Expected Outcome:

Expected Outcome:

Technical Tolerances

Expected Outcome:

Expected Outcome:

Expected Outcome:

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Expected Outcome:

Project Management

Expected Outcome:

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Expected Outcome: