

# 'A LEARNALI(IOUS GAME, THE BASI( THEORY FOR PLAYOLOGISTS'

A FEW BASIC THEORIES CONCERNING PLAY. LEARNING AND LEARNING THROUGH PLAY-EX-PERIENCE, GIVE YOU MORE INSIGHT INTO THE TOPIC - A GODSEND FOR PEOPLE WHO WANT TO PAIR PRACTICE WITH THEORY OR VICE VERSA. GO THROUGH THE THEORY AND LINK IT UP WITH YOUR PRACTICAL EXPERIENCE. CAN YOU SEE ROOM FOR IMPROVEMENT? COULD THE THEORY HELP YOU GET A BETTER GRIP ON EDUCATION? MAKE THE MOST OF THIS RICH RESOURCE!

> learnalicious game

the basic theory for playologists

HELLO, YOU ARE ABOUT TO DIVE INTO ONE OF THE BOOKS ON THE C.I.S. BOOKSHELF. FAN-TAS-TIC!

NEED MORE CONTEXT? HERE WE GO!

THIS DOWNLOAD (ONSISTS OF - THESE TWO BOOKS:

**BOAD BOOK** 

FOR

# WHAT (AN YOU EXPE(T FROM OUR AWESOME BOOKS?

- Concise yet rich step-by-step DIY manuals that will guide you through various aspects of play
- Multi-purpose material: in youth work, any reason is a good excuse for a game!

# > PLAYING GAMES FOR FUN > VSING GAMES FOR EDV(ATIONAL PURPOSES > PLAYING EDV(ATIONAL GAMES

You can use our books for any of these goals. If a specific purpose requires a particular approach, we will state it explicitly.

• Consequential freedom of use: You are free to select only what you think is useful, interesting and challenging from our approach, tips and tricks, do's and don'ts. Use the books as you please but do not expect maximum results when only applying one piece of advice. The road to success is long and paved with obstacles.

# ROAD BOOK FOR (DIY) 'PLAY'-ITE(TS

HOW CAN YOU RAISE YOUR GAME TO THE NEXT LEVEL? WE OFFER YOU A SOUND ROAD-BOOK TO HELP YOU KEEP ON TRACK

NO TIME TO LOSE - A(TION! (LI(K ON THE BOOK YOU WANT TO START WITH. QUESTIONS OR (OMMENTS? E-MAIL US: CIS@SPELINFO.BE





# COLOPHON

100543534

This booklet is edited by C.I.S. 'More than just a game' Naamsesteenweg 130 B-3001 Leuven Belgium T. 00 32 (0) 16 22 25 17 F. 00 32 (0) 16 29 50 99 cis@spelinfo.be www.spelinfo.be



ULARUIUS J

Met steun van de Vlaamse overheid

No part of this edition may be reproduced and/or made public by means of press, photocopy, microfilm or by any other means, without prior consent from C.I.S. 'More than just a game', Naamsesteenweg 130, B-3001 Leuven. Belaium

Resp. ed., Ines Leyn, Naamsesteenweg 130, B-3001 Leuven.

Welcome to 'A learnalicious game – the basic theory for playologists'

This volume will provide a framework to help you get a thorough insight into play, learning and learning through play-experience. The playologists among us will find a solid working base to use as thought-provoking material or for application in practical educational contexts – it is up to you! We will inspire you with juicy questions. At the end of this volume, we list our sources so that you can find ingredients for yourself.

Playful greetings, The C.I.S. playmates. **ND**NE

learnalicious game

# 1/1. The Basic Ingredients

The first part provides insight into some basic pedagogical cognitive frameworks for play-based learning. Does this part contain everything ever written on the topic from A to Z? No but it does list the basic ingredients, which you can expand and enrich based on your personal interests.

• Socio-cultural theory (Vygotsky)

• Pragmatism (Dewey)

> 2. Connectivism (Siemens)

### a. Play p. 3 • Play as a symbolic act p. 3 • Playing and play p. 3 • Conditions for play p. 4 • Being playful p. 4 • What is good play? p. 5 b. Learning p. 7 > 1. Cognitive educational psychology p. 7 Introduction p. 7 • Constructivism (Piaget) p. 7

p. 9

p.11

p. 13

p. 15

# 2/ Recipes of the top chefs p. 15

The foodies among us can enjoy a tasty bite in part 2. Play and learning is a good combination. If the 'Flow' and Kolb's views have not convinced you, socio-constructivism will surely shed light



H T

PASIC

**HNGR** 

DIA

n

on the current pedagogical view on games and learning in youth work. Check it out, and see if this part inspires you toward more theoretical and/or practical work!

| a. Introduction: experiencebased learning                     |       |  |  |  |
|---|-------|--|--|--|
| and play – a great match!                                     |       |  |  |  |
|   |       |  |  |  |
| b. Csikszentmihalyi's 'flow'                                  | р. 16 |  |  |  |
|   |       |  |  |  |
| <ul> <li>2 competing forces</li> </ul>                        | p. 16 |  |  |  |
| <ul> <li>9 properties of Flow</li> </ul>                      | p. 16 |  |  |  |
|   |       |  |  |  |
| c. Kolb's learning cycle                                      | p. 17 |  |  |  |
|   |       |  |  |  |
| <ul> <li>The learning cycle</li> </ul>                        | p. 17 |  |  |  |
| <ul> <li>The 4 learning styles</li> </ul>                     | p. 18 |  |  |  |
|   |       |  |  |  |
| d. The socio-constructivist model p                           |       |  |  |  |
|   | ·     |  |  |  |
| <ul> <li>Formal versus informal learning</li> </ul>           | p. 19 |  |  |  |
| <ul> <li>The socio-constructivist view on learning</li> </ul> | p. 20 |  |  |  |
| C C   |       |  |  |  |
| e. 8 juicy questions  | p. 21 |  |  |  |

# Where do you find ingredients for yourself? p. 22

| • |      | 1 |      |      | • | ŀ |
|---|------|---|------|------|---|---|
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   |      |   |      |      |   |   |
|   | <br> |   | <br> | <br> |   | _ |
|   |      |   | Ĩ    |      |   |   |
|   |      |   |      |      |   |   |



| c. 7 juicy questions |
|----------------------|
|                      |
|                      |
|                      |
|                      |
|                      |
|                      |
|                      |
|                      |
|                      |

a Ieamalicious game



# **I/Basic ingredients**

# a. Play

Play as a symbolic act.

A standard example in psychoanalysis is the 'Fort Da' game (Jenseits des Lustprinzips, 1920). Freud saw his grandson playing with a reel of thread. The child first threw the reel away, yelling 'Fort!' (Gone), and then pulled it back towards himself, screaming 'Da!' (There). According to the psychoanalyst, this was the child's attempt to give meaning to the disappearance and consequent reappearance of his mother. Instead of passively undergoing these acts, the child re-enacted the events by using the reel as a symbol for his mother. However, by using the words 'fort' and 'da' in his play, the child had the authority to decide when the mother (the reel) would disappear and reappear. Through these symbolic gestures, the child tried to get a grip on and of the situation.

what do we have?

Creating symbols that refer to elements of reality is typical in playing. While an outsider sees a cardboard box with a child inside it, the child himself perceives the box as his castle or his racing-car. This way, play creates an alternative reality into which the player is absorbed. Huizinga refers to this as 'the magic circle'. A characteristic of the world that arises through playing is that the rules of the play world differ from those that occur in reality or real life. We can even challenge gravity in a play world. Besides that, a virtual world is limited in time and space. Because a play world is detached from reality, it can be very appealing for both children and adults. Firstly and mainly, it can serve as a temporary retreat from the real world. On the other hand, players can experiment with different rules in the virtual world. Being a ruthless arms dealer or refusing to give shelter to refugees is allowed without the far-reaching consequences found in reality – and a game can be ended at any point in time. Through this, it is a safe environment where mistakes are accepted and we can test various choices.

Playing and play

We can see playing as the experience of the player when he creates, explores and learns to understand a symbolic world. It is an individual experience that arises in the head of the player and that manifests itself in the actions of the participant.

**Play**, in this context, is a collection of rules that can be supplemented with play tools or by a facilitator - all aimed at stimulating the players' experience.

For most board games, there are written rules but all other games need rules too. Even so-called **free play** has agreements or conventions. The main difference between free play and **more structured play** is the extent to which the rules are objective and explicitly stated. The degree to which game players can influence the rules of the game is another important factor. We should view both free and more structured games as forms of play. The rules of play are the core of the game. These rules make each game a unique one. Archaeologists can reconstruct a game through knowledge of its rules, but should they only find play tools without the rules, reconstruction would be impossible.

The same tools can be useful for different games - a deck of cards, for example. We can pack a game into a box but not the experience arising from playing it. It is possible to participate in a game without playing but equally you can play without having a specific game. With free play, for example, the rules are not explicitly stated - a game comes to life in the head of the players while they play. Playing happens when players fill out the space between the rules of play.

TOP

learnalicious game EDIENTS

25VII

PASIC

1/THE

# Conditions for play

Dividing the previous ideas into eight sections, you can formulate the properties of a game. The purpose of each property is to encourage playing and to create a play experience.

**Playing is for fun.** There is no ulterior motive for playing a game than the joy of playing itself. There is no specific purpose to the play – as with art, the process is as important as the product. Broad definitions of game playing assume that this is the sole property of play. In that case, we can see all activities not aimed at survival as play. The fact that play does not serve a specific purpose is exactly why it exists.

Games are rule-based. To participate in a game, you have to follow certain rules. This can lead to ambiguous situations because in some games, the goal is to violate these rules. Yet that never means that we should ignore the rules of play.

Even though absolute freedom does not exist in play, each game should allow for a certain degree of freedom. Participants should have the opportunity to make certain decisions so that they can have an active role in the game. Freedom will urge the participants to use their creativity, empathy and imagination.

**Playing is doing.** Play aims at an intense play experience. The player should become a part of the play world. As mentioned before, however, this is not the same as subjection to the rules of play. A play experience can also be an emotional experience. Csikszentmihalyi defines an activity in which the participant loses himself as 'flow'. We will discuss his research and the factors that are important for an intense experience in part 2.

**Players participate in a game voluntarily.** According to several theories, forced participation will never lead to an intense play experience. However, Csikszentmihalyi's theory of 'flow' [See part 2.] contradicts this view.

**Play has to be safe**. This means that a game should have no consequences in reality. Players experiment only if they feel safe in the virtual world. Safety, in this case, refers to both social and physical security. In addition to observing the game's rules, players should allow fellow participants to play a different role.

- Not too many rules. A game that has too many rules is dull and not fun to
  play. The focus of the player should be on the dynamics of the game, rather
  than on the rules. If a player must constantly consider whether he is playing
  the game correctly, he cannot have an intense game experience.
- Play needs time. Like any activity, a sufficient amount of time should be available for a game, because an intense play experience often involves a time-consuming process. For play, too much time is better than too little.

Being playful

Several scholars describe children as 'playful' – 'being playful' meaning having characteristics that encourage playing. A playful person is good at playing. We can interpret being good at playing as being able to symbolise without needing a lot of environmental stimuli.

In this respect, a playful person is someone who can often easily immerse himself in a fictitious situation without any particular stimulation.



CIPR

in'

0

THE

TOP

According to **Dewey**, a child is naturally free and unattached. He also argues that children characteristically have **constructive impulse and expressive insight**.

The constructive impulse in Dewey's theory is what urges children to experiment. He uses characteristics such as curiosity, imagination and a desire for experimentation to describe the child's view of the world. He also assumes that the child possesses an expressive or artistic instinct. This instinct ensures that children are creative and want to express themselves. Creativity is necessary for filling the space between the rules of play in a game.

Finally, Dewey emphasizes that the child is an active participant who does not experience passively but takes action himself. He is both a discoverer and an inventor.

EDIENTS

PASIC INGR

1/THE

According to him, man has an instinctive need for social contact. People want to seek and sustain social contact. They want to be a part of the socio-cultural world with others. This is what urges them to participate in cultural activities – in the broadest sense of the word. With children, this instinct urges them to play. Playing offers them the opportunity to fulfil their need for participation in the adult world.

Moreover, the social instinct motivates intense emotional commitment, which is one of the basic conditions for play. As opposed to animals that play due to a systematic behavioural mechanism, human play, according to Vygotsky, is a consequence of this social instinct. While on the other hand, animal play is always rehearsal play.

Good play is play that creates the conditions for playing

# What is 'good play'?

We can see playing as the experience that arises from creating, exploring and understanding a symbolic world. The concept of play subsumes the rules of play and the play material and can refer to the guidance that enables and supports creation, discovery and comprehension of a fictitious reality. Good play is play that creates the conditions for playing and also encourages the players to do so.

# WHAT ARE THE CONDITIONS FOR PLAYING OR WHAT DOES GOOD PLAY ENTAIL?

 Consistent with flow theory (see part two), a good balance between the skills of the player and the challenges of the game is necessary for playing. The challenges of a game originate from the rules of play and from the interaction with fellow participants.

- The rules of play can be implicit or stated explicitly. They need to be sufficiently open to present options to the players and to allow them to take on an active role playing is doing. The freedom that the rules offer permits the players to take action. However, the rules of a game should not be too open, because they delimit the virtual world typical for play. Similar to rules that stimulate creativity, certain restrictions on play can facilitate playing, while absolute freedom can be paralysing.
- A maximal play experience arises when the symbolic world has a certain degree of autonomy with regard to reality. If the events in the 'magic circle' have next to no consequences in real life, the altruism and selflessness that are typical for play occur. This is what makes a game attractive and removes the barriers that can sabotage playing. However, a play world that is too different from reality, does not encourage playing either. For instance, entering into a fictitious world in which gravity does not exist, or in which people have a sixth sense, can be very demanding.
- An (intense) play experience is something very personal and the same environment or similar situations will not be a challenge to everyone. While cooperation will stimulate one person, someone else could need competition. Different factors, such as age, personality and state of mind influence the extent to which the motivator encourages playing. The greater the number of motivators in a game, the larger will be the number of players motivated and having an (intense) play experience.



H O P

a artificious game

5

ENTS

EDI

2521

S

2

4

Ť

# These are the most important properties of 'good' play

(as summarized by the C.I.S.)

### ACTIVE CONTRIBUTION/ CREATIVITY

Intrinsic aims should not result in a fixed outcome. Players should be able to influence the game through action and reaction, not pure chance, designing a personal strategy and interaction with fellow players. Players learn and grow by playing - a solution should not be clear from the start. This will motivate the play experience and make it more profound.

### EXPERIENCE AND INTERACTION

Experience and action are the opposite of unidirectional knowledge transfer. The game should allow the players first-hand experience (through the topic), preferably in a variety of ways. They should be able to use a number of types of action when playing the game - motor, tactical, intellectual and socioemotional, negotiation and concocting plans. Interaction between players will stimulate this even more.

### COMFORT ZONE

Harmony between the competences of the players and the challenges of the game is necessary. Actions of play need a good balance between fun/ accessibility and frustration/complexity. These actions have recourse to the zone of proximal development. Keep in mind that this is not the same for each player.

### SANDBOX

The game should be a safe environment that reflects a complex reality. The player can experiment with reality and gain authentic experiences, without consequences.

### OFAMA/EMOTIONS

There should be variation applied through the course of the game. Suspense, breaks, climaxes, victory and loss, good and bad luck can all release emotions.

### COOPERATION

Players need fellow participants to reach the goal of the game. The degree of cooperation/competition should be flexible – one group, one participant against everyone else, smaller groups, a mole, complete independence from or dependence on other groups etc.

### REACHING THE GOAL

A game can have unmatched starting positions, with allowances for certain players but all participants should have the opportunity to attain the (challenge!) purpose of the game.

### PACE OF THE GAME

Players should not have to wait for their turn too long. All players should be able to participate but players should have enough time to enter their roles and participants should not be cut from the game too early.

### FANTASY

GOOD

Presentation, story and theme all ensure that players can 'lose' themselves in the game.

### CHALLENGE

Competition, pressure of time, gradations (increasing difficulty), repetition (having the possibility to improve) and cooperation

### VISUALLY APPEALING

PLAY!

Nice design, illustrations and original materials will all arouse the players' curiosity and encourage them to start playing.

a Icamalicious game

6

EDIENTS

PASIC INGR

1/THE

# <mark>b. Learning</mark>

). COGNITIVE EDUCATIONAL PSYCHOLOGY

# Introduction

**Cognitive educational psychology** is the scientific field that attempts to explain how people learn.

The impetus for research in this field was the theory of **behaviourism**. Behaviourists subscribe to the view that we can explain any behaviour as a response to the processing of a stimulus. This processing takes place in what behaviourists call 'the mind'. According to **Skinner**, the mind is a 'black box', a processor that cannot be accounted for rationally. For this reason, research focuses on stimuli to predict a response.

Firstly, when Bruner discovered that acquired experience could also influence response, cognitive psychologists tried to shed some light on the processes that occur in the mind. Secondly, research showed that the theory of stimulus-response does not suffice to explain complex processes of learning, such as language acquisition. Moreover, the emergence of positivism entailed a ban on the metaphysical elements on which behaviourism relied. Terms like 'consciousness' and 'mind' were no longer accepted in a scientific context.

**Cognitive psychology** then evolved into two primary theories and a third one that takes their ideas further:

In the first theory, based on the work of Jean Piaget, the focus is on the contrast between the individual and his environment. Symbolic actions and the evolution of logic are also central to Piaget's view on the human being. A second important theory relies on the findings of the Russian psychologist Lev Vygotsky. In this theory, language is very important. Vygotsky states that man is a product of his environment.

• In the third, **Dewey** formulates the most influential criticism on both theories. According to him, experience is essential - something that is learned gains significance when related to other knowledge.

The next few chapters elaborate on these different theories of learning. The last part, on Siemens' philosophy, shows the current state of affairs and offers a brief overview of the preceding theorists and their view on edutainment.

# (Piagets constructivisme

Piaget focuses on the subject for his view on thinking and learning. An example can explain this. From a behaviourist point of view, the material presented determines a student's reaction in a learning situation. Piaget poses that the capacities of students can influence their behaviour in equal measure.

In accordance with various other educational psychologists, Piaget states that the development of an individual consists of several stages. The four stages that he distinguishes are:

# 1. <u>'SENSORIMOTOR INTELLIGENCE'</u> (0-2 YEARS OLD)

A child can discover the world with his **senses**. From birth to two years of age, the child will form a picture of reality using the senses of feeling, sight, smell and hearing. The child thinks by acting. In this stage, he will predominantly fix physical problems, such as turning a switch to hear a



sound or putting objects in a box and taking them back out.

0

THE

HOR P

**'Practice play'** is typical for this developmental stage. A game can serve as exercise of what the child has learned.

leamalicious game EDIENTS

**JUGR** 

PASIC

Ì

# 2. 'PREOPERATIONAL THOUGHT' (2-7 YEARS OLD)

The child still gains experience with his senses between the ages of two and seven but new impressions come about through symbolic gestures. 'Pretending' becomes very important and the child starts acquiring language. The practice of motor skills during the first phase makes imitation possible. In Piaget's theory, a symbolic gesture is a (motor) gesture out of its original context. It serves to evoke or depict the original circumstances. Analogously to the theory of de Saussure, Piaget distinguishes the object or action used to refer to the situation from that which it represents.

When symbolic gestures arise, play becomes autonomous and 'the magic circle', defined by Huizinga, emerges – the separation from reality. This phase is 'the preoperational stage'. Illogical thinking is another characteristic of this stage.



# 3. 'CONCRETE OPERATIONS' (7-11 YEARS OLD)

When the child is about seven years old, reasoning becomes more rational and more organized. The child has then entered the 'concrete operational stage'. He is able to think in hierarchies with categories and subcategories. However, in this phase, he can only organise concrete information. With symbolic gestures (in play), the child attempts to mirror reality as best he can.

The player pays more attention to different roles and to interaction with fellow players in the game. While in the preoperational stage, the child's play is characteristically self-centred, even in team play.

## 4. 'FORMAL OPERATIONS' (11-15 YEARS OLD)

In this phase, the child is able to reason in an abstract and systematic way, like an adult. According to Piaget, (formal) rules become more important, relegating the representative aspect of play to the background. Increasing interaction between the players causes the introduction of rule-based play. Common



CIPES

0

THE

TOP

agreement is necessary for team play. In this type of play in particular, the participants can practice their social skills. Rules entail obligations, which need to be in harmony. Consequently, according to Piaget, discussing the rules before playing is just as important for a child's development as the game itself.

Moral thinking is one of the skills developed through play during this stage. Piaget argues that observing and questioning the rules is the foundation of social life. In contrast to Vygotsky, he calls this autonomous morality. He claims that this is a morality established by cooperation and discussion between equals, without authorities employing pressure or obligation. This way, through play, children can get to know society and learn how to participate in social life. Therefore, we can see play as leading to good citizenship. If another generation imposes the rules and pressure and obligations occur, Piaget refers to heteronomous morality.

These stages are merely a conceptualisation of the developmental process rather than clearly delimited phases human beings go through. Piaget emphasises that the stages interflow and that, even after the age of 15, a person continues to grow. The basis of the student's reaction is the combination of environment and phase. For each phase, there are typical clusters of ideas and insights that a person learns more or less simultaneously.

Piaget's bases his developmental stages on the way subjects explore their environment. However, this does not mean that an adult no longer has access to the skills that are characteristic for the preliminary phases. Each new stage joins the acquired ones and becomes the dominant source for new experiences.

In Piaget's view, each individual has his or her own intellect. Consequently, development is predominantly an internal process that produces an image of the external world. As the process advances, this image becomes broader and more precise. Learning is adapting the internal image of the world to the observed reality. Accordingly, the individual becomes increasingly better at understanding and predicting events.

a Iteamalicious game

8

# What do we have?



EDIENTS

PASIC INGR

V

Ī

Piaget argues that the cognitive act consists of arrangement and adaptation. He considers our memory to be a cognitive scheme in which new knowledge joins existing knowledge. Previous experience is the basis of such a scheme. It allows human beings to predict and recognise situations, in order to determine the

appropriate behaviour. The schemes arrange events based on similarity. Learning is the process that builds and adapts these schemes.

Piaget uses two terms to characterise these schemes: assimilation and accommodation.

Assimilation is the cognitive process that adds a new perception or stimulus to an existing scheme or behavioural pattern. This allows schemes to evolve from, for example, 'it has fur' to 'it has fur, a tail and four legs'.

Accommodation arises when a new experience does not fit an existing scheme. For instance, when a child discovers that there is a difference between cats and dogs, a new scheme needs building. The new scheme consists of the main category 'it has fur, a tail and four legs' and subcategories 'climbs up trees' and 'does not climb up trees', or 'barks' and 'does not bark'.

For healthy development, assimilation and accommodation need balancing. If someone would only assimilate, he would only have a few large schemes that are unable to detect small differences between events. Pure accommodation would yield a large amount of small schemes without consistence or possible generalisations. These people would have trouble seeing the bigger picture. Equilibrium between accommodation and assimilation is therefore equally important as each separate skill.

The preceding paragraphs clearly show that Piaget mainly focused on the way knowledge is structured and organized. He refrained from the view that knowledge is quantifiable, which is, for example, the basis for intelligence tests. In his theory, someone is intelligent when he is good at observing and applying new information. The amount of knowledge a person possesses is of inferior importance. It is also important to remember that cognitive development is the consequence of the actions a person takes, rather than of a process one passively undergoes. As will be explained further on, this view is similar to that of Dewey.

Socio-cultural theory Vygotsky



One central point of criticism of Piaget is characteristic of Vygotsky's theory. He argues that there is too little attention paid to the fact that a person learns a lot by interacting with others. Since Piaget states that the cognitive process takes place in the head of the subject, a dualism arises between doing and thinking. In his theory, there is a discrepancy between the social context, in which knowledge emerges, and the cognitive structures that store it. This dualism interferes with the opportunities to ascribe significance to knowledge. Both this issue and the influence of Marxism lead Vygotsky to express an alternative view on cognitive development.

CIPES

0

THE

TOP

The concept of **social learning** is fundamental in Vygotsky's theory. The concept is that neural activity alone cannot enable development. Social meanings that are part of human interaction and the corresponding culture will also facilitate development.

In Vygotsky's theory, learning is acquiring or understanding social values and norms. The scholar views learning as a social process in which knowledge is a cultural product passed on from generation to generation. A child can grow when he acquires the morals and actions of society. Learning is socialising or connecting oneself to the current social order. Vygotsky argues that language in particular has an important role in this process.

In part, socialising is an independent process but adults and peers with more experience can help the child too. To acquire insight into cultural values, dialogue is essential. Vygotsky refers to this knowledge, which we cannot obtain without help but only through instruction, as the 'zone of proximal development'.

a Iteamalicious game

# What do we have?



Indirectly, Vygotsky's theory also includes a model with developmental stages. Similar to the stages of Piaget, they show the way a child learns new information. However, in Vygotsky's model, the information does not come from the child's environment but through his interaction with others. Consequently, in his view, development entails an evolution towards increasingly balanced communication skills.

For example:

1/THE

• Language acquisition allows for participation in conversation.

- Participation in conversation permits a greater insight into the values that are important for society.
- This knowledge then supports the development of skills deemed valuable.

According to Vygotsky, skills originate from the assignments the culture gives to its members.

In short, while Piaget focuses on the individual capacities of the child, Vygotsky considers learning to be a social phenomenon.

Vygotsky's view on play does show some similarities with Piaget's model. Like Piaget, he recognises the importance of play for the psychological development of children. He also believes play is an importance influence for citizenship. However, unlike Piaget, he does not believe in the development of morals through discussion with peers. For Vygotsky, morality is a constant passed on from generation to generation, through experience. Therefore, the position of adults differs in each theory.

Vygotsky, like Piaget, argues that play is a symbolic gesture through which the child can use his fantasy to relieve himself from the pressure of the material world and from conventional meanings. He distinguishes between animals and human beings based on their motives for behaviour. While systematic mechanisms determine animal behaviour, people's motives are more complex. A complicated aggregate of causes that stimulate development is the basis of their behaviour.



The cause for (role) play lies in human nature, namely in the instinct toward participation with others in the socio-cultural world. Therefore, participation in cultural activities with other children and adults motivates development. Playing is a consequence of this instinct. For this reason, Vygotsky sometimes refers to the child as a 'playing creature'. Even though animals play too, they have an instinctive motive, while a human play is a cultural process that arises from a need for social contact.

2/RECIPES

THE

TOP

Vygotsky believes that play serves as the moment when the child has the opportunity to resolve the tension between field regulation and self-regulation in his own way, within the boundaries set by culture.

- Field regulation refers to the status of the individual as an object undergoing changes.
- Self-regulation concerns the individual as the subject.

a learnalicious game

Vygotsky refers to a number of characteristics of play: a fictitious play situation, rules, degrees of freedom and intense perception:

The fictitious play situation refers to the space the player creates through symbolisation. We have mentioned this space earlier (Piaget and play). The term is roughly equivalent to Huizinga's 'magic circle'. In Vygotsky's model, the fictitious situation is the situation that originates when the child interprets the real situation. It arises through imagination and it enables various actions. For example, playing that you are a King can give you the power to rule over your citizens. Clearly, the fictitious situation is a consequence of the child's endeavour to act like an adult. For this situation, the child needs the ability to fantasise and the skill to assign his own significance to objects and actions (symbolizing). Through the

dynamics of fictitious situations, he can learn more about social rules. This way, the imitation of participation in cultural practice stimulates learning.

Rules are a second property of play. Playing exposes the child to rules. Because the play situation refers to reality, play and the play environment are useful for the acquisition of social rules. When playing shop, for example, one rule is that the customer/player first has to pick out products and then has to pay for them. According to Vygotsky, since rules are necessary to enable playing, freedom in play is an illusion. For this reason, he rejects the existence of free play.

The concept of degrees of freedom entails the freedom the players have in play, in spite of the rules of play. If the rules can entirely predict what a player should do, play is out of the question because an active role is required. A player should have the opportunity to choose. Vygotsky compares play to art, as the creation and interpretation of symbols are fundamental to each. Both disciplines need fantasy and creativity to allow the player/audience to interpret the available information. The difference between them is that in art there are no restrictions to the interpretation of symbols. While In games, the rules function as some sort of guide for ascribing significance to acts and objects.

In Vygotsky's model, play exceeds experience. It involves an emotional experience of the environment and subsequently becoming at one with it. A unique relationship arises between a child and his or her surroundings, since it is based on his own imagination. According to Vygotsky, one cannot create a fictitious situation without intense experience. Experience therefore is an essential condition for defining an activity as play. Moreover, intensity can also modify the extent to which the child grows through play.

Pragmatism Dewey

Piaget and Vygotsky's views are both problematic, according to John Dewey. However, to a certain extent his theory represents a synthesis of the models from his forerunners.

Dewey's theory gave rise to a pragmatic model, which sees meaning as arising from action. For this reason, Dewey prefers to use 'experiencing' rather than 'learning' to emphasise the active role of the subject in the developmental process. This is in line with the beliefs of Habermas, a sociologist who argues that meaning is lost in learning because learning occurs in an artificial context. According to Habermas, children cannot sufficiently connect their study material to the reality outside of school, resulting in knowledge bound to a school context, and which is useless outside of it.

Habermas and Dewey believe that knowledge only gains meaning through its relation with other knowledge. It is not the information itself that is important but the skill to adapt this knowledge and apply it to different situations. Cross-curricular goals in education are an example of current influence of this view.

**Experience** is a **fundamental concept** for Dewey's model. He defines it as the fact that a continuous mutual influence exists between the subject and his environment. Learning is doing and undergoing the consequences of actions. In this continuous exchange, each organism plays both a passive and an active role. The active aspect is visible from the changes the organism causes in his environment. The passive role occurs because the organism also experiences changes that happen in his environment. As result of these transactions, the individual organism and the environment are perpetually susceptible to change. This contrasts with the popular behaviourist view that organisms are in a neutral state when there is no stimulus. Dewey relies on constructivism for his conviction that everything is connected and acquires meaning through relating to each other.

CIPE

0

THE

TOP

A second important characteristic of man is that significance does not only originate from a network of exchanges but that human beings produce meaning or value as well. Contingent with this notion, Dewey defines culture as the meaning man ascribes to actions and events. While we can ascribe meaning by using language for naming, Dewey believes that the dissimilarities between cultures exceed the boundaries of language and that we cannot reduce them to naming differences.

learnalicious game Consider, for example, the various definitions of 'appropriateness' in different cultures. Each community has its own cultural 'codes' and a person who does not master these codes will be excluded from society. For this reason, there is great importance attributed to upbringing and education. Children need to become familiar with the cultural codes, which are often implicit. Accordingly, it is the job of the parents (among others) to pass on the 'key' that provides access to the social norms of society.

Language can serve as an example in this context. A child can only call a ball 'ball' if he is aware of the convention that combines word and object. Dewey considers education to be a process of transaction between adults, the 'cultured' members of society, and children, who are novices in the community. When adults include children in their activities and use language in doing so, the children become part of the cultural order. Dewey argues that this is the sole way for children to obtain the cultural norms. Accordingly, participation is a very important concept for Dewey. While it is the goal of education, it is both purpose and method – and it serves as the means to meet this goal. Humans and animals continuously change their environment and experience changes in their surroundings. This is what Dewey refers to as 'experiences'. The difference between human beings and animals is that humans additionally

rely on culture to ascribe value and meaning to experiences.

Play, in Dewey's theory, is the 'way of life' of the child. Play allows the child to develop his identity through interaction with others. Dewey focuses on the play of the preschool child for his theory, even though it is applicable to other age groups. He sees play as a phase during which the child is not yet subject to the economic need for making a living. The scholar thus associates play with freedom and independence. In the child's spontaneous and informal play, he recognises the playful mind, which should also be present in other human



activities. Imagination is characteristic of this mindset.

The theorist argues that play contains a **progressive and a conservative aspect**. When the child explores new possibilities of action, the progressive side is used. However, play also reproduces social life, which shows the conservative aspect. Since play is voluntary, it is very valuable for children, even though it is not without risk. Not every game is suitable for children because play has a conservative side that cultivates the injustices of society.

a Icamalicious game EDIENTS

2521

PASIC

Ţ

Dewey acknowledges that play is relevant, from an educational point of view, predominantly for children up to 6-7 years old.

# EARLY CHILDHOOD, 0 UNTIL 2,5 YEARS

'Conquest' is central to development. Children playfully discover the possibilities and the motor skills of their own body. This is about equivalent to Piaget's 'sensorimotor intelligence'.

Dewey argues that **imitation** is fundamental for this stage. He distinguishes between the way children and adults imitate. Children reproduce unconsciously. They process what they see, hear or feel an adult do in their own way. The behaviour of the adult functions as a source of inspiration or as an impetus for play that further stimulates the child, who is already active. Dewey believes that the child undergoes continuous exposure to new stimuli, which are increasingly rich, more complex and better organised. They facilitate the child's adaptability and evoke new reactions.

# FROM 2,5 UNTIL 6/7 YEARS

The child enters a second stage in which he continues to become more acquainted with himself and the world. Through imagination, children use a more abstract mental aspect of play to develop themselves further. By experimenting with different roles, the child constantly discovers and reorganises knowledge and meanings. The child mainly learns social interaction and the corresponding symbolization through play in this age group.



In play, Dewey stresses that the child should play an active role. For example, it is not up to the parents to symbolize. Instead, they should let the child gain the experience and allow the child to act symbolically. Dewey uses 'personal responsibility' to refer to this belief.

## We should see the adult as a facilitator who can teach games. However, we must reserve the act of playing for the child.

A common pitfall of education is that it only teaches games aimed at a professional career. Dewey believes that play should be purposeless and that it should contribute to social skills and self-knowledge. Accordingly, he argues that we should avoid an 'imitation world' by playing with 'authentic' tools. In contrast with the explicit symbolism of other researchers, Dewey values a sense of reality and the realism of the experience.

2. CONNECTIVISM (SIEMENS)

In 'A learning theory for the digital age' (2005), George Siemens describes the evolution of educational computer games. The author relies on the model of Egenfeldt-Nielsen (2005) for a characterisation of the previous generations of edutainment. His synopsis contains behaviourism, constructivism and socio-cultural theory.



Siemens then attempts

to elucidate the current state of affairs by referring to 'Connectivism'. Even though the article focuses on computer games, the representation also holds for (educational) games.



a Icamalicious game

According to Egenfeldt-Nielsen, behaviourism influences the first generation of edutainment. As stated before, the basis of this theory is the idea that learning is in fact a change in observable behaviour, caused by an external stimulus. Behaviourist research focuses on the connection of stimuli to corresponding responses. Scientists, such as Skinner,



Thorndike and Pavlov, refer to the mechanism that converts stimuli to behaviour as 'the mind'. This mechanism is seen as a 'black box' that cannot be read rationally.

For this reason, behaviourist scholars believe that the purpose of games should be the initiation, reinforcement and preservation of the association between stimulus and response. Accordingly, behaviourists define forgetting as 'non-use' of a response during a period of time. We then see play as an exercise method for maintaining the correct connections. Behaviourist play aims at remembering facts, defining and exemplifying concepts, applying explanations and automation of specific procedures.

The Achilles heel of behaviourism is teaching and learning complex subject matters, because this process is difficult to explain with stimulus-response theory.

Second generation games are based on Cognitivism, analogously to developments in educational psychology. Cognitive thinking can be characterised by the view that human beings have prior knowledge in the form of schemes shaped by preceding experience. Consider Constructivism, as described by Piaget, which states that someone who is learning is creating a mental image of reality, which can become more precise due to subsequent experience. Accordingly, second generation edutainment is adapted to each individual learner's experience and image of reality.

Third generation games can be related to Vygotsky's model. His sociocultural theory assumes that our own experiences, relationships and culture influence all of our observations. We can connect this view to Interpretivism. This can be characterised by the idea that there is not an image of reality in our mind - reality is internal. Interpretivist theory rejects the existence of an objective external reality. Instead, focus is on the availability of social contexts that facilitate asking the right questions and going to the right places. Thus, third generation games allow the player to ascribe his own meaning or to create his own symbolism.

# In conclusion, Siemens describes the current state of affairs, which he characterises as **Connectivism**.

First, he cites learning outside of the individual. This is in contrast with earlier generation games, focused on an internal and individual process. In addition to the individual perspective, a network of information exists, which is constantly susceptible to change. The most obvious example of such a network is the Internet. At the same time, libraries are expanding and books become obsolete increasingly fast. People today learn through this network. However, constant change forces us to learn new information and forget old knowledge continuously. A new skill is then required, the capacity to estimate the value of information.

This skill will soon be more important than individual knowledge. The same tendency is also clear in education: the focus is shifting from transferring as much knowledge as possible to the skill to select the relevant information from the vast amount available, and to establish appropriate links. For this reason, in the view of Connectivism, learning is an external affair.

Correspondingly, fourth generation games should not aim at knowledge transfer but should focus on connecting meaningful pieces of information that enable us to learn more.



EDIENTS PASIC INGR H H

learnalicious game



CIPES

0

1

0

# 2/Recipes of the topchefs

# a. Introduction: learning and play experience, a match!

As the theories of Piaget, Vygotsky and Dewey show, the experience that arises from play is important for learning or development. Play is in these views often seen as the counterpart of academic learning, which emphasises passive knowledge acquisition, rather than the active experience.

Several models aim to explain the relation between (play) experience and learning. The following paragraphs will give a more detailed overview of the most prominent ones: 'flow' (Csikszentmihalyi), the learning cycle (Kolb) and the socio-constructivist model.

7 juicy questions

TTTT

How would you describe play?

Would you (after reading the theoretical background) take a different approach to play? What would you change?

Which do's and don'ts are important for you when you want to use play?

What are the most important strengths and weaknesses of play?

What would you take into consideration if you want to implement play in a training or educational context?

Can you see similarities between the properties of play and the properties of educational environments? What are they?

> Do you think play can serve as an educational tool? Why?

a Iteamalicious game

5

# **b.** Csikszentmihalyi's flow

2 competing forces

Csikszentmihalyi was the first one to refer to the concept of 'flow'. According to him, since the origin of Mankind, two competing forces have been present in each person. Both are useful for survival, even though they are often flatly opposed to each other.

• Curiosity about new things drives human beings and allows us to deal with change. Csikszentmihalyi characterises this behaviour as creative and inventive. The concept of 'intrinsic motivation' relates to this force as well.



TTTTT

• A second force urges us to not waste energy unnecessarily. According to Csikszentmihalyi, entropy is what prevents us from taking new challenges.

Even though the second force often has the upper hand, the 'creative instinct' ensures satisfaction and (cultural) innovation.

The 9 properties of How

Csikszentmihalyi interviewed several people, including dancers, surgeons, artists and climbers. They all stated that they experience an intrinsic reward when they practice their profession. Based on these interviews, Csikszentmihalyi distinguished nine properties, which are characteristic for periods when the creative and innovative force prevails. These properties are independent from culture, age and gender.



a leamalicious game

6

i.

Ċ

0

F

H H

0

ECIPE

# What do we have?

- The first characteristic is **immediate feedback** to the activity. Frequently, this means that the subject himself can determine the criteria for judgement of what he is doing. For instance, children, while undergoing a flow experience, can independently acknowledge that they are learning.
- Second, a good balance between skill and challenge is necessary (see figure 1). In an educational context, we often see this balance as a condition for flow. In a play context, the facilitator frequently retains this balance, either on purpose or unconsciously.
- Next, there is the requirement for structure. For an educational experience, this entails that students should be aware of the structure of the class and of the advancement of the process. For a play experience, however, this knowledge is generally not available.
- The fourth property is paying full attention to what one is doing. Accordingly, the subject should not be preoccupied with possible distractions.
- Furthermore, the subject should not be scared of failure.
- Conditions 7 and 8 relate to loss of self-awareness and awareness of time.
- Finally, the activity should be the goal of the action, rather than merely a means. Flow only arises with activities that are (perceived as) useful.

Csikszentmihalyi defines 'flow' as the occurrence of these properties in harmony. Flow is also characterised as the optimal environment or situation for learning.

During a play experience, these properties can also arise to a certain extent, making play a powerful setting for learning.

FLOW IS A STATE OF MIND THAT OCCURS WHEN THERE IS A DEEP AND INTENSE INVOLVEMENT IN ACTIVITIES THAT ARE CHALLENGING BUT DO NOT OVERWHELM A PERSON'S LEVEL OF SKILL' (SMITH, 2005).

# c. Kolb's learning cycle

The learning cycle

David Kolb developed a cyclic model that attempts to explain what happens when people are learning.

 The first step is concrete experience. You undergo an intense experience by interacting with your setting. Your contact with reality incites learning.



IC INGREDIENTS

- 2.The second phase consists of reflective observation. You explore the experience and investigate what it is you are experiencing. You take different points of view to analyse the experience.
- 3. The third phase is **abstract conceptualisation**. You start comparing the experience that you analysed, to acquired knowledge and earlier experiences. Based on the analysis, you look for general properties and regular patterns.
- 4. During the final phase, **active practice**, you test whether the newly acquired understanding can persist in reality. You reapply the 'product' of thinking from previous stages to the environment.

If the subject finds that his analysis does not meet his expectations when he confronts it with reality, he completes the learning cycle once again. At the same time, this conclusion causes reflective observation. Consequently, learning induces further learning and the cycle repeats several times. However, we do not always traverse the phases in the same order. Besides that, abstract conceptualization, for instance after reading a book, can lead to completion of the cycle.

a I<del>camalicious</del> game

iJ

Ċ

0

L L

0

ECIP.

İ.

I

Ù

0

Ĭ

Ò

ECIPES

8 a

game

We can also use Kolb's learning cycle to distinguish four styles of learning. Using a horizontal and vertical axis we create four guadrants, each represents a different learning style. People generally favour one of these styles.

# Abstract conceptualisation and concrete experience constitute the vertical axis.

- We connect concrete experience to the method of educational games. As mentioned before, the starting point is in this case an experience transferred, through reflection, into abstract and generalized knowledge. This is known as induction.
- Abstract conceptualisation arises from theories and general patterns. We call this 'deduction'. The learning cycle is entered based on knowledge and theory.

Active practice and reflective observation are on the horizontal axis.

- Active practice entails active doings. These are a property of (informative) play as well.
- The counterpart of active practice is reflective observation. However, reflective observation does not refer to a passive attitude. Instead, it concerns people who think before acting. They analyse a situation before they act, but this analysis requires an active approach.



The 4 learning styles

The quadrant delimited by 'concrete experience' and 'active practice', describes the doers. We see the learning style of a doer in people who try out different methods and who are curious about new situations and experiences. They often act instinctively and are generally enthusiastic. They find mistakes or problems by experiencing them. Doers like to jump in at the deep end. They like challenging assignments.

The designer, frequently also referred to as the 'dreamer' or 'reflector', combines concrete experience with reflective observation. He likes to be in situations in which he has sufficient time to think about his actions. A designer collects data and he observes before taking action.

## The quadrant consisting of 'reflective observation' and 'abstract conceptualisation' characterises the thinker. Similar to the designer, he prefers observing. However, it also pleases him to find connections between observations or reflections and theoretical insight and knowledge, and to demonstrate connections with acquired knowledge. He likes methods, theories and models. Thinkers can sometimes be perfectionist and detached. In their ideal learning setting, they are permitted to ask

many questions.



**DISV** 

ミス

The decider combines 'active practice' and 'abstract conceptualisation'. Deciders aim to make decisions, to look ahead and foresee events and to enter new situations. Even though they consider theoretical models, they focus on concrete situations and have problem-solving abilities. The ideal setting for a decider is one in which the student has freedom for experimentation, while an expert is present to help him.

# d. The socio-constructivist model

# Formal and informal learning

There are two distinguishable varieties of learning: formal learning and informal learning. With regard, to Kolb's learning cycle, we may view informal learning as starting from concrete experience. On the other hand, abstract conceptualisation is the basis for formal learning.

Formal learning includes didactic learning and guided learning. The most prominent characteristic of formal learning is that a facilitator or teacher responsible for all decisions concerning the learning process controls it. For this reason, the learner can take a relatively passive position.

- The first type of formal learning, didactic learning, is highly formal. However, since it is not relevant to socio-constructivism, we will not discuss it further in this text.
- Guided learning can be characterised as weakly formal, because it does take individual differences and diverging goals of learning into account. In contrast with informal learning, the teacher, who is responsible for knowledge transfer, plays a central role. Transferred knowledge also needs application and practice. However, a possible pitfall of guided learning is the practical use of this knowledge. Because the context of knowledge acquisition can sometimes be artificial and divergent from reality, applying the knowledge in a new environment may be problematic.

Regarding informal learning, we can distinguish between experience-based learning and active learning.

With experience-based learning, the learner himself is the central figure – he or she learns from personal experience. An impetus for learning is in this case often that the learner notices something while doing an activity. Accordingly, experience-based learning frequently occurs as a side effect to a different act. One activity can lead to different insights for different participants, because the knowledge, perceptions and interests of the individual are determinants for learning. What one learns is a personal matter.
 Experience-based learning assumes an active attitude, since it is impossible, with this type of learning, to offer guidance to the learner. Accordingly, there is expectation that the learner takes matters into his own hands.

Frequently, no clear learning goal or plan is present in settings for learning from experience. Instead, the experience itself is the goal. In contrast with formal learning, experienced-based learning is more suitable for long-term goals that require a high degree of (cognitive) abstraction.

Even though learning from experience is a personal matter, it often originates from the interaction with others. Information acquired based on experience can easily be integrated with existing knowledge because it arises from a practical setting. For this reason, the application of this knowledge does not require an extensive skill set.

Active learning is a second type of informal learning. Compared to experience-based learning, it requires the learner to invest even more actively in his learning process. For this type of learning, the goal is not merely a side effect, but it forms the central aim of learning. Accordingly, the goal is well defined, concrete and determined by the individual himself. The learner plans



ヨステ

the process and defines the learning process itself. He is thus completely independent from chance or from a facilitator. The fact that the learner gets a lot of responsibility is a great advantage of this type of learning, because it has a positive effect on the motivation of the learner. Moreover, it allows the method and goals to be maximally adapted to the expectations and prior knowledge of the learner.

a Eamalicious game

9

Ŧ

Ù

0

L L

ECIPE

DISA

ヨノのや

# The socio-constructivist view on learning

The socio-constructivist view on learning combines aspects of guided learning, experience-based learning and active learning. It consists of seven characteristics of learning: learning is active, cumulative, self-regulated, goal-oriented, situated, collaborative and individual.

# 1/LEATNING IS ACTIVE

Learners are not empty vessels that need filling up with knowledge. Learning is a process during which the subject creates an internal image of reality. The knowledge that is acquired by interacting with the environment needs to be constantly adapted, interpreted and updated to integrate with the information, skills and expectations that are already present. Consequently, the efficiency of a learning process does not only rely on the amount and type of knowledge presented by the facilitator but also depends on how the learner handles this new information.

# 2/LEATNING IS CUMULATIVE

Learners already possess knowledge when they enter a learning setting. Since new knowledge relies on previous information, that which precedes the learning process influences learning extensively.

# E/LEATNING IS SELF-TEGULATED

From a socio-constructivist point of view and consistent with the view that learning is active, learners are expected to take the learning process into their own hands. For instance, they should make a plan and act in accordance with it or evaluate themselves.

# 4/LEATNING IS GOAL-OTIENTED

As opposed to learning merely based on experience, socio-constructivist learning requires well-defined learning goals. The student needs to be aware of the ultimate purpose and needs to know which steps to take to reach this goal. Control and awareness of one's learning process are essential properties for a successful learning experience.

# 5/LEATNING IS SITUATED

Knowledge is bound to a situation. This means that it is inseparable from the specific activities and cultural practices during acquisition. Accordingly, learning is a social activity that occurs due to interaction with the setting. The individual leaner learns, while other people (peers, facilitators etc.) and aids (textbooks, computers etc.) are present.

# 6/LEATNING IS COLLABORATIVE

The properties 'learning is active' and 'learning is situated' showed that learning is impossible without collaboration with the setting. The knowledge that arises from interaction with other people or events ensures that a subject learns.

# 7/LEATNING IS INDIVIDUAL

The progress and end result of learning can be divergent for different subjects, due to differences in capacity, pre-existing knowledge or motivation.

This view on learning entails some consequences for an ideal learning environment. A learning setting that is in accordance with socioconstructivist learning is known as a 'powerful' learning environment. It has some specific properties:

 Firstly, this type of environment must comprise of all three types of learning, guided learning, experience-based learning and active learning.

This means that learning should be goal-oriented. Furthermore, we should allow activities in which learning is a secondary effect. This reflects in the goals. The facilitator and learner need to be able to formulate goals – but not all goals have to be predefined. The learning process can sometimes progress without knowledge of the ultimate end.

A combination of guided learning and active learning entails that both learner and facilitator have responsibilities during the process. The latter should offer information – and has to act as a facilitator, guiding the students when they search for knowledge.

a I<del>camalicious</del> game

20

I

Ù

0

L L

ECIP

d

INGRADIA



- Secondly, the learning environment should take the 7 principles that have been discussed earlier into account. When combining theory with practice, a 'powerful' learning cycle satisfies as many of these characteristics as possible.
  - The learning environment needs to support active learning. It also has to quide learners while they acquire insights and knowledge.
  - The tasks and assignments need to be culturally meaningful and goaloriented, and they have to take advantage of the physical and social context.
  - The learners are encouraged to collaborate with each other. However, individual differences need attention as well.
  - The pre-existing knowledge and background of the learners needs taking into account. The learning setting design is such that the learners have the opportunity to exploit their knowledge.
  - The environment should stimulate curiosity and the tasks should be motivating.
  - Enough information should be on offer but not too much.
  - The setting should offer opportunities for seeing the bigger picture and for establishing connections.
  - Reflection should be allowed.
  - Attention should be paid to application and usage.
  - A 'powerful' learning environment will increase the chance Realistic problems should be the basis of the assignment.
  - The learner should feel safe.

# **8 juicy questions** concerning education through play

How would you integrate Kolb's model into your educational session?

Do you rely on all the learning styles, previously discussed, during a game or during your classes? Do you think this is necessary?

Consider an educational session involving play. Can you establish links with socio-constructivism? What are they?

What would you retain from these theories to strengthen or improve your classes?

> How would you create 'flow' during an educational session?

On what do you now have a clear view? How can this help you further?

What aspects would you like to organise further for your personal goals?

Do you still have questions concerning some of the views discussed? What are they? How will you find answers?

a learnalicious game

S

IJ

Ì

۵ F

Ĭ

0

ECIPE

d

21

# Books

What do we have?

• Berk, L.E. (2010). Development through the lifespan. Illinois: Allyn & Bacon.

3. GET MORE

INGREDIENTS YOURSELF

- Efland, A.D. (2002). Art and cognition, integrating the visual arts in the curriculum. New York/London: Teachers College press.
- Quinn, C. N. (2005). Engaging learning, designing E-learning simulation games. Pfeiffer & company.
- Ruikes, T. J. M. (1994). Ervaren en leren, theorie en praktijk van ervaringsleren voor jeugdhulpverlening, jeugdbescherming en jeugdwerk. Utrecht: SWP.
- Squire, K. (2003). Video games in education, designing learning systems for an interactive age. University of Wisconsin.
- van der Aalsvoort, G.M.(2011). Van spelen tot serious gaming, spel en spelen in de pedagogische be-roepspraktijk. Leuven/Den Haag: Acco.
- de Caluwé, L.; Hofstede, G.J.; Peters, V. (2008). Why do games work? In search of the active sub-stance. Kluwer,
- Baker, D. Spelend Wijs. Intro.
- Brougere, G. (1999) Some elements relating to children's play and adult simulation/gaming. Simulation & Gaming, 30(2), p.134-146.

# BACK TO THE BOOKSHELF

- Corbeil, P. (1999) Learning from the children: Practical and theoretical reflections on playing and learning. Simulation & Gaming, 30(2), p.163-180.
- Csikszentmihalyi, M. (1999) Flow, psychologie van de optimale ervaring. Amsterdam: Boom.
- Egenfeldt-Nielsen, S. (2008). Understanding video games: The essential introduction. Taylor & Francis.
- Garvey, C. (1977) Play. Cambridge: Harvard university press.
- Henriot, J. (1989). Sous couleur de jouer, Paris: José Corti.
- Huizinga, J. (1985) Homo Ludens. Groningen: Wolters-Noordhoff.
- Janssen-Vos, F. (2004) Spel en ontwikkeling: spelen en leren in de onderbouw. Assen: Van Gorcum.
- van Oers, B. (Red.). (2005) Speciale editie rond spelen. De wereld van het jonge kind.
- Zimmerman, E. & Salen, K. (2003) Rules of play: Game design fundamentals. Cambridge: MIT Press.

# articles

Csikszentmihalyi, M. (1997). Happiness and creativity: going with the flow. Futurist 31 (5), 8-12.

We have handed you many ingredients and recipes from top chefs on a silver platter. Now, the time has come to get your own hands dirty and to put learning through play on your menul

JISN.

2



i Ċ U 0 Ĭ ۵ ECIPES ġ

a learnalicious game

22

| ROA<br>FOR<br>PL/<br>CO BAC   | A TO THE BOOK   | ANNO SK<br>KSHELF  |
|---|---|--|
| COLOPHON<br>This booklet is edit<br>C.I.S. 'More than it<br>Naamsesteenweg<br>B-3001 Leuven<br>Belgium<br>T. 00 32 (0) 16 22<br>F. 00 32 (0) 16 22<br>F. 00 32 (0) 16 29<br>cis@spelinfo.be<br>www.spelinfo.be<br>No part of this edi<br>of press, photocop<br>consent from C.I.S.<br>B-3001 Leuven, Be | ed by<br>ist a game'<br>130<br>2 25 17<br>50 99<br>tion may be reproduce<br>y, microfilm or by any<br>'More than just a gan<br>Igium. | Are steun van de<br>Vaamse overheid<br>Wat steun van de<br>Vaamse overheid |

PLAYITECTS

# WELCOME! You have taken up the challenge, the first step toward a game<sup>2</sup>! How can you approach this book? Many roads can lead to the development of a game. There is no fixed route. Depending on the obstacles you encounter, you may have to take u-turns, skip or change certain stages, or even break new ground. When possible, we will indicate this as we take you through. In any case, this volume is a good guide and something to

 In any case, this volume is a good guide and something to keep you on track while starting to create a game. It can help you see the both the wood and the trees – and serve as motivation towards a different path. Seizing this opportunity is up to you!

Now the first question comes up:

Which steps will you take or will you go for the full trip right away? On the next page, there is a roadmap to help you.

TOP: GO BACK TO THE BOOKSHELF >>>



-



# STAGE | THE MAP: WHAT IS THE DESTINATION OF YOUR GAME?

A first and important step is creating a clear framework for your game. What do you want your group to achieve through your game? Which theme will you choose and how exactly can you define it and delimit it? What is your target audience, location etc. like? Which aspects are fixed? Which decisions do you still have to make? Listing, exploring and deciding are key.

P. 3

P. 3

P. 4-7

P. 4-5

P. 6

# A. THE PROPERTIES OF YOUR GAME

# B. METHODS TO DETERMINE YOUR THEME AND GOAL

- > 1. Searching for the right theme.
- > 2. Exploring and expanding the theme.
- > 3. Selecting a well-defined theme and (a) clear goal(s).



# STAGE Z THE ROAD TO THE CONCEPT

# P. 8

P. 8

P. 9

P. 12

P. 13

>>

# A. STARTING POINT

WHICH OBSTACLES WILL YOU ENCOUNTER ALONG THE WAY? Formulate a clear question or problem.

# B. DIVERGING PHASE

# WHAT CAN YOU DO TO OVERCOME THESE OBSTACLES?

Collect as many ideas as possible. Go for it! Gather as much input as possible, while keeping to the limits that you have chosen.

- > 1. Problem versus method: Determine how to answer your question and how to deal with your problem. P. 9
- Which method will you use?
- What is the starting point for brainstorming?
- Which methods will you use for brainstorming?
- > 2. Action: Get yourself and your thinking partners to do some brainstorming
- 2 rounds
- The basic attitude for brainstorming

## C.CONVERGING PHASE WHICH METHODS ARE BEST SUITED TO

# OVERCOMING OBSTACLES?

Select good ideas. This, the most important yet most difficult step on the road to success includes: combining ideas, throwing them out, choosing between them etc. – and being hard on yourself.

> 1. Which perspective is a good one for selecting ideas?

P. 13
 >2. How can you really start choosing between your ideas?
 P. 13



# >>\_\_\_\_ROADMAP

# STAGE **3** MASTERING THE CONCEPT: FROM CONCEPT TO A PLAYABLE GAME

P. 16

In your head, it is looking great, but the game still needs execution. The attitude of an archaeologist can be useful here. Can you still see gaps in the course of your game? Can you assess the result of the rules of play? Take a close look at each detail of your game!

# A. SOME USEFUL TIPS AND TRICKS FOR ACTUAL GAME EXECUTION \, 🦲 🎜

# B. DEBRIEFING

P. 17

P. 19

P. 20

# STAGE 4

# FURTHER RESEARCH OR IMMEDIATE ACTION?

Will you immediately let the participants play your game? Do you need guinea pigs to test it? What you should do next depends on the purpose of your game.

# STAGE 5

# THE JOURNAL: HOW TO WRITE UP YOUR GAME?

Will future generations still enjoy your game or will it be a spectacular one-time activity? Some tips to help endure the ravages of time.

REFERENCES

<<<

P. 21

# THE MAP: WHAT IS THE DESTINATION OF YOUR GAME?

# A. THE PROPERTIES OF YOUR GAME

The first step is getting a clear insight into the framework of your game – the properties of the game. Fill out the checklist as well as you can.

- First, thoroughly sort out the theme of your game. Then make a firm selection, to end up with a clearly delimited choice. The next part (B. METHODS) can also help you get started.
- Important questions: What is the purpose of your game? Why do you want to play a game?

# TO PLAY A GAME FOR FUN TO USE A GAME FOR AN EDUCATIONAL PURPOSE TO PLAY AN EDUCATIONAL GAME

If you choose to play a game for fun, you can skip the detailed exploration of the purpose. However, if you select one of the other options, you need delimit your game further! The checklist and the next paragraph (B. METHODS) can help you get to work.

Although you may encounter seemingly arbitrary properties, it is always
important to choose one option! You can make the next phases of game
development more challenging for yourself, if you select a less obvious
option right now (for example a very long or short duration for the game,
a specific accommodation, a small or large group of players etc.). In any
case, making a decision is very important! This will offer you something
to hold on to during the next phases.

# STAGE 1

# PROPERTIES OF YOUR GAME The Checklist!

# THEME

What is the topic of the game? Explore the topic in detail! What does this topic entail? Next, you should select one topic and delimit it further (see 'B. METHODS').

### PUPPOSE

What would you like the participants to achieve? What is the subject that you want to make your participants aware of, inform them about or explain to them? What do you want your players to manage, know or remember after the game? (see 'B. METHODS')

# TAPGET AUDIENCE

Who will be playing your game? Demarcate a clear group (10-12 years/16+ years/ group of facilitators/all members/etc.). Can you determine a few typical characteristics of your target group? Which aspects of the content or of a game will appeal to them (active game/strategy/co-operation/talking methodology etc.)?

# NUMBER OF PLAYERS

The number of the players often depends on the setting and on the age group of the participants. Avoid making groups larger than necessary. Set a minimum and/ or a maximum number of players.

## SUPEr VISION

Who will supervise the game? Will the facilitators guide the game more than once or should everyone be able to play on his own? How many facilitators can you use? Keep this in mind when you decide on the supervision and complexity of your game.

### LOCATION/ACCOMMODATION

Where will you play the game? Of which opportunities can you take advantage? Will your game take place on a fixed location or can the location vary? Pay attention to the size of your premises and to the arrangements of the room. If you wish to play your game outdoors, you need to consider the weather and the material that will be available.

### OUTATION OF THE GAME

How much time cans you or do you want to offer the participants? How long can they focus on the game? This often depends on the age group and on the setting. You can also set a minimum and maximum duration.

# PFEFEQUISITES

The prerequisites often rely on the properties already discussed. However, you can also base them on the general framework of the game: budget, print and distribution of the game, preference for and availability of play tools, personal expectations or desires, expectations of colleagues or partners etc.

# STAGE 1. THE MAP: WHAT IS THE DESTINATION OF YOUR GAME?



You can explore your theme further in three steps. Depending on your personal requirements, you can skip one or more steps or go through all the stages.

- 1. Searching for the right theme
- 2. Exploring and expanding the theme
- 3. Selecting a well-defined theme and clear goals

> 1. Searching for the right theme

# WEBSITES, ART BOOKS ETC.

Look for unusual facts, inspiring images, strange themes etc. on websites, in funny books, in stories, fairy tales, art books etc.

>> TO THE ROADMAP

4

# NEWSPAPERS AND MAGAZINES

Go through newspapers and magazines, (randomly) pick out a word or an article, expand it further and zoom in on it, until you end up with a theme.

# PICTURES AND WORDS

- Collect a number of pictures and/or images and random words (nouns). Write the words down on separate pieces of paper and put them in a bag or place them in a pile face down. Provide a number of empty pieces of paper as well.
- Pick out one picture and let every participant name a word that they associate with this picture.
- Then randomly draw a different picture and/or word from the pile. For 5-10 minutes, let everyone write down all the words they think of when they combine the two pictures or the picture with the word on the piece of paper. If you have a large number of participants, divide them into smaller groups and let each group work on the same picture, or on a different one.
- Finally, you gather all the ideas. Everyone reads the words written down and marks out three ideas that seem the craziest, funniest, most original, etc. Then, you can start making a selection until you can determine a theme. You can also combine two or three of the best ideas into one theme.

# STAGE 1

# COMBINATIONS

- Write down four themes separately on a large piece of paper. You can find the themes using the methods described above.
- For 5-10 minutes, let the participants, in small groups or individually, indicate all the words that they associate with a theme on the corresponding piece of paper. Then, let them move on to the next piece of paper and repeat the exercise, until everyone has gone through all four themes.
- Then, put a few participants together and give them two themes, which they have to combine into one. Next, let them write down all the words they think of, individually at first. In a later stage, you can have them build on previous associations.
- Repeat the exercise with different combinations of themes.
- Finally, let everyone indicate a top three of the funniest, crazy or most challenging etc. themes. Through selection, you can then arrive at one theme.

# REAL SITUATION OR ANECDOTE

Start from a real situation or anecdote from your life. Exaggerate it or do some brainstorming until you end up with a theme.

# • PROPERTIES OF THE GAME

Do some brainstorming about one property of the game, or about a combination of properties (material, accommodation, point in time, like day/night), to arrive at a theme. This method is especially useful when you use an extreme or unusual game property. (See 'Combinations' above.)

# ONCE UPON A TIME ...

- Select a picture, a newspaper headline, an anecdote etc. as the starting point for a story.

>> TO THE ROADMAP

5

- Someone starts the story with: 'Once upon a time ...' Next, the other participants complete this first story line until you end up with a strong starting point. You can use this starting point as the basis for the elaboration of the actual story.
- You can allow the participants to pick out a picture or a word to help them complete the first story line.
- You can also repeat the exercise and eventually choose one of the starting points to build your theme on.

COUNTLESS OTHER METHODS REMAIN! FEEL FREE TO BE CREATIVE!

THE MAP: WHAT IS THE DESTINATION OF YOUR GAME?

STAKE

# STAGE

# 2. Exploring and expanding the theme

You have chosen your theme. Next, it is important to get as good an insight as possible into what the theme entails. Then, you can start selecting from a wealth of possibilities.

You should start by doing research on your theme on websites and in books. You can also rely on your own experience or on personal knowledge. If you want to, you can also look for experts on your theme, especially for this phase of game development.

# MIND MAP, WORD CLOUD

Take a big poster or cover a table with paper and write down your theme in the center of it. Have everyone write down associations with this theme based on current events, research, personal expertise etc. - without talking. Participants can also build on what other people have written down.

## 1 SINGLE-PAGE DIAGRAM

Indicate the contents of the theme on a single-page diagram. You can also create different diagrams, because one topic can often require

theme garbage m 2.

multiple approaches. Complete the diagram with people, actors, materials, locations, processes, actions, causes and effects, problems, solutions etc. This technique is very useful for themes that build on processes or structures (such as a production process, commerce etc.).

STACE THE MAP: WHAT IS THE DESTINATION OF YOUR GAME?

# WORST-CASE-SCENARIO

Do some brainstorming regarding the 'worst-case scenario' for your theme. Which problems can occur? Which challenges will participants have to face? This kind of insight will be interesting and useful in a later phase, when you develop challenging goals and possible actions for the game players

# A DIFFERENT PERSPECTIVE

List as many as possible people/organizations/participants/etc. relevant to your theme (directly or indirectly). Then look at the theme from their perspective. Pay attention to the fact that they do not have to be actual people or organizations. You should also try to empathize with abstract concepts, such as the environment, objects, animals etc. For example:

Your theme is the financial crisis. Think about the crisis from the point of view of all the parties that are involved. What is their view on the theme? What are the consequences? How do they contribute to the problem?

- The manager of a bank
- The European Union
- The stock market
- The Prime Minister
- A share holder
- Someone with savings in the bank
- The economy
- A 1 euro coin
- The dollar
- A newscaster

DARN IT, I AM THE EURO AGAIN! WHY CAN'T I BE THE DOLLAR. FOR A CHANGE?

>> TO THE ROADMAP



COUNTLESS OTHER METHODS REMAIN FEEL FREE TO BE CREATIVE!



# STAGE 1

# > 3. Selecting a well-defined theme and clear goals

You now have a clear view on your theme, but you still need to delimit it further. You can only incorporate a limited amount of content and goals into your game. If your purpose is to educate or inform the participants, it is important to focus on the essence. If the intention is to play your game for fun, you can select the most inspiring, exciting, unusual, spectacular, etc. content.

# 3 SENTENCES

Let everyone propose a summary of the game in three sentences. Next, go through them and have everyone nominate their three favorite ones. The sentences that receive the largest number of votes are the 'Three winning sentences'.

## SMART GOALS

Sum up your goals in three SMART! sentences at most. What should the players know/experience/be able to do by playing the game? You can additionally also use the nomination technique described earlier. (See: '3 sentences' above.)

SMART=SPECIFIC MEASUTABLE Acceptable Tealistic Well-Timed



Make a selection by having the entire group, several smaller groups or individuals, think from one or more points of view. You can for example select one winner out of three different points of view. This way, you can determine the essence of your theme/ content.

# • GOAL = EDUCATING/INFORMING:

- What would the target group like to learn about the theme?
- What do you think the target group should learn about the theme?
- What is our own expertise?
- etc.

# • GOAL = PLAYING FOR FUN

- What would Superman, Homer Simpson, etc. remember about this theme?
- Which subject will be the most interesting for the target audience?
- Which subject is inspiring for you?
- Which subject will be the most fun?
- etc.

COUNTLESS OTHER METHODS REMAIN! FEEL FREE TO BE CREATIVE!

>> TO THE ROADMAP

STAGE ). THE MAP: WHAT IS THE DESTINATION OF YOUR GAME?

ROADBOOK FOR DIY PLAYITECTS

# STAGE 2

# The road to the concept

The second step of game development forms the core of the creative process. The next three phases are crucial if you want to create a game<sup>2</sup>. Let's begin!

- A.Starting point: What are the obstacles you will you encounter along the way?
- Formulate a clear question or problem proposition.
- B.Diverging phase: What can you do to overcome these obstacles? Collect as many ideas as possible.
- C.Converging phase: Which methods are best to overcome obstacles? Select the good ideas.



ROADBOOK FOR DIY PLAYITECTS



# A.STARTING POINT: WHAT ARE THE OBSTACLES WILL YOU ENCOUNTER ALONG THE WAY?

A clear formulation of the question or proposal of problems is crucial for a successful creative process. When you are aware of your goal, you can take appropriate measures.

• Consider your current state of affairs and clearly formulate one or more of your crucial problems or questions. Make a choice – you cannot answer all questions at once. For example, a proposal such as 'create an awesome game' is too broad to foster creativity.

>> TO THE ROADMAP

1

- Try to make your proposal as thorough and concrete as possible. Vague problems carry vague solutions.
- Formulate your problem in one sentence.
- Start the sentence with 'How....' or 'Consider...'
- Make sure that the proposal is challenging and engaging. This will help you remain motivated and inspired.
- Most often, the question will relate to one or more of the properties that you decided upon for your game (See the checklist, page 4).

For example:

- How can you best let the game fit in with the environment of the target players?
- Consider actions for your game that allow the players to experience the theme personally.
- How can you lead the players to feel the atmosphere of sneaking around and working against detectives?
- How can you urge a large group to cooperate during a game?
- Think of unusual tools for your particular target group.etc.

Using these questions as a basis, you can amass many specific ideas.

# STAGE 2

B.DIVERGING PHASE: WHAT CAN YOU DO TO OVERCOME THESE OBSTACLES?

During this phase, you should think of as many ideas as possible to tackle your question or problem. We also know this as the 'brainstorming phase'. However, you should be wary of random brainstorming, since it will not help you in any way! Conscious choices are necessary.

# We will take two steps:

1.Problem versus method. Determine how to answer your question and how to deal with your problem.

- Which method will you use?
- What is the starting point for brainstorming?
- Which methods will you use for brainstorming?

# 2. Action!

Start brainstorming with your thinking partners A creative attitude and atmosphere will give you a head start!



# BEWATE!

 If you are creating a game to play for fun, your theme will also serve as the presentation or metaphor for your game, in this phase.

 If you are creating a game to educate or inform the participants, you should present your theme/subject in a way that is appealing to your target audience. You should consciously look for a metaphor that differs from the theme of your game.

STAGE 2: THE ROAD TO THE CONCEPT

> 1. Problem versus method

Consider your question or problem. Determine how to tackle it.

• WHICH METHOD WILL YOU USE?



TOP-DOWN First, you search for some general, comprehensive ideas for your game (the rough structure of the game, a general metaphor, etc.) and make game actions fit in with your chosen presentation. You can also start from a schematic overview of the contents of your game. (See 'B. METHODS': 'Exploring and expanding the theme'p. 6)

There are more or less <u>2 ways</u> to answer this question.

>> TO THE ROADMAP

9

# BOTTOM-UP

You start by looking for small and concrete play actions. You then try to combine them into one comprehensive concept for your game.

ROADBOOK FOR DIY PLAYITECTS

# STAGE 2

# WHAT IS THE STARTING POINT FOR BRAINSTORMING?

Countless approaches can help you start brainstorming. It is important to select the approach that will produce the input that you need. Consider it carefully!

# A few possible approaches:

### Brainstorm on one of the properties of Your game:

THEME, PUPPOSE, TAPGET AUDIENCE, ACCOMMODATION Dupation, etc

For example:

- Consider hobbies, interests, and trends that your target audience likes - transform their social environment into actual activities. Then, you can link these activities to some specific play actions or metaphors.
- Consider your accommodation 'the city' and use it to invent some challenging actions for your game.

# STAGE 2: THE ROAD TO THE CONCEPT

ROADBOOK FOR DIY PLAYITECTS

# STATT YOUR BRAINSTORMING BY SELECTING ONE OF MORE TOOLS OF MATERIALS:

SPONGES, A DECK OF CATDS, DISCS, BOW AND ATTOW, A GPS, PAINT, ETC.

 Brainstorm about which materials you can relate to your theme. Start from the selected materials and search for corresponding play actions or metaphors.

>> TO THE ROADMAP

# THINK ABOUT ONE OF MORE ACTIONS OF ELEMENTS OF YOU' GAME,

SUCH AS MOTOR SKILLS, CONSTRUCTION BUILDING, CON-QUERING A TERRITORY, PATTERN RECOGNITION, COOPE-RATIVE PLAY, NEGOTIATION, ACTING, MAKING ,-ETC. For example:

 Choose one or more play actions that are fun or interesting for you or for your target audience. Brainstorm on combining them with a series of metaphors for your game.

### BUILD ON A GAME THAT YOU KNOW. For example:

- Start from an existing game and change one or more of its properties (material, duration, roles, actions, presentation etc.).

# STAFT FROM A STORY/SCENARIO.

- For example:
- Consider a certain plot (based on an article, a photo, a movie etc.) and elaborate on it step-by-step.

# TIP: LESS IS MORE!

It is better to choose **1 FRUITFUL METHOD FOR BRAINSTORMING** (and to elaborate on it afterwards, by combining different methods), than to use several unproductive methods.

# STAGE 2

WHICH METHODS WILL YOU USE FOR BRAINSTORMING?

Once again, you have a multitude of possibilities. Always consider the result the method will produce and evaluate whether it will help you get the answer you are looking for. You should also pay attention to the duration, difficulty and depth of the game and to the experience of the participants, etc.

A brief overview to help you get going:

# Breaking A PATTERN

Brainstorm on pattern breaking (not relying on the familiar). For example, how can you use play tools in an original way? For example, using a playing card as:

- a part of a secret code
- a means of payment
- a score board
- a piece of a treasure map
- a deadly weapon
- the coordinates for a location on a map
- etc.

# REAL LIFE

Start a game in real life, with a small group of participants, and let the players spontaneously add a certain method or rule (material, duration, play actions, etc.). The participants can build on the points of view of other players.

# LITERAL OF FIGURATIVE TRANSLATION

You can apply your choices literally or figuratively.

# FEEDBACK

Relate your chosen approach (play actions, materials, etc) to an unrelated word or picture. Then try to find a connection between them.

STAGE 2: THE ROAD TO THE CONCEPT



COMBINATIONS

| AFFIA SET |   |  | C   |
|-----------|---|--|---|
| Drugs     | Drugs are<br>hidden on the<br>shelves.                                      | You can meet<br>with push-<br>carts to make<br>deals.                          | Scanning a pro-<br>duct = profits of<br>a deal.               |
| Bribery   | The police will<br>not inves-<br>tigate your<br>shelves if you<br>pay them. | A pushcart<br>with a blue<br>sticker on it is<br>protected from<br>the police. | The amount you<br>paid is deducted<br>from your ac-<br>count. |
| Family    | Each family<br>has its own<br>department.                                   | 1 scanner per<br>family = bank<br>account.                                     | l scanner per<br>familie<br>= bankrekening.                   |

Pushcart

>> TO THE ROADMAP

Self-scan

# Presuppositions

Look for presuppositions about the approach you selected (play actions, target audience, theme, etc.). What happens when the presuppositions are not applicable or when you invert them? For example:

You want to create a variation on soccer.

Presupposition 1: 'Soccer is played with a soccer ball' -What happens when, instead of a ball, you use a different object? For example, a bike, one of the players, mobile goals, etc. Presupposition 2: 'Soccer is played with two teams' -What happens when the game is played with more than two teams or the players participate as individuals? Presupposition 3: 'The purpose of soccer is to score as many goals as possible' - What happens when you change the purpose of the game?



# DIFECT ANALOGY

Relate the approach you chose (materials, play actions, etc.) to a different random word or picture. Then enumerate some typical characteristics of this word or picture and connect them to your approach to the game. What do you get?

### FFEE INCUBATION

Drop your problem or question for a while – by doing something else or by taking some time to relax. Often, you will find that fresh ideas will arise spontaneously.



"Sometimes you get a brainstorm, sometimes you only get the clouds."

STAGE 2: THE ROAD TO THE CONCEPT

ROADBOOK FOR DIY PLAYITECTS



When you start work, consider these tips. They provide you and your brainstorming partners with a great start point for achievement of a creative process

>> TO THE ROADMAP

12

## 2 ROUNDS

Make sure you have enough time for your brainstorming session, or divide it into two rounds. For brainstorming, it is important to know that participants first point out the most obvious options. Only when this round has ended, other ideas will come up, which are often more innovative and unusual.

THE BASIC ATTITUDE FOR BRAINSTORMING

### PUT OFF GIVING OPINIONS.

'No, because ...' or 'Yes, but ...' are out of the question!

### EVERYTHING IS ALLOWABLE IN A CREATIVE GROUP.

Create a welcoming atmosphere by using energizers, putting together a fun group of people, choosing nice accommodation, etc.

PAY ADDITIONAL ATTENTION TO NAÏVE, STRANGE OF Crazy ideas.

These often form the basis for truly original ideas.

NO HIE**FAFCHY OF AFFOGANCE** You should take account of each idea from every participant.

BUILD ON THE IDEAS OF FELLOW PATTICIPANTS. 'Yes and ...' is the right approach.

# STAGE 2

# C.CONVERGING PHASE: WHICH METHODS ARE BEST TO OVERCOME OBSTACLES?

You have arrived at the most crucial phase of the creative process! Only a good selection and vigorous choices will lead to creative/innovative solutions and to a game<sup>2</sup>!

> 1.Which is a good perspective for selecting ideas?

## FOCUS:

reformulate the purpose, question or problem.

# RELY ON BOTH PATIONAL AND FEELING.

When you make a choice, you should also trust your gut feeling.

# CONSIDER THE IDEAS YOU COLLECTED AS THE BASIC COMPO-NENTS FOR SOLUTION OF YOUR PROBLEM.

Select your ideas based on how they can help provide an answer for your question or problem.

# WATCH OUT FOR THE CREADOX (CREATIVE PARADOX)!

During the converging phase, a multitude of ideas will often be overwhelming. This can make you choose the safest and easiest ones. Even though you developed many innovative ideas, you may only select the old ones. You should avoid this at all times!

### LETTING GO IS KEY.

You cannot use everything. Sometimes, your own great idea is not the most amazing one.

# PAY ATTENTION TO DIFFERENCES, INSTEAD OF TO SIMILARI-TIES.

By looking at the differences, you can see the innovative aspects of an idea. However, if you emphasize similarities, an idea will easily seem outdated or unoriginal and will often not be selected and developed further.

# TTUST YOUT INTUITION!

It is a very powerful tool for fostering innovation!

STAGE 2: THE ROAD TO THE CONCEPT

ROADBOOKEFOREDIYELAYITECTS

# 🛇 2. How can you really start choosing between your ideas?

Consider your question and problem(s) carefully and select the ideas that can help you find a solution or reach your goal. You can find some guidelines and useful techniques below.

# • THE PROPERTIES OF YOUR GAME

THEME

Questions or problems of game development frequently arise from one or more of the properties that you envisaged for your game. (See 'Stage 1: what is the destination of your game?') Accordingly, the framework of your game can easily help you make some good choices. You can ask yourself whether an idea can truly help actualizing one or more of the properties of your game.



DUPATION OF

FEFEQUISITE

UMBE**r ()** Players

>> TO THE ROADMAP

13

# STAGE 2

# HAVING FUN PLAYING THE GAME.

When you create a game, your purpose does not solely concern the properties of your game. You usually want to develop a 'good' game, a game that functions well and that is fun to play. We list the most important properties of a 'good' game below. This list is another aid for selection of your ideas..

### ACTIVE CONTRIBUTION/ CREATIVITY

Intrinsic aims should not result in a fixed outcome. Players should be able to influence the game through action and reaction (not pure chance) designing a personal strategy, interaction with fellow players, etc. Players learn and grow by playing - a solution should not be clear from the start. This will motivate the play experience and make it more profound.

### EXPERIENCE AND INTERACTION

Experience and action are the opposite of unidirectional knowledge transfer. The game should allow the players to live (through the topic), preferably in a variety of ways. They should be able to use a number different actions when playing the game: motor, tactic, intellectual and socio-emotional actions, negotiations, concocting plans, etc. Interaction between players will stimulate this even more.

### COMFOTTONE

Harmony between the competences of the players and the challenges of the game is necessary. Actions of play need to be well-balanced between fun/accessibility and frustration/complexity. These actions have recourse to the zone of proximal development. Keep in mind that this is not the same for each player.

# TIP: YOU DO NOT NEED ALL PROPERTIES ALWAYS FOR AN AWESOME GAME.

You should select a few properties or only emphasize the most relevant ones.

STAGE Z: THE ROAD TO THE CONCEPT

# SANDBOX' The game should be a safe environment that reflects a complex on, etc.... FANTASY

reality. The player can experiment with reality and gain authentic experiences, without consequences.

>> TO THE ROADMAP

114

### OFAMA/EMOTIONS

There should be variation applied through the course of the game. Suspense, breaks, climaxes, victory and loss, good and bad luck, etc. can release emotions.

## COOPERATION

Players need fellow participants to reach the goal of the game. The degree of cooperation/competition should be flexible: one group, 1 participant against everyone else, smaller groups, a mole, complete independence from or dependence on other groups ...

### REACHING THE GOAL

A game can have unmatched starting positions, benefits for certain players, etc. but all participants should have the opportunity to reach the (challenging!) goal of the game.

### PACE OF THE GAME

Players shouldn't have to wait their turn too long, all players should be able to participate, players should have enough time to enter their roles, participants shouldn't be cut from the game too early

Presentation, story, theme, etc. ensure that players can 'lose' themselves in the game.

### CHALLENGE

Competition, pressure of time, gradations (increasing difficulty), repetition (having the possibility to get better at ), cooperation, etc.

# VISUALLY APPEALING

Nice design, illustrations, original materials, etc. will stir the players' curiosity and will encourage them to start playing.

ROADBOOK FOR DIY PLAYITECTS

# STAGE 2

# • EDUCATIONAL/EDUCATIONAL GAMES

If you want to transfer knowledge through your game, rather than simply letting the players have fun, some supplementary properties can ensure a 'good' educational game. You can rely on these as well when you make choices between your ideas.

# IDENTITY AND PATTICIPATION

The player should lose himself in the game, to make the learning experience more profound.

# INTERFELATEDNESS

The information presented should have a real function in the game. Instead of being an addition to the game as another layer, it should serve as the basis for the play actions, and be presented in a variety of ways.

## FISH BOWL

A game cannot contain all the information available for one topic. The information should be demarcated to avoid the game becoming dull and no fun to play. An educational game should reflect reality in a simplified way.

# LEATNING CYCLE

ROADBOOK

Playing is doing. An educational game is more than that. It should consist of a full learning cycle: doing – observing – analyzing – drawing conclusions. After each educational game, there should be evaluation of this cycle through discussion.

STAGE 2: THE ROAD TO THE CONCEPT

FORDIYPLAYITECTS

# • BEWARE OF THE CREADOX!

If you want to develop a game<sup>2</sup> - a super-duper, cool game, the creadox (creative paradox) is your worst enemy (see above). Some solutions:

>> TO THE ROADMAP

15

### A/ THE 'COCO-BOX' \*



Put the ideas you collected into the right cell. DO YOU THINK THE IDEA IS:

> COMMON AND REALIZABLE? COMMON AND NOT REALIZABLE? ORIGINAL AND REALIZABLE? ORIGINAL AND NOT REALIZABLE?

You can select ideas in the red and yellow cell. The red ideas are innovative enough and can be utilized immediately. You can go back to the diverging phase to try to make the yellow ideas realizable.

\* Mark Raison developed the COCD box about 15 years ago as the thesis for his study of professionalism.

# STAGE 2

BEWATE

## B/COLLECTIVE SELECTION.

Let each participant pick out his three most original ideas. Then divide the group into smaller ones and present a number of selected ideas to each small group. They should divide the ideas into two sets: realizable and not realizable –discussion is allowed. Subsequently, you can start the diverging phase again, by having each group brainstorm to find solutions for 'original but not realizable ideas'.

### CINAKING COMBINATIONS WITH OTHER GAME PROPERTIES.

Making combinations with other game properties. You can combine 'original' ideas with one or more game properties that you want to actualize (see above), either individually or in groups.

Choosing, combining and building on choices and selections, a second diverging phase, etc. can all lead to a consistent concept for your game.

THE CREATIVE PROCESS OF GAME Development will almost never Evolve in a linear, step-by-step way.

Organization of a brainstorming session will presumably come first. It will probably be followed by a converging phase in which some choices can be made. Next, the diverging phase can help generate some ideas for a problem (possibly a new one) and for making new choices. Finally, you will end up with a game concept that is in line with the predetermined question or problem and with the properties of the game. [see: Stage 1: what is the destination of your game?]

STAGE 2: THE ROAD TO THE CONCEPT

# MASTERING THE CONCEPT -FROM CONCEPT TO A PLAYABLE GAME

From a game concept to a playable game. In this phase, you start putting all the aspects of your game into practice: rules of play, additional stimuli if needed, etc. You have to invent them all and write them all down. Moreover, you need materials and tools to play the game.



>> TO THE ROADMAP

STAGE

# A.SOME USEFUL TIPS AND TRICKS FOR ACTUAL GAME EXECUTION

- Consider the player, the facilitator and yourself when you develop your concept. An overly complex game is beneficial for no one.
- Go through all possible scenarios when you actualize your game. What if ...?
- Explain your game to an outsider. By putting it into words, you can discover gaps in your game.
- Briefly reenact a certain play action of your game with a small number of participants. You can also allow the players to add new rules as they play. This can improve the process of the game or make it more fun.
- If you want to carry out some pretests of your game later on, use cheap materials to create mock-up play tools and do not invest too much money and time in it. You cannot cling to the materials because if you have to modify your game during the testing stage, they will have to be changed. Throw out the game board or the cards if they do not work!
- A game will always provoke certain effects. Some game actions are directed at safe and positive effects (team building, confidence, etc), while others evoke more risky results. Good execution is necessary for estimation of which consequences will arise from certain actions and to establish which effects you want your target audience to deal with.

# STAGE 3

# **B.DEBRIEFING**

If you want to create an educational game, you need a discussion to transform the play experience into insights. How can you best tackle this evaluation? We will go over the basics below.

# THE DISCUSSION SHOULD CONSIST OF 6 STAGES:

- > 1) How do you feel after the game?
- > 2) What happened during the game?
- > 3) What did you learn?
- > 4) How does the game relate to reality?
- > 5) What if ...?
- > 6) What happens next?

The goal is that the players get some insight into their own actions in the situations that they experienced and to apply this play experience to other settings. A player truly learns when he or she can apply these play experiences in new and different circumstances.

# 1. How do you feel after the game?

This phase will allow the players to formulate their first impression of the game. The purpose is to be free from the game and to start learning. It is a transitional stage for blowing off steam, so that each player is prepared to take the next step, communicating and learning. The players get the chance to state their initial opinions, concerning technical aspects of the game (What did they think was fun/exciting/silly?), and concerning the contents (Why did they do a certain action? What else would they have liked to do? ....). You can see it as random, uncontrolled venting.

> STAGE 3. MASTERING THE CONCEPT: FROM CONCEPT TO A PLAYABLE GAME

# > 2. What happened during the game?

The goal of this stage is to gather as much information as possible, to be able to learn from it. The participants will discover that they do not always observe everything that happens during a game, or that observations can differ.

>> TO THE ROADMAP

17

# SOME POSSIBLE QUESTIONS:

- What happened during the game?
- What did you think of a certain part of the game?
- Did all participants play the game in honesty?
- Did the players remain objective?
- How did you try to influence other participants?
- Was it easy to enter into your role?

# > 3. What did you learn?

Along with the players, you try to describe the code of conduct, a theory or an opinion based on the play experience. You can stimulate the conversation by advancing a thesis yourself and by asking for the players' opinions.

# > 4. How does the game relate to reality?

You let the players look for similarities between the game and reality and discuss their findings.

# SOME POSSIBLE QUESTIONS:

- Do you recognize some play situations in real life?
- Do you recognize the problem, the tension, the interest? Did the play include all aspects that are important in reality?
- Do you think the game is a realistic reflection of reality?

ROADBOOK FOR DIY PLAYITECTS

# STAGE 3

# > 5. What if ...?

This phase should encourage the players to consider how the game would have evolved if other events would have happened. If this stage evokes new insights, it is important to consider them and to make some changes.

- Have you learned new things through this game?
- Did you get some new insights?
- Can you see alternative solutions for the problem?
- How will you apply them to your own point of view, or to your own attitude?
- Will you gather more information or act differently?

# > 6. What happens next ...?

The action-planning phase: the players should think about which actions they can or will take after the game. You can ask the players what they would do differently or how they would tackle things in a new way.

How can you act on this as a group? You can explore the subject of the game, which can yield new guidelines for the group. The game and the evaluation are impulses to work on social change. In other words, agreeing on actual steps and really doing something.

> STAGE 3. MASTERING THE CONCEPT: FROM CONCEPT TO A PLAYABLE GAME

ROADBOOKSFORSDIYSPLAYITECTS

TIP: YOU CAN ALSO ADD INTERMEDIATE DISCUSSION MOMENTS.

>> TO THE ROADMAP

13

In this case, you stop the game at certain stages for brief evaluation of a few of the players' experiences. You should also link them to reality (steps 1 to 4).

This technique will work best if the course of your game evolves gradually. You elaborate the game step-by-step. After the intermediate evaluation, the game continues with additional rules, challenges, roles, etc.

This will also create additional play experience and it will increase the motivation of the players. After the game is finished, you only have to evaluate the last part of the game and perhaps ask some additional comprehensive questions (phases 5 and 6).

# STAGE\_4

# FURTHER RESEARCH OR IMMEDIATE ACTION?

# YOUR GAME IS NOW READY FOR PLAYING. WHAT DO YOU WANT TO DO NEXT?

- You can play the game with your target audience right away, or
- You can first try out the game on a target group.

# WHAT ARE THE BENEFITS OF PRE-TESTING YOUR GAME?

- A trial run of your game can serve as a useful aid for the optimization of your game, before actually playing it. This can highlight any flaws in your game.
- If you wish to educate or inform your target group with your game, we strongly urge you first to carry out a pretest. Testing your game can help you check and adapt its educational value.

# IF YOU CHOOSE TO TRY OUT YOUR GAME FIRST, THE FOLLOWING PARAGRAPHS WILL OFFER YOU SOME GUIDELINES.

# > PRETESTING THE GAME

# Prior TO PRETESTING

- Select a group of participants that reflects your **target audience**.
- We also recommend you to appoint an **observer**. This person can concentrate on the observation of the game, while the game developer/facilitator can fully focus on game facilitation.
- Prepare for your game as if you were really playing it. You can also select just a part of the game for pretesting.

# STAGE Y: FURTHER RESEARCH OR IMMEDIATE ACTION?

# THE PRETESTING PROCESS

- Introduction: summarize the **purpose of the play session**. It is important for the participants to know that the session aims at game testing, since things can go wrong and rules of play can change during the game.

>> TO THE ROADMAP

19

- Game rules and instructions.
- Pre-testing the game.
- **Debriefing** (if the purpose of your game is educational or informative).
- **Evaluation** of the game with the target audience and facilitator: formulate questions and methods of evaluation that are adapted to your target group! Keep in mind that the group may offer feedback that is not in line with the actions and reactions that you observed during the game. Pay attention to both lines of criticism.

# THE FOLE OF THE OBSETVET

- To write down the **timing** of the game (How much time is required for the different phases of the game?).
- To indicate the structure of the game instructions
- Observing and recording the process of the game: the actions and reactions of the players and of the facilitator, the effects of certain game rules or of interventions in the game, organization of the game, pace of the game, etc.
- Describing the structure of the debriefing

>> TO THE ROADMAP 20

THE STRUCTURE OF

A GOOD MANUAL

FOR YOUR GAME

# STAGE 5

# THE JOURNAL -HOW TO WRITE UP YOUR GAME?

To make sure that colleagues, friends, fellow facilitators, etc. can also profit from your hard work, you need to write up your game very thoroughly. In this section, you can find some tips, which can help you formulate rules and instructions of your game.

### USE A STRAIGHTFORWARD STRUCTURE FOR THE DESCRIPTION OF YOUR GAME. There is a useful template shown on the next page.

### THE DESCRIPTION SHOULD BE WRITTEN FROM THE POINT OF VIEW OF THE READER/FACILITATOR OF YOUR GAME.

Use active and brief sentences. Address your reader directly. Indicate exactly what the players/facilitator need(s) to do. Avoid using long, passive sentences and vague descriptions.

### HAVE ONE OF MORE PEOPLE PROFFEAD Your game description.

They should pay attention to writing errors and grammatical mistakes, but they should also evaluate the clarity of the text. You can, for instance, have an outsider (who is not familiar with the game) proofread your description: is it clear enough? Does he understand how the game works?

> STAGE S. THE JOURNAL: HOW TO WRITE UP YOUR GAME?

ROADBOOK FOR DIY PLAYITECTS

# COVER PAGE

- COLOPHON
- INTRODUCTION/PREFACE
- PROPERTIES OF THE GAME

# THEME PURPOSE

DESCRIPTION OF THE GAME TARGET AUDIENCE NUMBER OF PLAYERS SUPERVISION ACCOMMODATION DURATION TOOLS AND MATERIALS

• COURSE OF THE GAME PREPARATION RULES AND INSTRUCTIONS INTRODUCTION GOAL AND END OF THE GAME COURSE/PHASES/ROUNDS OF THE GAME START OF THE GAME WHILE THE GAME IS BEING PLAYED END OF THE GAME

# DEBRIEFING

- RULES AND INSTRUCTIONS IN 10 STEPS
- BACKGROUND INFORMATION

