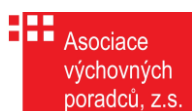Co-funded by the
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Career game based learning related theories for pupils aged 12-14

C-Game project, O1-1.3

Prague, June 2020

Contents

1   Introduction

This document is part of the Output_O1 of the C-Game project which aim is to develop a C-Game: CAREER GUIDANCE GAME IN A CITY FULL OF OCCUPATIONS. C-Game will be a new serious game providing pupils aged 12-14 with a fun tool of career orientation based on the gradual learning on different professions in five language versions (English, Czech, Slovak, Greek, and Bulgarian) and four countries (Czech Republic, Slovakia, Greece, and Bulgaria).

C-Game offers pupils the opportunity to get acquainted in an entertaining way with approximately 600 occupations, which would broaden their overview of the labour market, the necessary skills for the performance of occupations pursued, and stimulate them to thinking about their future careers and the educational path leading to it. C-Game is based on the assumption that getting to know the world of work in school age contributes significantly in shaping children's future career and professional identity, and that the most effective means to do so is a fun game.

C-Game is not designed as a substitute of career guidance, but it helps students in their professional orientation through play, broadening horizons of employment and thus influences their future career decisions.

2   Career game based learning related theories – the inspiration for C-Game

It´s nearly 400 years ago when Jan Amos Comenius, the Czech theologian, philosopher, pedagogue, educational reformer, religious leader and writer suggested educational concept of game-based learning. He was persuaded that:
- children learn through the senses and through real, first hand experiences,
- the learning should be interesting and enjoyable, if learning by doing and helping children to play was part of this,
- play is important activity because what children learnt through their play they would use in later life,
- giving children interesting, real and play experiences is key to education.

Comenius' views are still valid today. From a few examples of recent research reports found on the Internet are evident that techniques designed to get students to participate in the learning process produces better educational outcomes at virtually all levels. They learn

more when taking part in classrooms that employs so-called active-learning strategies.[1] Active learning has received considerable attention over the past several years. Often presented or perceived as a radical change from traditional instruction, the topic frequently polarizes teachers. Active learning has attracted strong advocates among teachers looking for alternatives to traditional teaching methods, while sceptical teachers regard active learning as another in a long line of educational fads.[2]

This conflict of opinion also applies to games that can be included in active learning strategies. They have been used since time immemorial as a learning tool. The basic concept of game-based learning is teaching by repetition, failure, and achieving goals. The players start slowly and gain skills until are able to deftly navigate the most difficult levels, and moreover have fun and entertain with themselves or co-mates. They are actively learning and practicing and this results is active learning instead of passive learning.[3]

Educational games create a new perspective in learning culture, which go hand in hand with the interests of the pupils. The same is valid for implementation of games to career guidance which often uses various tests, questionnaires and other diagnostic methods that are not attractive and effective enough for most of 12-14 year olds. Especially for this age group, the game is a very effective resource in the career counselling process, and therefore it occupies an important place in these processes.

2.1   What is a play and a game?

Plays and games are fun and recreational activities that differ from other activities. Apart from filling the leisure time, provision of fun, excitement, flow, or even rewards, it is an important source of acquiring basic skills, developing imagination, creativity, motor, technical, social, tactical and other skills as well as attitudes. They both are integral part of early childhood and have a specific position and indispensable importance. During adolescence the playfulness changes its character and with increasing age, it may even disappear.[4]

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[1]   REUELL, P. (2019) *Lessons in learning.* The Harvard Gazette.
https://news.harvard.edu/gazette/story/2019/09/study-shows-that-students-learn-more-when-taking-part-in-classrooms-that-employ-active-learning-strategies/

[2]   STEPHEN, CH., ELLIS, J., MARTLEW, J. (2010) *Taking active learning into the primary school: a matter of new practices?*
https://www.researchgate.net/publication/233260044_Taking_active_learning_into_the_primary_school_A_matter_of_new_practices

[3]   CAHILL, G. *Why game-based learning?* https://thelearningcounsel.com/article/why-game-based-learning

[4]   WHITE, R.E. (2012) *The power of play.* A research summary on play and learning.
https://academy.schooleducationgateway.eu/documents/1508261/0/power+of+play/ec599a0c-c9e5-405d-9c0c-c65872fe1e21

Both plays and games have a number of aspects: the cognitive, practice, emotional, movement, motivational, creative, imaginary, social, recreational, diagnostic, therapeutic etc. aspects. They include activities of individuals, couples, small groups and large groups. There are games for the operation of which special aids are required (toys, game aids, sports equipment, tools, devices).[5] Most games take the form of social interaction with explicitly formulated rules (given by agreement of actors or social conventions). In the game, a lot of attention is paid to its course (games with a predominance of cooperation, with a predominance of competition). The initial situation, course and results of some games can be formalized and the decision-making of the actors studied exactly. These questions are dealt with in a special mathematical discipline - game theory,[6] which we will not deal with here.[7]

Through plays and games, children learn aspects of the cultural and social context of their community. In some cases, the games have the character of an initiation ritual or skills training, thanks to which children are introduced to the customs and values of their community and prepared for the world of adults. Games also include a number of mechanisms for developing basic skills such as observation, analysis, intuition and decision making. From a cultural and anthropological point of view, children's play has a different character at each age and also differs depending on the cultural context. Every culture has elements that characterize it and that influence the playful experience of children.

Figure 1: Types of plays[8]
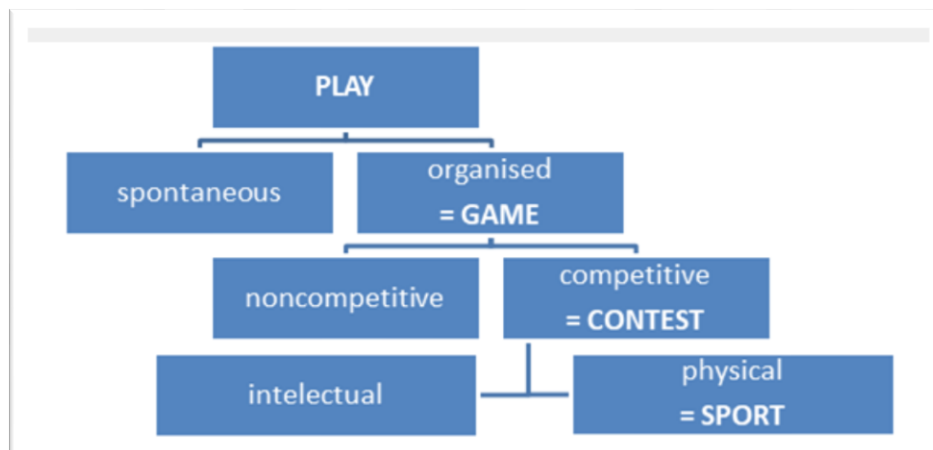
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5   SUSI, T., JOHANNESSON, M., BACKLUND, P. (2007) *Serious games – an overview. School of Humanities and Informatics*. University of Skovde, Sweden.
    https://is.muni.cz/el/phil/jaro2016/IM137/um/62107643/s05a_-_SUSI_T._a_spol_-_Serious_Games_-_An_Overview__2007_.pdf
6   PRŮCHA, J., WALTEROVÁ, E., MAREŠ, J. (2008) *Pedagogický slovník (Pedagogical dictionary).* 5. aktualiz. vyd. Praha: Portál.
7   SOCHOROVÁ, L. *Didaktická hra a její význam ve vyučování. (Didactic game and its importance in learning)* Available at: https://clanky.rvp.cz/clanek/c/Z/13271/didakticka-hra-a-jeji-vyznam-ve-vyucovani.html/
8   PRENSKY, M. *Fun, play and games? What makes games engaging.* 2001.
    http://marcprensky.com/writing/Prensky%20-%20Digital%20Game-Based%20Learning-Ch5.pdf

According to Prensky[9] the term **PLAY** and **GAME** have a bit different meanings. He distinguishes the play as spontaneous unorganized activity whereas the game contains some elements of organisation (Figure 1). The play can be performed individually or in group with or without an object. We can call the play for example if the kids build houses out of sand. They can build them together or individually but their play is spontaneous.

The term GAME has a wide variety of meanings. It usually expresses activities designed to provide entertainment, fun, low, and excitement. It is a system in which players engage in an artificial conflict that can have rules and certain structure, can be competitive or strife towards specified, discrete outcomes or goals (Figure 2).[10]

Figure 2: Game characteristics[11]
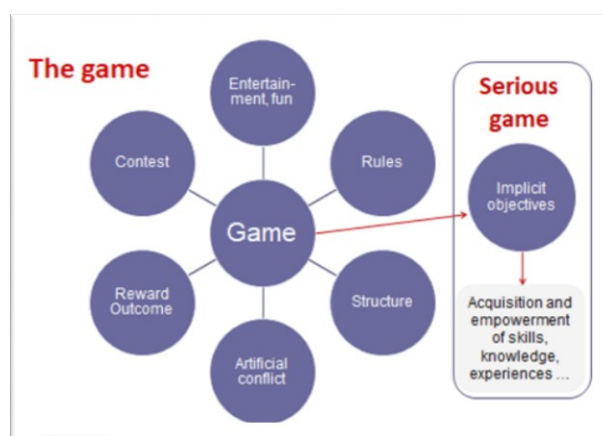
Specific type are serious games that through a fun and experiential learning have implicit objective like skills, knowledge and experiences improvement. Serious games engage the user and contribute to the achievement of predefined objectives.[12]

As mentioned above, each game is to some extent organised and can lead to competition or not. According to it we distinguish between **non-competitive** and **competitive games**. In non-competitive games there are no winners or losers. An example is game on a traffic field where the kids have to follow traffic rules, move round but do not compete.

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9   PRENSKY, M. *Fun, play and games? What makes games engaging.* 2001.
    http://marcprensky.com/writing/Prensky%20-%20Digital%20Game-Based%20Learning-Ch5.pdf
10 SALEN, K., ZIMMERMAN, E. (2004) *Rules of Play: Game Design Fundamentals.* MIT Press, 2004. In:
    HUOTARI, K., HAMARI, J. (2011) Gamification" from the perspective of service marketing.
    http://gamification-research.org/wp-content/uploads/2011/04/CHI_2011_Gamification_Workshop.pdf
11 HERNANDEZ, R. J. G. (2013) *Serious games for health.* Adjusted.
    https://www.researchgate.net/publication/259167089_Serious_games_for_health/figures?lo=1
12 SUSI, T., JOHANNESSON, M., BACKLUND, P. (2007) *Serious games – an overview.* School of Humanities and
    Informatics. University of Skovde, Sweden.
   https://is.muni.cz/el/phil/jaro2016/IM137/um/62107643/s05a_-_SUSI_T._a_spol_-_Serious_Games_-
    _An_Overview__2007_.pdf

The competitive games are called **CONTESTS** which can be intellectual or physical. The physical contests is in **SPORT**. In order for a game to be defined as a sport, it should be competition leading to a result reached with certain uniform rules that all participants must follow. For example, chess, in which we definitely do not engage in physical activity, is also considered a sport. But as the saying goes, the exception confirms the rule.

Another overview gives us typology of games by Deterding (Figure 3).[1] This typology differentiates the play and game concepts by having rules and their complexity:
- Games have rules and are complex system for fun and entertainment. It is activity that has been designed to be entertainment of some sort.
- The plays are complex system but do not have rules. You can play with or without toys and without rules. Play is free form and unlike a game does not need to have a point or a goal to it. It exists within a set of rules created by the person or people playing and is born in the imagination. Play is essential for children as it teaches them about their environment and themselves.
- Gamification is generally defined as the use of game design elements in non-game contexts.
- And here is another word „playful design" which is just a cosmetic or aesthetic layer enriching the subject by fun or playfulness. It has no game mechanics, and does not affect the functionality or structure of the solution.

Figure 3: Typology of plays and games[13]
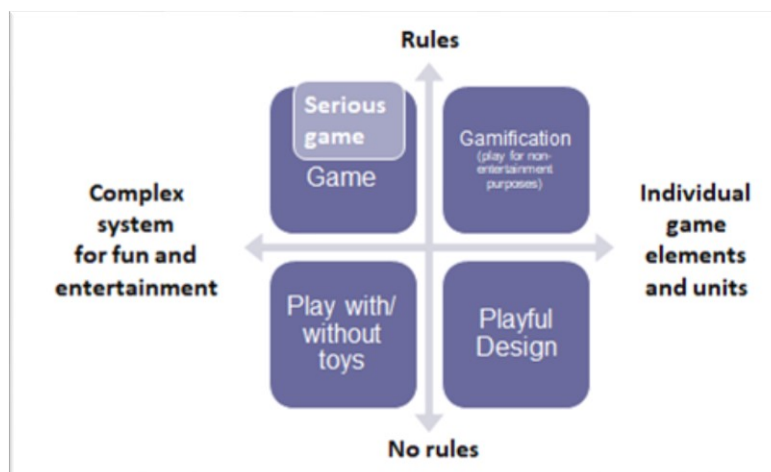
It is also interesting a typology of relationships between different types of rules in games (Figure 4).[14] It begins with a basic distinction between formal rules and informal rules. The formal rules are produced by the game developer and come in two types. One type are the

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[13]   DETERDING, S. et al. (2011) *From game design elements to gamefulness: defining "gamification".* Adjusted. https://dl.acm.org/citation.cfm?doid=2181037.2181040

[14]   CARTER, M. (2015). *Massively Multiplayer Dark Play: Treacherous Play in EVE Online.* In T. Mortensen, J. Linderoth & A. Brown (Eds.), The Dark Side of Game Play. London: Routledge.

"hardcoded rules" that are fixed. These are further divided into "procedural rules" and "component rules". Procedural rules define the actions that are possible in each situation. It is a procedural rule that each player has to move before it is the opponents turn. Component rules, by contrast, attribute values to components that are controlled by the player. So, for example the pawn in chess has a much lower value than the king, since it is the loss of the king that ends the game.

Figure 4: Type of game rules[15]
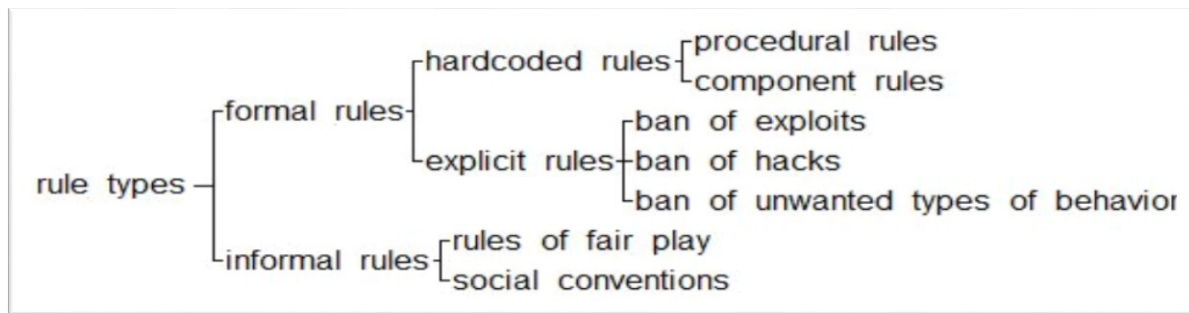
The second type of formal rules are the "explicit rules" which are set up to ward against unwanted player practices. Then there are the unwritten informal rules. They comprise the ideas of fair play, which are often less clear, much more context dependent and open to negotiation between players and game designers.

There are countless games that can be divided into different groups according to their different characteristics and aspects. Following are examples of their division:[16] [17]

Number of involved persons
-    Individual, in pairs, in groups

Game components
-    Figures, stones, boards, cards, cubes …

Movement through the game
-    Simultaneous, sequential, repetitive

Information feed
-    Complete - incomplete, perfect – imperfect

Cooperativeness
-    Cooperative – non cooperative

[15]   RECKTENWALD, D. (2018) *The discourse of online life streaming on Twich: Communication between conversation and commentary.*
https://www.researchgate.net/publication/333260391_The_Discourse_of_Online_Live_Streaming_on_T
witch_Communication_between_conversation_and_Commentary/figures?lo=1

[16]   SOMBATTHEERA, Ch. (2015) *Game theory.* https://slideplayer.com/slide/4810311/

[17]   ODVÁRKOVÁ, J. (2013) Vývoj a druhy her.
https://wikisofia.cz/wiki/V%C3%BDvoj_a_druhy_d%C4%9Btsk%C3%A9_hry,_r%C5%AFzn%C3%A9_interpr
etace_hry

Means of provision
- Narrative, video, audio, interactive

Length
- Short, medium, long, robust

Unconditionally reflexive games
- experimental, locomotor, hunting, aggressive and defensive, collectible

Sensory-motor games
- tactile and haptive, motor, auditory, visual

Intellectual games
- functional, topics, imitating, fantasy, constructive, puzzles and puzzle games combination

Collective games
- competitive, common, family, table

3 Representatives of theoretical works related to career game based learning

Plato (427-347 BC) and Aristotle (384-322 BC) considered play as a child to play various skills, encouraging parents to give their children toys and support them in playing games.

As mentioned in the introductory chapter, Jan Amos Comenius was a great promoter of the idea of using games in school teaching through his work "Schola ludus" (School by Play). He used the dramatization of the teaching material and thus introduced the students to the subject matter. He was basically a promoter of experiential pedagogy.

Attention to games and their importance in the development of children gained its importance in the 19th century, when it became an integral part of the theories of developmental psychology and social psychology. From their point of view, play is a real phenomenon and one of the activities that has an indispensable influence on a person's development, especially in childhood. However, even for pupils aged 12-14, the game still has its place and is gaining ground mainly due to its availability on the Internet via a computer or mobile device.

The following sub-chapters contain several selected theorists who have addressed the benefits of childhood games in their work.

3.1 Herbert Spencer

English philosopher Herbert Spencer believed that children play mainly to get rid of excess energy and devoted it to activities to ensure survival.[18]

3.2 Moritz Lazarus

German philosopher and psychologist Moritz Lazarus considers play in children and adults to be a compensatory activity used to rest, relax and restore the energy caused by performing other types of activities. The game relaxes, entertains, and helps keep the body in optimal conditions.[19]

3.3 Karl Groos

German psychologist Karl Groos was follower of Charles Darwin, who had pioneered connections between animal and human play behaviour. Groos published two influential books in 1896 and 1901 entirely related to play: The Play of Animals and The Play of Man. Like Darwin, Groos helped to popularize the practice of using animal behaviour as a basis for understanding human play. Groos strongly disagreed with Herbert Spencer's surplus energy theory, arguing that play wasn't just a way to relax and burn energy, but instead served a definite function in developing the skills needed for survival. Simply put, play was a form of practice and preparation for real life, making play the essential purpose of childhood.[20]

3.4 Granville Stanley Hall

The American psychologist and educator Stanley Hall considers children's play to be a recapitulation of the development of a given cultural and social species. He characterizes the game as a reproduction of the way of life of the most primitive human races. For example, he likens the game of hide and seek to the need of prehistoric people to hide from the attack of enemies or wildlife.[21]

3.5 Sigmund Freud

The Austrian physician and psychiatrist Sigmund Freud is the author of a psychoanalysis in which the meaning of the game is considered a manifestation of unconsciousness and as a means of settling emotional conflicts on a symbolic level.[22] Freud regarded play as the means by which the child accomplishes his first great cultural and psychological achievements; through play he expresses himself. This is true even for an infant whose play

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[18]   GILLIN, J.L. (1914) *The sociology of recreation.*
https://www.jstor.org/stable/2763219?seq=2#metadata_info_tab_contents
[19]   SRIVIDYA, K. *Theories of play*. https://headstreams.org/theories-of-play/
[20]   PEDRI, J. (2018) *Theories of play*. https://www.jennesiapedri.com/theories-of-play/
[21]   LESKO, N. *G. Stanley Hall* (1844-1924) https://education.stateuniversity.com/pages/2026/Hall-G-Stanley-1844-1924.html
[22]   SYSLOVÁ, Z. *Teorie a metodika her*. (Theory and methodology of games). Pedagogika. Available at: https://is.muni.cz/el/1441/jaro2014/MSBP_TMH/um/Teorie_a_metodika_her_3.pdf

consists of nothing more than smiling at his mother, as she smiles at him. Freud also noted how much and how well children express their thoughts and feelings through play. These are sometimes feelings that the child himself would remain ignorant of, or overwhelmed by, if he did not deal with them by acting them out in play fantasy.[23]

In the game, Sigmund Freud saw an opportunity to penetrate into the depths of the personality, to know his wishes and focus. He used the game as one of the methods of treating mental illness. He assumed that human expressions and behaviours are determined by how much pain or joy they bring. One repeatedly seeks pleasant experiences and prefers unpleasant ones. In the game, human behaviour and actions do not have to be subject to any external conditions, it is motivated by the wishes of the individual himself.[24]

3.6   Édouard Claparède

Swedish neurologist, child psychologist and educator Édouard Claparède thinks of play as an environment in which children as well as adults take refuge in a fictional, unrealistic, virtual, imaginary world that replaces the real world and imagination in play replaces reality. The game pursues fictitious goals, serves to satisfy hidden tendencies. The game phenomenon is a children's refuge, where the desire to play and unite as an adult are fulfilled. [25]

3.7   Frederic J. J. Buytendijk

The Dutch anthropologist, biologist and psychologist Frederic J. J. Buytendijk interprets play as an activity derived from the attitude or dynamics of a child. If an adult does not have this youthful attitude, he cannot contribute to the relevance of the game. For him, the game is an expression of the immature, disorganized, impulsive and shy nature of childhood. The game depends on the dynamics of the children, which Buytendijk explains in five points: [26]
   - the game always plays with something;
   - every game must develop;
   - there is an element of surprise, adventure;
   - there are also definitions, playing fields and some rules;
There must be an alternative between tension and relaxation.

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[23]   BETTELHEIM, B. (1987) *The importance of Play.*
https://www.theatlantic.com/magazine/archive/1987/03/the-importance-of-play/305129/
[24]   GALLARDO-LÓPEZ, J. A. (2018) *Teorías del juego como recurso educativo.*
https://www.researchgate.net/publication/324363292_TEORIAS_DEL_JUEGO_COMO_RECURSO_EDUCAT
IVO?enrichId=rgreq-5d0f710e88d734095b951801ebee4ad4-
XXX&enrichSource=Y292ZXJQYWdlOzMyNDM2MzI5MjtBUzo2MTM2MDE1NDI5NDI3MjBAMTUyMzMwNT
QxNjY1Mg%3D%3D&el=1_x_2&_esc=publicationCoverPdf
[25]   Ibid
[26]   Ibid

3.8 Jean Piaget

The Swiss philosopher, natural scientist and developmental psychologist Jean Piaget connects the child's play with his intellectual development and explains it in two processes:
- Assimilation: the process by which an individual adapts and changes externally received information.
- Accommodation: means that, on the contrary, it adapts itself to the outside world.

Intellectual development is therefore the result of a constant interplay between these processes, which are to be balanced. If adaptation predominates, imitation occurs. If assimilation prevails, it means incorporating a new experience into the previous ones, and the child then changes it according to his needs and the game takes place. [27] [28]

3.9 Johan Huizinga

The Dutch historian Johan Huizinga describes play as a free and meaningful activity, carried out for its own sake, spatially and temporally segregated from the requirements of practical life, and bound by a self-contained system of rules that holds absolutely. In his book Homo Ludens (Nature and significance of play as a cultural phenomenon), Huizinga distinguishes several features that do not lose their relevance to this days:[29]
- the game is free action, no one can force me to play,
- it is the appearance of ordinary life into the temporary sphere of activity with its own tendency,
- the game is closed and bounded, spatially and temporally,
- the game has the possibility of repetition - the game as a whole and individual parts,
- the game has a specific order and rules,
- rhythm, harmony and tension can be found in the game.

3.10 Lev Semyonovich Vygotsky

Soviet psychologist Lev Semyonovich Vygotsky emphasized the socialization of the child and the acquisition of social norms and values of culture through play. The aim of the game is to learn self-control. The child gives up a certain freedom in order to follow the rules. The rule thus becomes a desire for the child. The rules learned in the game are important for further social contact. By adopting norms, the child transforms needs and desires into socially acceptable norms. Playing is a collective process and the primary impulse to play is social and emotional forces.[30]

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[27] OPRAVILOVÁ, E. (2004) *Předškolní pedagogika* II. Liberec : Technická univerzita. ISBN 80-7083-786-1.
[28] McLEOD, S. (2018) *Jean Piaget's Theory and Stages of Cognitive Development*.
https://www.simplypsychology.org/piaget.html
[29] RODRIGUEZ, H. (2006) *The Playful and the Serious: An approximation to Huizinga's Homo Ludens.*
http://gamestudies.org/06010601/articles/rodriges
[30] ODVÁRKOVÁ, J. (2013) *Vývoj a druhy her.* (Development and types of games).
https://wikisofia.cz/wiki/V%C3%BDvoj_a_druhy_d%C4%9Btsk%C3%A9_hry,_r%C5%AFzn%C3%A9_interpretace_hry

3.11 Gregory Bateson

Gregory Bateson was English anthropologist, social scientist, linguist, visual anthropologist, semiotician, and cyberneticist whose work intersected that of many other fields. For example he created an interesting theory of learning that distinguishes five levels of learning, from simply learning a simple reaction to reconstructing an entire mental map.[31]

Bateson believed that importance of the game is mainly in learning, especially through communication in the game. Children communicate with each other and agree on who will play what role in the game, as well as what the game will look like. Children learn that what is in the game is in reality different. Bateson uses the term play frames, which can be translated as the framework of the game or agreed scenario of the game according to which the children play.[32]

3.12 Sergey Leonidovich Rubynstein

Russian psychologist and philosopher Sergey Leonidovich Rubinstein emphasizes play as an activity reflecting the relationship of a child's personality to reality. The child in a play do not only reflects reality, but also tends to learn to transform it. The motives and forms of the game affect those elements of reality that are of some importance to the child. According to him, in the game the child applies his relationship to the world transformed by his imagination.[33]

4 Other selected sources related to career game based learning

In the available literature, many authors recommend the game as a source of learning their personality also in relation to the career direction of students aged 12-14.

4.1 Games in experimental pedagogy

Jirásek indicates the game as a symbol of Czech experiential pedagogy. The characteristics of the game according to him are freedom, escapism from ordinary life into a sphere with one's own tendency, own temporal and spatial boundaries, the possibility of repetition, advice and rules, rhythm and harmony as well as an element of tension, uncertainty and hope. He suggests that we enter the world of play exclusively by our own experience.[34]

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[31] Wikipedia. *Gregory Bateson*. https://en.wikipedia.org/wiki/Gregory_Bateson
[32] ODVÁRKOVÁ, J. (2013) Vývoj a druhy her.
      https://wikisofia.cz/wiki/V%C3%BDvoj_a_druhy_d%C4%9Btsk%C3%A9_hry,_r%C5%AFzn%C3%A9_interpretace_hry
[33] Ibid
[34] JIRÁSEK, Ivo. *Zážitková pedagogika: teorie holistické výchovy (v přírodě a volném čase).* (Experiential pedagogy: theory of holistic education (in nature and leisure)). Vydání první. Praha: Portál, 2019. Gymnasion. ISBN 978-80-262-1485-4.

4.2 Career guidance and counselling through play

Didactic games can develop a wide range of social skills in primary school students, but also the ability to introduce them to the world of human work and various model situations that are associated with choosing a high school or university or even a specific range of professions. This specific form of pedagogical-psychological approach contains 4 specific parts, namely modelling, role-playing, feedback and the transfer of acquired social experience into the everyday professional behaviour of the student.[35]

Professional development is the process of developing self-knowledge, occasions and opportunities to play diverse roles and evaluating the performance of these roles in a significant social environment. It takes place through fantasy games, schooling, and leisure activities or through specialized counselling activities. Super identified and characterized a total of five developmental periods: growth, exploration, establishment, maintenance, and disengagement.

4.3 Games as a form of career guidance[36]

Game as a form of career guidance are largely addressed by researchers from different positions / perspectives: games employed in different age categories from pre-school children and primary school students to university students, from career guidance in schools to work in clubs and out-of-school activity centres . Here is a brief overview of research work devoted to forms of games in career guidance.

N. D. Lukoyanova suggests the use of high-potential methods that are acceptable even when working with a passive audience: career-oriented classroom games, career-oriented games, and micro-situation modelling. The main advantages of career guidance games are their visibility and emotional saturation.

Experience of N. S. Pryazhnikov showed that if career guidance games do not last more than 25-30% of the total number of hours, students will not perceive them as "fun", but as a natural form of work.

E.N. Rukis and L.A. Deyko emphasize that play is a very effective form of perceiving career guidance: it gives adults the opportunity to see the problem in general and students to acquire decision-making skills and master role-playing behaviour.

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[35]   BAUMANNOVÁ, Andrea et al. *Poradenství hrou: Praktické náměty pro výchovné a kariérové poradce na základních školách.* (Counseling through play: Practical ideas for educational and career counsellors in primary schools). Praha: Raabe, c2014. Dobrá škola. ISBN 978-80-7496-089-5.

[36]   SUSHKOVA, A., VALEEVA, R., DAVYDOV, A. (2019). *Games as a Form of Career Guidance.* Journal of History Culture and Art Research. 8. 422. Available at:
https://www.researchgate.net/publication/336572452_Games_as_a_Form_of_Career_Guidance

D. A. Semiletkina studies career guidance games in relation to interactive methods of work and admits that this method allows young people to learn more about different areas of professional activity, in a playful way to learn the features of certain professions.

T. V. Pasechnikova indicates the importance of career counselling work with students of preschool educational institutions, including didactic games that model the structure of the work process.

V. A. Tvorozhnikova, T. V. Shiryaeva, M. N. Kostromina introduce games in the field of career counselling with primary school pupils. At this age, working in career guidance through games is aimed at explaining to children what qualities and knowledge they need to work in the profession of interest.

I. V. Sorokina devotes his study to the issue of the organization of career guidance games in clubs in the place of residence, reveals the nature of the game and formulates recommendations for solving the organizational problems of career guidance games in clubs in the place of residence.

As you can see, in-game forms of career guidance have been studied from different perspectives in the modern scientific world, but what special methods and forms of implementation they should have in conditions of monotowns - this question remains open.

The authors determined the sequence of the search game:
- Introductory interactive lecture: introduction to the task search process, basic data on production, professions, work processes;
- Dividing into teams and getting to know the "leaders": production mentors who are able to comment on tasks, share their experiences and facilitate teamwork;
- Distribution of "travel maps": job search that contains specific data on the professions studied;
- Performance of tasks;
- Facilitation: reviewing understanding, evaluating participants' feelings and working with comments.

4.4   MeTycoon: A game-based approach to career guidance

The game literature reports several positive learning outcomes in the use of games: - development of social skills, cognitive abilities and motivation towards education, social and emotional development, logical and critical thinking, problem solving and cooperation as well as communication and team building skills. There might be another approaches to game-based career guidance showed some promising early results, and that games may

have the ability to stimulate motivation among players to collaborate and reflect on career goals.[37]

4.5 Finding your inner gamer: Adapting instruction for digital natives[38]

Robin Ewing and Justine Martin perceive that main benefits of playing digital educational games are achieved by combining motivational and engaging elements in these games. Digital games go beyond viewing by requiring the participant to choose how the game moves forward. During interaction with a computer program, the player has immediate feedback through several stimuli, such as text, graphics, and sound.

While many see digital games as a lonely activity where the player interacts only with the virtual world, playing games in many ways increases interpersonal communication skills. Players must not only ask for guidance, but must briefly describe their dilemma using a specific game language - a similar situation in which our students find themselves in information literacy.

As with searching for information, where the user must constantly review their search strategy, players must repeatedly improve their skills to create the most efficient and effective process to achieve their goals. As a result, digital games often require players to constantly repeat and adjust their gaming techniques. Through repetition, players develop skills by trial and error. They will constantly develop their knowledge until the skill is sufficient to perform the task. Because players are motivated by a desire to advance in the game, repetitive and refining tasks are not boring in this context.

Digital game designers make effective use of active principles of experiential learning which is the process of learning through experience, and is more specifically defined as "learning through reflection on doing". Games make it possible to find solutions to common and difficult situations in the virtual world without real barriers and threats, they allow being active and making the learning to be an adventure learning.

4.6 The benefits of playing video games

Erikson suggested that play contexts allow children to experiment with social experiences and simulate alternative emotional consequences, which can then evoke feelings of discernment outside the play context.[39]

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[37] DUNWELL, I., LAMERAS, P., STAR, K., FREITAS, S., HENDRIX, M., ARNAB, S. (2013). *MeTycoon: A Game-Based Approach to Career Guidance.* VS-Games 2013-Proceedings of the 5th International Conference on Games and Virtual Worlds for Serious Applications. 1-6. Available at: https://www.researchgate.net/publication/258290634_MeTycoon_A_Game-Based_Approach_to_Career_Guidance

[38] EWING, R., MARTIN, J. (2008*) Finding Your Inner Gamer: Adapting Instruction for Digital Natives.* In: Loex conference proceedings, 34th Annual Conference [online]. [cit. 2017-10-06]. Available at: http://commons.emich.edu/cgi/viewcontent.cgi?article=1004&context=loexconf2006

In his qualitative research of interviews with child players, Gottman showed how children use play to emotionally cope in their real lives. While teens and adults often use self-disclosure and direct discussion with close friends to resolve emotional issues.

Playing can be one of the most effective means by which children and young people can have positive feelings. Several studies have shown a causal relationship between playing preferred video games and improving mood or increasing positive emotions.

4.7   Eight cognitive benefits of playing video games for kids

Several studies have shown many benefits, especially in the development of cognitive abilities in both children and adults. When playing games, the brain is constantly stimulated and thus its performance is increased. The main benefits of playing digital games for children include improved coordination, improved problem-solving skills, increased memory, as playing a video game may require visual and audio memory, further it increases attention, concentration, cognitive and creative abilities. While playing games, the brain receives more stimuli, both visual and audio, thus increase the speed of thinking. It also improves multitasking skills and social skills.[40]

[39]   GRANIC, I., LOBEL, A., ENGELS, R. (2014) *The benefits of playing video games.* In: American Psychologist [online]. 69(1), 66-78. Available at: https://www.apa.org/pubs/journals/releases/amp-a0034857.pdf

[40]   EUGENIO, S. (2017) *8 Cognitive Benefits of Playing Video Games for Kids.* Engadget. Available at: https://www.engadget.com/2017-02-09-8-cognitive-benefits-of-playing-video-games-for-kids.html?guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS88&guce_referrer_sig=AQAAABfrQKtXQ8mL-7wtc32oWy_5fzkYbAS2W-VZIeH5Pkgy-De2MCEKIGxinl609eRzJF6vldy0GrgD-f-l_EqBXPSPZK3bxWGSP4aK5329LEkn5KY1c0VWUUJOUI2fNdQ_h-BZTpAy5mVFlGisDHaQFM4ykBBg0E5qvEr9FaHwOnHy&guccounter=2

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5 Conclusions

As mentioned in the second chapter, there are countless theoretical works that emphasize the importance of play and games in childhood and with playing games other related aspects, and we certainly did not listed them all. We tried to include especially authors whose works belong, at least in our opinion, among the most famous.

In contrast, we found only small fragments of theoretical literature dealing with theoretical aspects of games in career guidance and counselling. Sources we were able to put together confirm that career guidance games are challenging motivation of students to be engaged in self exploration of further career and all the related matters. And motivation is the main condition for success. To challenge student motivation in career guidance game have to be a well balance at least among the following aspects: [41]

- game content with coherent story with conflicts in real or artificial world with appropriate limits, avoiding socially negative acts and violence,
- complex, reliable and actual information on real life and occupations including self-employment and entrepreneurship,
- good dose of fun, entertainment, and flow to keep the player's attention,
- graphical design, customized expression, intelligibility, readability, user friendliness, etc.

Online games have certain specifics, which games played in a real environment usually do not have (Figure 5), and which need to be kept in mind when creating, introducing, and using online games.

Figure 5: Pros and cons of online games[42]

Advantages of online games	Disadvantages of online games
Most of the teens enjoy playing online games that keep them in tension.	Not all children enjoy online games and therefore may feel excluded.
Online games provide targeted transfer of information, knowledge, and resources by several senses and active engaging.	
Online games can be used to help improve test scores, teach life and job skills, improve brain function, and encourage physical exercise.	Most popular online games are addictive.
In online games can be incorporated intentional development of experiences and skills by age tailored pacing.	Online games addiction can negatively impact social and physical health and parents
Playing online games encourage motivation and competition	

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[41] BARTHOLOMEW, J. (2019) *Video Games: Pros and Cons. How to use video games for good, and prevent addiction.* Adjusted. https://www.uvpediatrics.com/topics/video-games-pros-and-cons/

[42] Ibid.

among the players.	should be aware of the addiction symptoms.
Online games can be enrichment of learning by fun, entertainment, excitement and competition.	Cyber-bullying.

It is a well-known that most of the teens enjoy playing online games that keep them in tension. Online games provide targeted transfer of information, knowledge, and resources by several senses and active engaging and therefore can be used to help improve test scores, teach life and job skills, improve brain function, and encourage physical exercise. In online games can be incorporated intentional development of experiences and skills by age tailored pacing. Motivation of children is easy to be supported by playing online games that can be used as enrichment of learning by fun, entertainment, excitement and competition among the school mates.[43]

As with all other entertainment which can get out of control, online games may have quite serious negative impacts. First of all there are children that from several reason do not enjoy online games and may feel excluded not only from the game itself, but also from a group of children who talk about the game in their free time and the child does not know what it is about. Another danger is that children as well as adults can develop an addiction to playing games, which goes hand in hand with the social isolation of players without personal contact with other children. Online games addiction can negatively impact social and physical health. A special chapter is the danger that arises from the open space on the Internet that allows adults with malicious intentions to contact children and behave in an inappropriate or even criminal way.[44]

Games in career guidance for 12-14 year olds can have an important place, as the game used solely for entertainment purposes are among the youngsters very popular. Career guidance games can be an effective form of getting to know themselves, as well as the other players, developing personalities and finding career path to potential employment sometimes in the future. Thanks to the experience gained during playing career guidance games, the pupils should have opportunity to learn about different professions, especially on their partial activities, requirements, duties and possibilities. Online games focused on career orientation will help students to gain virtual experience with various occupations for which they would need a lot of time to discover in real life. Freedom of choice according to intuition and interest in the game can reveal career directions.

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[43]   Ibid.
[44]   Ibid.

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