Inspirational guidelines for career guidance games development

C-Game project, O1

Prague, June 2020
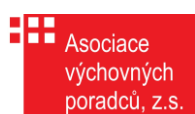
Contents

The C-Game project co-financed by EU Program ERASMUS+

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.

Introduction

Career guidance can be defined as a helping process operating in three main domains i.e. personal, vocational and educational. Such activities may include providing information and giving advice, counselling, competence assessment, mentoring, advocacy and career decision-making and career management skills training. They may be collectively known by a variety of names, including "career development", "educational / vocational / career guidance", "guidance and counselling", "occupational guidance", and "counselling". The process is informed by five main principles: user-friendliness, confidentiality, impartiality, equality of opportunity, and accessibility. It is provided in a variety of different contexts and delivered through a range of methods (Hughes et al, 2002).

Additionally, the OECD definition makes it clear that career guidance refers to individual and group activities, online and onsite activities and education, counselling, world of work experiences and system development. Career guidance refers to services and activities intended to assist individuals, of any age and at any point throughout their lives, to make educational, training and occupational choices and to manage their careers. The activities may take place on an individual or group basis, and may be face-to-face or from a distance (including help lines and web-based services). This definition encompasses a range of activities, including the provision of career education, information, advice and guidance.

Career guidance can be very beneficial for pupils and schools can play a central role for them in starting to explore different career opportunities and preparing to be career-ready. Gysbers (2013) describes career-ready students as students who have "a proactive, resilient, and adaptive style of interacting in the present and use that style to assertively move towards self-defined career futures that add meaning, purpose and satisfaction to their lives." It is essential for pupils and individuals in general, to have the knowledge, skills and dispositions to plan and visualize their futures. Gysbers (2013), describes career-ready students as individuals who understand that their lives evolve in

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various life settings, including school and the workplace. Career-ready pupils, also understand how planned or unplanned life events can affect them over their lifetime and understand how to anticipate possible impacts that events may have on them and their career planning. They are able to plan, but also able to take advantage of unplanned opportunities that may arise (Gysbers, 2013). The C-Game project, acknowledging the importance of career guidance for pupils, aims at providing tools- games to assist their career guidance.

The aim of O1 in particular, is to prepare the starting points for the development of career guidance games for pupils aged 12-14. Taking into consideration that the area of career guidance games is innovative and very new, a thorough desk research was conducted so as to find out any new approaches on game-based assessment for career guidance. The idea of creating C-Game based on a hidden career orientation assessment will be underpinned by desk research.

During the desk research, the partnership searched for inspiration to understand various relevant information and resources on which Output-03 (C-Game: Career guidance game in the city full of occupations for pupils aged 12-14) will be developed. In that sense, C-Game partnership went through desk research in the following areas:

- Career guidance theories related to vocational choice for pupils aged 12-14.
- Career game-based learning related theories for pupils aged 12-14
- Online career games for pupils aged 12-14
- National career guidance information and frameworks of occupation, skills and competencies
- European classification of occupations, skills and competencies.

Main aim of the desk research of these areas was to find relevant theories, methods, steps, interest tests, information sources, databases etc. that will serve as inspirational and information sources for the development of the C-Game.

In the following chapters, the desk research results per area are presented and the most relevant theories, tools, sources are pinpointed in a way to demonstrate their usability in the development of C-Game.

In order to create the C-Game Inspirational Guidelines for Career Guidance Game Development, the partnership, after having collected existing theories, methods, games and frameworks of occupation, skills and competencies and occupations' classification of occupations, in a brainstorming session evaluated the most important and relevant ones and came to a common agreement on possible approaches to identifying pupils´ interests and constraints that are appropriate for the choice of the follow-up study and/or the first career choice, and these will be the basis for the scenarios that will be worked out both for pupils and facilitators in C-Game.

The result of the output is a "visualization" of C-Game's conceptual and logical framework according to the results of desk research. The framework will be based on six independent complementary facets involved in game development:

- domain modelling (or domain simulation),
- specification of learning objectives,
- definition of interaction rules (or game rules),
- level design and difficulty progression,
- decorum description,
- deployment of the game in an operational environment.

However, given the difficulty of achieving a common "visualization" of the C-Game concept and its logical framework among partners, it is expected that C-Game's conceptual and logical framework will be adjusted several times before moving on to the programming phase.

Chapter 01: Career guidance theories related to vocational choice for pupils aged 12-14 and testing based on the theories

1.1 Career guidance theories – the inspiration for C-Game

Designing an effective career guidance game required initially, familiarizing ourselves with career guidance related theories. In this chapter, we have clarified the theoretical basis for the development of the game and its direction. The first theories emerged during the first industrial era and since then, the number evolved to more than nearly two hundred. A limited overview of the most significant ones is presented in ANNEX 1 which provided a starting point for examining theoretical approaches and discovering practical tools for building C-Game. The publication is essentially a working material summarizing the findings of desk research. Therefore, it is not exhaustive but sufficiently comprehensive and informative for the needs of the C-Game project.

The Trait and Factor Theory, formulated by Frank Parsons and first published in the book "Choosing a Vocation" in 1909 right after his death, is still widely used for career guidance purposes. Since then, more theories followed. Many of those, developed in the beginning of the 20th century, are still valid today and have been further elaborated by other authors into new theories in accordance with new approaches, social situations, knowledge base etc. However, no single theory is comprehensive. Each contributes to the knowledge of the process of career guidance from a certain point of view and brings specific knowledge and generalization.

1. Frank Parsons, The train and factor theory

The trait and factor theory ('trait', refers to individual characteristics and attributes, while 'factor' indicates the necessary elements to perform well in a vocation) is still used in career guidance, but the context in which it is used has dramatically changed, as it basically relied on psychometric measures. Nowadays, assessment tools are just one of many strategies in working with a client. Parsons' approach suggests that the wise choice of vocation consists of three broad factors: [1]

1) clear understanding of oneself (i.e. one's attitudes, abilities, interests, ambitions, resources, limitations and their causes),
2) knowledge of the requirements and conditions of success, advantages and disadvantages, compensations, opportunities and prospects in different lines of work,
3) true reasoning in the relations of these two groups.

This approach, describes career decision-making as a simple matching of personal characteristics with job requirements. Accordingly, the closer this match, the greater the likelihood of optimal productivity and personal satisfaction.[2]

2. Edward K. Strong, Strong Interest Inventory

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[1] Spotlight on Parsons' trait and factor theory. Available at: https://www.careers.govt.nz/articles/spotlight-on-parsons-trait-and-factor-theory/
[2] Theories of career counselling. lhttps://www.youtube.com/watch?v=vQbkzMYz3oE

Strong Interest Inventory (SII) is based on the assumption that people with similar interests are often drawn to similar types of work, enjoy being with others sharing those interests and are likely to do well in a work environment that reflects those interests. SII was developed in order to help people match their interests to careers and was the very first assessment tool focused to differentiating people's interests according to their likes and dislikes. SII scores, measure a complex of liked and disliked activities selected so as to differentiate suitable from unsuitable occupations. The modern version of the SII is based on the Holland RIASEC codes typology. (Staggs, G.D. (2004) & Prince, J.R. (June 1998))

3. Donald E. Super, Life span & Life space approach

Life span & Life space approach, deals with the stages and roles during a person's life span. It discusses the assumptions and procedures of how individuals make decisions about their careers in accordance with their self-understanding which evolves over time. People seek career satisfaction through work roles in which they can express themselves and further implement and develop their self-concept. However, knowledge of the requirements of individual professions is also a prerequisite for the right choice. If awareness of a profession or the requirements for exercising it is inadequate, a realistic assessment of the suitability of that profession is not feasible. Super argues that occupational preferences and competencies, all change with time and experience along with an individual's life situations. Super developed the concept of vocational maturity, which may or may not correspond to chronological age: people cycle through each of these stages as they go through career transitions. (Brown, D, and Brooks, 2002)

Super also dealt with the question of maturity for the choice of profession, which he considers it includes:

- awareness of the need to plan a future career,
- the will to take responsibility for career planning and to obtain the necessary information independently,
- selection of a profession that is in line with the interests of the individual.

Super emphasizes that self-knowledge changes and develops during human life as a result of gaining experience.

4. Donald E. Super, Work Values Inventory

Work Values Inventory (WVI) is not a simple theory however, it constitutes a tool that assesses the relative importance of work values which Super drew from his developmental theory. Work values refer to the values that individuals believe should be satisfied as a result of their participation in the work role. They are regarded as one of the most important influences on career development, choice, and satisfaction, yet are largely an understudied field within vocational psychology compared to vocational interests.

Super's Work Values Inventory-Revised (SWVI-R) consists of 12 scales measuring the relative importance placed on the following work-related value dimensions: Achievement, Co-Workers, Creativity, Income, Independence, Lifestyle, Mental Challenge, Prestige, Security, Supervision, Work Environment, and Variety. Each of the scales includes 6 items. Items were scored according to Super's five-point response format, using descriptive statements ranging from "Not important at all. Not a factor in my job selection" (1) to "Crucial. I would not consider a job without it" (5). Mean scores within each WV scale, were obtained by summing all of the items in each scale and then dividing by the number of items (6), with higher scores indicating that the respondent places greater importance on that work value. (Robinson, C.H 2007)

Examples of WVI:

- http://www.philau.edu/careerservices/inc/documents/selfAssessmentWorkValuesInventory.pdf
- https://humwork.uchri.org/wp-content/uploads/2015/01/Workvaluesinventory-3.pdf
- https://www.myplan.com/assess/values/pg1.php
- https://alis.alberta.ca/careerinsite/know-yourself/work-values-quiz/
- https://www.careerperfect.com/services/free/insight-work-values-1/
- https://www.123test.com/work-values-test/
- https://scales.arabpsychology.com/donald-supers-work-values-inventory-wvi.pdf
- http://sites.psu.edu/stephaniehainescareerportfolio/wp-content/uploads/sites/37738/2016/01/Work-Values-Inventory.pdf
- http://jobseekersguide.org/sites/default/files/work-values-1_3.pdf

5. Anna Roe, Career choice and development

Roe's theory of career choice and development focuses on the relationship between occupational choice and personality. It can be separated into two key areas: theoretical aspects of personality and classification of occupations.

Inspired by Maslow's hierarchy of needs, Roe incorporated the psychological needs that develop out of parent-child interactions in her conceptualization of personality:

- Psychological needs
- Safety needs
- Need for belongingness and love
- Need for importance, respect, self-esteem and independence
- Need for information
- Need for beauty
- Need for self-actualization

Roe was dissatisfied with the classification of occupations available. Therefore, she developed a new one that consists of two dimensions: level and field. Level is related to aptitude, training, responsibility and similar attributes which play a role in vocational guidance. Field is the dimension which provides information on the contents of the occupation, and is therefore particularly relevant to a classification by interests. These two dimensions are orthogonal to each other. (Roe, A., & Lunneborg, P. W. (1990))

Occupations can be classified by eight interest fields:

1. Service
2. Business
3. Organization
4. Technology
5. Outdoor
6. Science
7. General Culture
8. Arts and Entertainment

The eight occupational categories were then subdivided into six classification levels based on degree of responsibility and ability:

1. Professional and managerial (Independence and Responsibility)
2. Professional and managerial (Less Independence and Responsibility)
3. Semi-professional and small business
4. Skilled
5. Semiskilled
6. Unskilled

Roe's system of classification and categorization has proved useful as a framework for organizing in a meaningful way, a multitude of occupations. Anne Roe's work has had an impact on interest test development and career research.

6. John L. Holland, Theory of career choice

John Holland's Theory of Career Choice (RIASEC) and instruments developed, contributed significantly to counselling psychology. RIASEC structure is the most widely used model for organizing career interest assessment instruments. It is based on the premise that behaviour is determined by the interaction between personality and environment. In choosing a career, people prefer jobs where they can be among people and an environment that will let them use their skills and abilities, and express their attitudes and values, while taking on enjoyable problems and roles.[3] Therefore, career counselling should uncover personal characteristics and suggest matching occupations.

Holland's theory is centred on the notion that most people fit into one of six personality types (RIASEC) which are characterized by a constellation of interests, preferred activities, beliefs, abilities, values, and characteristics:

- o Realistic
- o Investigative
- o Artistic
- o Social
- o Enterprising
- o Conventional
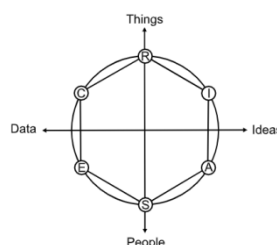
Fig. 1. Holland's (1959, 1997) interest types with Prediger's (1982) dimensions.

Although each individual is made up of all six types, usually one type is dominant. Most personalities tend to resemble up to three of the six personality factors. The six types can be applied also to working environments, occupations, jobs, majors, leisure activities, etc. The closer the match of personality to job, the greater the satisfaction. (Chi-Ping Deng, Patrick Ian Armstrong, James Rounds 2007)

RIASEC types become the basis for a large number of different tests. For example: [4]

- Vocational Preference Inventory (VPI; Holland),
- Self-Directed Search (SDS; Holland, Fritzsche, & Powell)

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3   Holland's theory. Available at: https://www.careers.govt.nz/resources/career-practice/career-theory-models/hollands-theory/
4   NAUTA, M. M. The Development, Evolution, and Status of Holland's Theory of Vocational Personalities: Reflections and Future Directions for Counselling Psychology. Available at: https://www.counseling.org/docs/david-kaplan's-files/nauta.pdf?sfvrsn=2

- Position Classification Inventory (PCI; G. D. Gottfredson & Holland)
- Environmental Assessment Technique (EAT; Astin & Holland)
- Vocational Decision- Making Difficulty Scale (Holland & Holland)
- My Vocational Situation (MVS; Holland, Daiger, & Power)
- Vocational Identity Scale (Holland, Johnston, & Asama)
- Career Attitudes and Strategies Inventory (Holland & Gottfredson)
  and many others.

The integration of the RIASEC framework into these instruments helped ensure that thousands of people annually receive information about their interests in the form of RIASEC-type scores which undoubtedly contributed to the theory's popularity. Nowadays, the majority of all career-interest inventories use some version of Holland scales. It is also worth mentioning that Holland's RIASEC model has been used to organize occupational information in USA and occupational interest profiles based on the RIASEC typology have also been created for each occupation in the government-sponsored O*Net database. (Chi-Ping Deng, Patrick Ian Armstrong, James Rounds 2007)

Examples of Holland code career test:

- https://www.truity.com/test/holland-code-career-test
- https://www.hawaiipublicschools.org/DOE%20Forms/CTE/RIASEC.pdf
- http://jobseekersguide.org/sites/default/files/interests_occupations_1_2.pdf

7. John D. Krumboltz, Social learning theory of career decision making, Learning theory of careers choice & counselling

Social Learning Theory of Careers Decision Making (SLTCDM) focuses on teaching clients career decision-making alternatives and makes use of the concept of the "triadic reciprocal interaction" (learning as the interaction with environment and genetic endowment) and emphasizes the role of instrumental & associative learning. Consequently, key concepts/tools for the practitioner are reinforcement and modelling. The application of SLTCDM to practice involves the practitioner attempting to identify and correct any incorrect beliefs held by the client about the decision- making process. It was developed to address the questions:

- why people enter particular educational course or jobs
- why they may change direction during their lives
- why they may express preference for different activities at different points in their lives.[5]

Krumboltz saw his theory as (1) a way of explaining the origin of career choice and (2) a guide to how career practitioners might tackle career related problems. The practitioner starts with understanding how a client came to their career related view of themselves and the world and what is limiting or problematic about this view. Once this has been established, the practitioner helps the client identify what career relevant learning experiences, modelling or skill building will help them reframe their

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[5]   BIMROSE, J. Traditional theories, recent developments and critiques. Available at:
       https://warwick.ac.uk/fac/soc/ier/ngrf/effectiveguidance/improvingpractice/theory/traditional/

view. Using Krumboltz's approach a practitioner plays a major role in dealing with all career problems, not just occupational selection.[6]

Krumboltz defined four factors that influence career decision- making:

- Genetic endowments and special abilities
- Environmental events and conditions
- Instrumental and associative learning experiences
- Task approach skills

And four primary ways these factors influence career decisions:

- Self-observation generalizations
- Worldview generalizations
- Task approach skills
- Actions

8. Linda Gottfredson, Circumscription, compromise, and self-creation

Linda Gottfredson explains the rationality of career choices in her theory of circumscription and compromise, in which she presents possible origins of interests, abilities and other reasons guiding the selection of career path. The theory is based in that our self-concept (our identity) is defined by the genetics, environment, culture and relationships as we grow up, but is largely influenced by the experience gained. So, on one hand, we have some given starting points that we inherited from our family and social surroundings and on the other hand, we are active factors in the development of our identity by gaining unique experiences and feelings.[7]

Gottfredson defines the term "**circumscription**" as a process of eliminating unacceptable occupational alternatives which has four stages according to the age: orientation to size and power (age 3 to 5), orientation to sex roles (age 6 to 8), orientation to social valuation (age 9 to 13), and orientation to internal, unique self (age 14+). While the four stages of circumscription are processes by which we eliminate occupations we deem unacceptable, "**compromise**" is the process by which we relinquish our most preferred alternatives for less compatible but more accessible ones. Within the roles we have short-listed based on perceived effort, prestige and gender, we select those positions within our social space based on what is available. We then define what is "good enough" and what is not "good enough".[8]

If our desired role is not available, we compromise on prestige rather than adjusting across gender roles. Someone who wants to be in engineering may opt for construction rather than taking a role as a hair dresser. Conversely, someone who wants to be a social worker may become an admin assistant rather than take a role in the mining industry. Compromise is also a process of adjusting career opportunities due to limiting factors, such as the level of occupational insight gained and the availability of jobs.

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[6]   Krumboltz's Theory. Available at: http://careercounselingai.blogspot.com/2015/02/krumboltzs-theory.html

[7]   Did you inherit your career? Gottfredson's theory of circumscription and compromise. Available at: http://www.sidewaysthoughts.com/blog/2013/06/did-you-inherit-your-career-gottfredsons-theory-of-circumscription-and-compromise/

[8]   Ibid

9. B. Law, Anthony G. Watts, New-DOTS: Career development learning

Law and Watts defined 4 core areas in the process of step by step approach to career decision-making and career development, and created the DOTS framework. The DOTS is abbreviation of: (Law, B. 1999.)

- Decision learning (D) What will I do?
- Opportunity awareness (O) Where am I?
- Transition learning (T) Where will I do it?
- Self-awareness (S) Who am I?

DOTS framework is widely used as a minimum standard and useful model of career guidance steps in working with someone who is preparing for the transition from learning into work, as well as for other transitions related to education, training, and the labour market. (YOUNG. S. DOTS Model by Law and Watts. 2019)

The most likely developmental order for young people is S-O-D-T, as a certain level of Self-awareness needs to precede Opportunity awareness; which then requires Decision learning to enable any form of Transition.

Law and Watts also described four staged components, which were likely to comprise additive evolutionary stages in the development of a careers' education and guidance programme:

- information, e.g. a box of materials in a careers resource centre
- interview, e.g. advice and/or counselling
- curricular
- integrated (including extra-curricular and community engagement). (HOOLEY, T., MARRIOTT, J., WATTS, A.G. AND COIFFAIT, L. (2012))

10. Albert Bandura, Social cognitive theory

Social cognitive theory (SCT) belongs to the category of learning theories. It is based on the idea that people learn by observing what others are doing, and that human thought processes are key to understanding personality. A conclusion drawn from this is that monitoring what others are doing and the process of human thinking has also an impact on career choices and future employment.

SCT describes the learning process that occurs through observation. In order to keep track of what other people are doing, it is important to be interested in the activity. If we consider something interesting, prestigious or attractive, we will pay more attention to it. If we are interested enough,

we will keep it in our memory and when necessary, it will be invoked spontaneously and help to imitate (reproduce) the given activity. This does not mean, however, that everything seen can be reproduced immediately by everyone. For example, long-term monitoring of top athletes will not make a non-athlete a top competitor. Nevertheless, our skills are improving, even if we only imagine that we are performing them. STC works with the concept of self-efficacy, through which individuals exercise control over their thoughts, feelings and actions. Self-efficacy is thought of as the most influential predictor of human behaviour. It influences the ability to organize and carry out the steps needed to achieve a given goal which rests on the four most influential sources: [9]

- personal previous successes or failures (most influential)
- vicarious experience from watching others
- verbal persuasion, encouragement or deterrence
- physiological and emotional factors like perception of stress reactions in the body

The level and strength of self-efficacy determines:[10]

- whether the behaviour will be initiated,
- what efforts will be made,
- how long the effort will be sustained in the face of obstacles.

Self-efficacy plays a central role in the career decision-making process. People are more likely to choose occupations that require skills that they think they either have or can develop, and avoid those for which they do not have, do not want, or are unable to develop the proper skills.

11. H. B. Gelatt, Positive uncertainty

Positive uncertainty is a different approach to decision-making strategies in career guidance. It is an attitude that combines a sense of insecurity about the future and a positive sense of the insecurity. It is based on the assumption that the future is full of ambiguity and paradoxes in which it is impossible to see in advance what will happen and whether we will be able to react to it. Accepting uncertainty positively allows acting and making decisions. (Gelatt, H. B 1989)

Positive uncertainty works with two assumptions: The ability to recognize and accept that the future is uncertain; and at the same time, be positive about it. Positive uncertainty relates decision making to three basic guidelines:

- Information guideline: Treat your facts with imagination, but do not imagine your facts.
- Process guideline: Know what you want and believe, but do not be sure.
- Choice Guideline: Be rational, unless there is a good reason not to be.

Gellat in his later work, suggested following positive uncertainty's paradoxical, ambiguous principles: (GELATT, H. B 1992)

1) Be focused and flexible about what you want.
   - Know what you want but don't be sure
   - Treat goals as hypotheses
   - Balance achieving goals with discovering them

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[9] ibid
[10] ibid

2) Be aware and wary about what you know.
   - Recognize that knowledge is power and ignorance is bliss
   - Treat memory as an enemy
   - Balance using information with imagination
3) Be objective and optimistic about what you believe.
   - Notice that reality is in the "eye" and the "I" of the beholder
   - Treat beliefs as prophecy
   - Balance reality testing with wishful thinking
4) Be practical and magical about what you do.
   - Learn to plan and plan to learn
   - Treat intuition as real

The concept of positive uncertainty has had a strong influence on some of the modern theories of career choice — especially those which emphasize chance and complexity, such as planned happenstance or the chaos theory of careers.[11]

12. Jim Bright, Robert Pryor, Chaos theory of careers

The Chaos Theory of Careers (CTC) characterizes individuals as complex systems subject to the influence of complex influences and chance events. However, over time, patterns emerge in our behaviour that are self-similar but also subject to change. Career chaos theory, provides a way to understand how to succeed in the 21st century.

Thinking about the future is difficult, due to the complexity of the world we live in. It is stable but changing, like the weather. Each person is an individual, complex, open and dynamic system that is constantly changing and operating in another complex, open and dynamic system, and in constant contact with other individuals. In parallel, each individual has its own limits, internal and external. And it is almost impossible to determine how many different career options an individual has. These options are influenced by various factors such as the cultural, political and social environment in which he/she grows up, education, health, etc. Future options, regardless of their nature, vary in degree of certainty. Some are relatively certain, others very uncertain. Very uncertain are, for example, chance events which occur in an individual's life. This seems to be a "chaos", but not everything in our complex life system is chaotic and beyond our control. Even what appears to be chaos, has a certain order and stability. We move in time and changes take place around us. We are also changing in our own way every day. Therefore, in career guidance, it is necessary to develop the clients' change perception, opportunity awareness, luck readiness, flexibility, curiosity, optimism, self-efficacy, strategy, luck, risk and persistence, adaptability and ways to revise their careers plans, innovation, creativity, flexibility. And most importantly, develop their ability to recognize chance events, be able to use them and draw from them.[12]

The complexity of influences on career development make accurate predictability challenging. Elements of chaos theory that can be used by counsellors to assist their clients include:

   - Complexity
   - Emergence

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[11] Can you be positive about uncertainty? Available at:
      https://careersintheory.wordpress.com/2009/12/14/positive-uncertainty/
[12] BRIGHT, J. The Chaos Theory of Careers - its about complexity. Available at:
      https://www.youtube.com/watch?v=AVGA1cQX4D4

- Non-linearity
- Unpredictability
- Phase shifts
- Attractors

13. K. E. Mitchell, S. Al Levin, L. D. Krumboltz, Planned happenstance

Planned happenstance theory, is an amendment to the learning theory of career counselling, expansion of the social learning theory of career decision making with elements of positive uncertainty and the chaos theories. Planned happenstance theory, is a conceptual framework extending career counselling to include the creating and transforming of unplanned events into opportunities for learning. The goal of a planned happenstance intervention is to assist clients to generate, recognize, and incorporate chance events into their career development. A strong component of planned happenstance is facilitating the client´s actions of generating and anticipating possible opportunities. Clients need to learn to take action to generate and find opportunities. (MITCHELL, K.E., LEVIN, A.S. & KRUMBOLTZ, J.D. (1999))

At the core of this theory is the fact that unpredictable social factors, chance events and environmental factors are important influences on clients' lives. As such, the counsellor's role is to help clients approach chance conditions and events positively. In particular, counsellors foster in their clients:[13]

- curiosity to explore learning opportunities
- persistence to deal with obstacles
- flexibility to address a variety of circumstances and events
- optimism to maximise benefits from unplanned events.

Krumboltz states that people with these qualities are more likely to capitalize on chance events and turn serendipity into opportunity.

Furthermore, several factors have been highlighted as being helpful in career management, including:[14]

- the commitment to ongoing learning and skill development
- ongoing self-assessment
- assessment and feedback from others
- effective networking
- achieving work-life balance
- financial planning to incorporate periods of unemployment.

These attributes and tasks, enable individuals to turn chance encounters and occurrences into career opportunities.

1.2 Conclusions

The main objective of C-Game, is to support pupils aged 12-14 in gaining information about a wide range of occupations, increasing their self-confidence and self-efficacy during the online game, which

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[13] Krumboltz´s theory. Available at: https://www.careers.govt.nz/resources/career-practice/career-theory-models/krumboltzs-theory/

[14] ibid

aims to be fun and entertaining for them and at the same time usable both for pupil teams in the classroom and for individual pupils outside the classroom. The partnership's aim is to contribute towards the achievement of comprehensive career development, which is essential in schools.

In this chapter, theories about career guidance that would be useful to consider when developing a career guidance game, have been explored. To identify suitable theories for the creation of C-game, a list of theoretical approaches published by M. Savickas were used, to which some extra were added as well. Finally, there were selected 41 theoretical approaches that could be a source and inspiration for the development of C-game. This comprehensive list, allowed us to gain an overview and consider the practical application of theoretical approaches. In between, while getting better knowledge of the theories, three more authors to the original list have been added, so as to result in a short list containing 13 theories or inventories related to career guidance.

From the studied works, the following interesting and potentially useful points in developing C-Game were identified.

1.   Frank Parsons, The train and factor theory
The idea of matching the skills, abilities, interests with occupations, is useful for our approach and it will be taken into account, using however, its followers' theories.

2.   Edward K. Strong, Strong Interest Inventory
For the C-Game's purposes, it is important that pupils take an inventory of their interests. Nevertheless, experience indicates that pupils do not like to read long texts and fill in long questionnaires. Therefore, even though it has been decided to use RIASEC, extra thought is needed in order to find a way to combine fun and entertainment with some kind of "hidden" self-assessment.

3.   Donald E. Super, Life span & Life space approach
It is necessary for pupils to learn a set of skills that will assist them in their efforts to establish satisfying life structures across their life spans. In order to match the diversity of users, C-Game's information base should be as broad as possible in all respects. C-Game should contribute to the development and application of occupational self-concepts.

4.   Donald E. Super, Work Values Inventory
Work values inventory (WVI) can be used in C-Game, as one of the self-assessment tools like the following self-assessment work values inventory:
http://www.philau.edu/careerservices/inc/documents/selfAssessmentWorkValuesInventory.pdf
Nevertheless, using the WVI in C-Game development should be subject to discussion and available financial sources. We also have to take under consideration the C-Game target group and examine the potential usefulness to the target group of such self-assessment. Another point to examine is the level of knowledge needed to produce such a test, the need to make desk research, compare content and range of the WVI and suitability of questions to C-Gamers.

5.   Anna Roe, Career choice and development
The city, in which C-Game will take place, can have 8 districts that can be named according the Roe´s occupational classification. In each district, one could view occupations falling into one of the 8 categories. Another potential use can be to divide the occupations to the above mentioned 6 classification levels, based on degree of responsibility and ability.

6.   John L. Holland, Theory of career choice
Holland´s theory of vocational personalities and work environments can definitely be utilized in C-Game. The game should have some kind of interest self-assessment tool (one or more) resulting in the identification of a 3-digit RIASEC code at least. Also, ways to get RIASEC codes for 600

occupations will be sought, which will allow to propose occupations that are compatible with the game user's RIASEC profile.

7. John D. Krumboltz, Social learning theory of career decision making, Learning theory of careers choice & counselling

From Krumboltz's work, can be utilised the finding that not only a person's self-concept, but also their values, attitudes and interests are formed in the context of the environment they live in, and influence their career decisions and reframe their view. C-Game's aim is not only to provide information about occupations, but also to contribute to reframing the pupils' view on a wide scale of possibilities of the labour market and to outline occupations that the gamers did not think about in the context of their environment.

8. Linda Gottfredson, Circumscription, compromise, and self-creation

From the theory of circumscription and compromise, we pick up the topic of social and gender stereotypes. Most girls and boys are still brought up in a more generically traditional way. For example, girls are encouraged to engage in games with dolls, while boys are led to games with cars and other technical simulation toys. Traditionally oriented gender socialization, leads girls and boys to different life trajectories and develops different dispositions in them. However, these differences, which can be seen in a superficial observation between many women and men, are not based on female and male "nature", but arise under social influences. Gender stereotypes often work automatically, are the most widespread and at the same time resistant to change. [15] During the C-Game development, attention has to be paid, into breaking gender stereotypes down and promote equal opportunities by expanding the space for the application of each person on the basis of their real abilities.

9. B. Law, Anthony G. Watts, New-DOTS: Career development learning

DOTS is a suitable model for creating a game during which, step by step pupils:
- increase their self-awareness, i.e. clarify their abilities, interests, values and motivations, plus any other aspects of the "I" that seem relevant.
- get acquainted with as many professions and thought as possible, for example, about the environment in which the profession is performed, what is required in order to be able to perform the profession.
- gradually link what they learn about themselves with the profession's requirements.

Through the game, there is no need for pupils to make a decision about their future career, just to understand the importance of "self-marketing", gain information about professions and internally clarify their attitude to them.

10. Albert Bandura, Social cognitive theory

The development and strengthening of self-efficacy in young people, is very important. Efficacy affects their access to education, their hobbies and interests. By helping them expand their knowledge on various professions through an entertaining C-Game, we support their potential choice and better prepare them for the decision-making process related to the choice of occupation. C-Game, will not be preparing them directly for the choice of subsequent studies and for a particular school, but indirectly facilitates this choice for them.

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[15]   KOLKOVÁ, V. Motivace žáků základní školy k výběru budoucí profese během posledních dvou let povinné školní docházky. Diplomová práce. Available at:
https://theses.cz/id/qav4qh/Diplomov_prceV__KolkovUPED.pdf

11. H. B. Gelatt, Positive uncertainty

The theoretical approach of positive uncertainty can be applied if we choose to encourage positive thinking, embracing uncertainty and developing adaptation skills through appropriate messages in several parts of the game. Its message is that there is no need to worry about the uncertain future. Pupils need to approach the future positively and be prepared for the uncertainties that await them in their future career path. C-Game can help pupils keep an open mind and even teach them how to change their minds when necessary.

12. Jim Bright, Robert Pryor, Chaos theory of careers

Chaos theory application in the development of the C-Game could help pupils realize during the game how important it is to utilise random events and how many different career opportunities may arise out of them in the future. When thinking about a career goal it is better to make it wide and open, and taking in mind that it is more important to revise and adapt the ideas about future occupation to the changes of circumstances, because the world is constantly changing, than to rely on setting individual static goals. This will potentially help them maintain balance and work with the future uncertainty.

13. K. E. Mitchell, S. Al Levin, L. D. Krumboltz, Planned happenstance

Planned happenstance, suggests that a career is something that will gradually unfold and encourages individuals to make the most of sometimes strange and interesting opportunities as they arise. This theoretical approach should be a challenge for the development of C-Game, because one of the game's goals is, in a fun and entertaining way, to provide an overview of occupations aimed to strengthen students' natural curiosity, their readiness to respond to suitable opportunities that could be beneficial for them in the future and release fear of taking risks on unexpected career opportunities.

C-Game's users will be pupils aged 12-14, most of whom are expected to enter the labour market in 6-10 years from now. This suggests that we cannot be currently aware of what the epidemiological, economic, social, etc. situation will be. Consequently, it is not possible to know how many of the current occupations will exist in their current form at that time, or how many new occupations will emerge. However, C-Game aims at adding an element of predictability in the pupils' future lives and careers, even though they are destined for a huge adventure, in a dynamic, fluid and global world, with a level of diversity throughout their lives that could not have been imagined in earlier centuries. Successful people will demonstrate a certain occupational resiliency characterized by flexibility, optimism, lifelong learning, daily networking, and a clever eye for opportunity. The happenstance learning theory, explains how a lifetime of active involvement provides learning opportunities that may have been planned or unplanned. It is neither possible nor desirable to predict exactly what pupils' future occupation will be. The process continues throughout their life which is why it is vital to keep their options open at all times. Perhaps it is therefore, more productive to ask youngsters, "What are you enjoying and learning to do right now? What would be fun to try next?" (Krumboltz, J. D. (1996) & 2.Krumboltz, J. D., & Henderson, S. J. (2002))

Chapter 02: Career game-based learning related theories for pupils aged 12-14

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.[16] 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.[17]

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.[18]

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.

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[16] 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/

[17] 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

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

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.[19]

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).[20] 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,[21] which we will not deal with here.[22]

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.

[19]   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

[20]   SUSI, T., JOHANNESSON, M., BACKLUND, P. (2007) *Seriours 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

[21]   PRŮCHA, J., WALTEROVÁ, E., MAREŠ, J. (2008) *Pedagogický slovník (Pedagogical dictionary).* 5. aktualiz. vyd. Praha: Portál.

[22]   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/

Figure 1: Types of plays[23]

According to Prensky[24] 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).[25]

Figure 2: Game characteristics[26]
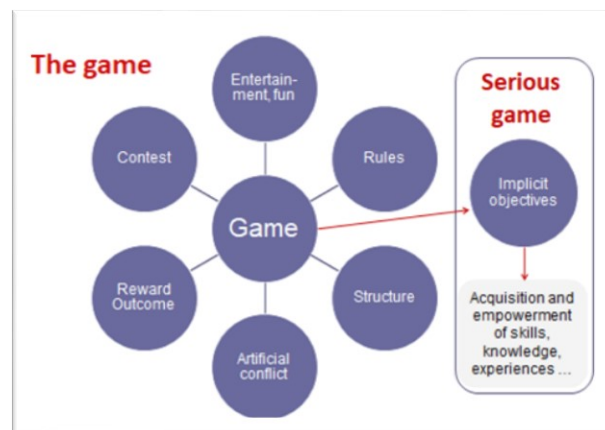
[23] PRENSKY, M. *Fun, play and games? What makes games engaging.* 2001.
http://marcprensky.com/writing/Prensky%20-%20Digital%20Game-Based%20Learning-Ch5.pdf
[24] PRENSKY, M. *Fun, play and games? What makes games engaging.* 2001.
http://marcprensky.com/writing/Prensky%20-%20Digital%20Game-Based%20Learning-Ch5.pdf
[25] 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
[26] HERNANDEZ, R. J. G. (2013) *Serious games for health.* Adjusted.
https://www.researchgate.net/publication/259167089_Serious_games_for_health/figures?lo=1

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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.[27]

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.

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.

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[27]   SUSI, T., JOHANNESSON, M., BACKLUND, P. (2007) *Seriours 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

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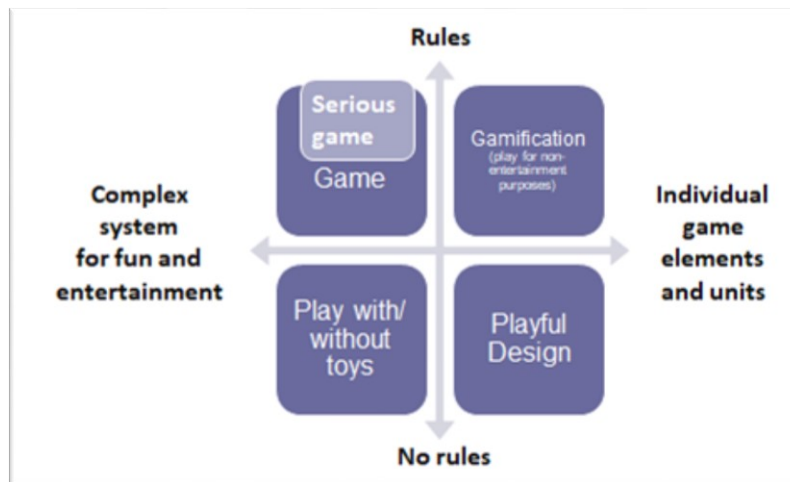
It is also interesting a typology of relationships between different types of rules in games (Figure 4).[29] It begins with a basic distinction between formal rules and informal rules. The formal rules are produced by the game developer and come in two types. One type are the "hardcoded rules" that are 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[30]

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.

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

[29]   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.

[30]   RECKTENWALD, D. (2018) *The discourse of online life streming on Twich: Communication between conversation adn commentary.* https://www.researchgate.net/publication/333260391_The_Discourse_of_Online_Live_Streaming_on_Twitch_Communication_between_conversation_and_Commentary/figures?lo=1

There are countless games that can be divided into different groups according to their different characteristics and aspects. Following are examples of their division:[31] [32]

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

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

2.2 Representatives of theoretical 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.

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

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.[33]

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.[34]

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.[35]

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.[36]

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.[37] 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 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.[38]

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

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[33] GILLIN, J.L. (1914) *The sociology of recreation.*
https://www.jstor.org/stable/2763219?seq=2#metadata_info_tab_contents

[34] SRIVIDYA, K. *Theories of play*. https://headstreams.org/theories-of-play/

[35] PEDRI, J. (2018) *Theories of play*. https://www.jennesiapedri.com/theories-of-play/

[36] LESKO, N. *G. Stanley Hall* (1844-1924) https://education.stateuniversity.com/pages/2026/Hall-G-Stanley-1844-1924.html

[37] 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

[38] BETTELHEIM, B. (1987) *The importance of Play.*
https://www.theatlantic.com/magazine/archive/1987/03/the-importance-of-play/305129/

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.[39]

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. [40]

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: [41]
- 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.

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. [42] [43]

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

[39] 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

[40] Ibid

[41] Ibid

[42] OPRAVILOVÁ, E. (2004) *Předškolní pedagogika* II. Liberec : Technická univerzita. ISBN 80-7083-786-1.

[43] McLEOD, S. (2018) *Jean Piaget's Theory and Stages of Cognitive Development*. https://www.simplypsychology.org/piaget.html

significance of play as a cultural phenomenon), Huizinga distinguishes several features that do not lose their relevance to this days:[44]

- 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.

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.[45]

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.[46]

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.[47]

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.[48]

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[44] RODRIGUEZ, H. (2006) *The Playful and the Serious: An approximation to Huizinga's Homo Ludens.* http://gamestudies.org/06010601/articles/rodriges

[45] 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

[46] Wikipedia. *Gregory Bateson*. https://en.wikipedia.org/wiki/Gregory_Bateson

[47] 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

[48] Ibid

2.3   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.

13. Game 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.[49]

14. 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.[50]

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.

15. Games as a form of career guidance[51]

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.

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[49]   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.

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

[51]   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

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.

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.

16. 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.[52]

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[52] 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

17. Finding your inner gamer: Adapting instruction for digital natives[53]

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.

18. 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.[54]

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.

19. 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

[53]   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

[54]   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

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.[55]

2.4 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 a career guidance game have to be a well balance at least among the following aspects: [56]

- 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[57]

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	Most popular online games are addictive.

[55]   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=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAABfrQKtXQ8mL-7wtc32oWy_5fzkYbAS2W-VZIeH5Pkgy-De2MCEKIGxinl609eRzJF6vldy0GrgD-f-l_EqBXPSPZK3bxWGSP4aK5329LEkn5KY1c0VWUUJOUI2fNdQ_h-BZTpAy5mVFlGisDHaQFM4ykBBg0E5qvEr9FaHwOnHy&guccounter=2

     HENRICKS, T. (2018). *Classic Theories of Play.* In P. Smith & J. Roopnarine (Eds.), The Cambridge Handbook of Play: Developmental and Disciplinary Perspectives (Cambridge Handbooks in Psychology, pp. 361-382). Cambridge: Cambridge University Press.
[56]   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/
[57]   Ibid.

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exercise.	
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 should be aware of the addiction symptoms.
Playing online games encourage motivation and competition among the players.	
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.[58]

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.[59]

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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[58]   Ibid.
[59]   Ibid.

Chapter 03:   Online career games for pupils aged 12-14

3.1   Introduction

This chapter is part of the Output_O1 of the C-Game project which aims 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) in four countries (Czech Republic, Slovakia, Greece, and Bulgaria).

C-Game offers to pupils the opportunity to get acquainted in an entertaining way with approximately 600 occupations, which would broaden their horizons in 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 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.

C-Game is not designed as a substitute for career guidance, but it helps students realize their professional orientation through play and thus influence their future career decisions.

3.2   Online career guidance games or tools -the inspiration for C-Game

In this chapter a collection of available online career games (min. 6, regardless of language versions) for pupils aged 12-14 is presented, with a short description aiming to pinpoint inspirational approaches to be used in the creation of C-Game as well as specification of their possible use in conclusions.

There is a relatively large number of online resources that can be considered more or less as games related to career guidance. Although most available career guidance games in English and partner languages have been found, it was not possible to find such games in other languages. The reason being the inability to find the appropriate keywords for search engines when one does not speak the language. Most results were returned not when entering "career guidance game" like one would expect, but when using keywords like "plan", "exploration", "investigation", "city" in combination with words like "career", "job", "occupation", "guidance", "counselling", "future", etc.

This chapter does not include all sources found in the research. Only the sources which were tried, of which the operation was understood, and which seemed to have at least some inspirational potential, were included. During research for career guidance games on the Internet, several times it occurred, that previously found webpages were inoperative after some time, therefore they had to be deleted from this chapter's content.

It should be noted, that we deliberately searched for career guidance games in particular and not for strategy games that offer players building cities of various forms and stories. There are probably quite a lot of such games online, with varying characteristics. Some of these games are designed for single player, others in multiplayer mode; some are free, others are charged; some are for PC, others for mobile devices only; some are online, others offline; etc. Exploring such games was not our goal

and besides, it would be too expensive and time-consuming. Nevertheless, we included two in chapter 3.7 (Strategic and development games).

In the following chapters, there is a focus on a total of 19 web applications *(Figure 6)* which have been considered interesting at least at some point, as well suitable for consideration and inspiration. 8 of these websites state as their country of origin the USA, 2 Great Britain, 2 Canada, 2 the Czech Republic. The rest are from Slovakia (1), Germany (1), Italy (1), Poland (1), and the Netherlands (1).

15 from 20 examined web applications are available in English (75 %), 3 in Czech (15 %), 2 in Slovak (10 %), and 1 in Greek (5 %). 8 of the web applications are available also in other languages ranging from 1 to 14 (SimCity). 14 of web applications are available only in one language from which 10 are in English (Career Locker, Paws in Jobland, Learn English Kids, Jobs that care, Career Quest, Claim your future, JA Plan your future, JA Build your future, Career by Kongregate, Balance Careers), 2 in Czech (Můj život po škole – My life after school, Profitest infoabsolvent), 1 in German (Berufe Universum – Universe of professions), and 1 in Slovak (KomposyT: Semafor – Traffic lights).

Figure 6: Web applications´ country of origin

Chapter No	Application name	Country								
		USA	Canada	UK	CZ	IT	NL	SK	PL	DE
3.3	**Career games in a city**									
3.3.1	Mapa Karier								1	
3.3.2	Career Locker	1								
3.3.3	Paws in Jobland		1							
3.4	**Career games**									
3.4.1	The Real Game		1							
3.4.2	Learn English Kids			1						
3.4.3	Jobs that care			1						
3.4.4	Career Quest	1								
3.5	**Games to plan future based on living costs**									
3.5.1	Claim your future	1								
3.5.2	Můj život po škole – My life after school				1					
3.5.3	JA Plan your future	1								
3.5.4	JA Build your future	1								
3.5.5	Career by Kongregate	1								
3.6	**Game-like self-assessment**									
3.6.1	Berufe Universum – Universe of professions									1
3.6.2	KomposyT: Semafor – Traffic lights							1		
3.6.3	Profitest infoabsolvent				1					
3.6.4	Career aptitude test						1			
3.7	**Strategic and development games**									
3.7.1	SimCity	1								
3.7.2	Venture Towns	1								
3.8	**Other online career guidance activities**									
3.8.1	Balance Careers	1								

Chapter No	Application name	Country								
		USA	Canada	UK	CZ	IT	NL	SK	PL	DE
3.8.2	Job Labyrinth					1				
	Total	9	2	2	2	1	1	1	1	1

15 of the examined web applications are available free of charge.

Games have been divided into 6 groups, according to the 20 web applications´ context:

1) Career games in a city
This chapter was intended to be essential for gaining ideas and inspiration for C-Game development. It contains 3 games, one of which is from Poland, one from the USA, and one from Canada. Games´ scenarios aim to acquaint players with different types of professions and takes place inside a virtual city.

2) Career games
This chapter focuses on career guidance games, i.e. games that guide players to learn about different occupations through different gaming activities, offering both entertainment and job market information. There are 4 games from which 2 are from Great Britain, 1 from Canada, and 1 from USA.

3) Games to plan future based on living costs
In this chapter, there are 5 games that look at orientation in different occupations in terms of income and living costs. USA is the country of origin of 4 of these games and 1 game comes from the Czech Republic. The games are equipped with a database of average earnings of various occupations, prices of various accommodation types, use of transport, types of food, entertainment, etc. These games lead users to acknowledge that we pay for almost everything we need in life and it is necessary to earn money for them.

4) Game-like self-assessment
In this chapter, there are web applications that are not basically games, but could be useful in the design of a C-Game, because there should be some self-assessment of interests during the game. There are 4 games, one from Germany, one from Slovakia, one from the Czech Republic, and one from the Netherlands.

5) Strategic and development games
In this chapter, two examples of strategy games were selected which aim at building a well-functioning city. The origin of both games is the USA.

6) Other online career guidance activities
This chapter includes one game and one source of information that do not fit to the above mentioned chapters. The Italian game Job Labyrinth, is a video game in which the player is given various tasks related to an overview of active employment policies and finding a job in the labour market. C-Game's aim does not align with these topics. Nevertheless, an inspiring elaboration of an overview of the work of individual professions was found in the Balance Career information source.

3.3 Career games in a city

3.3.1 Mapa Karier

Country: Poland
Language: PL
Availability: Online, free of charge
Webpages: https://mapakarier.org/city

The Career Map is an interactive map of the virtual city *(Picture 1),* aiming to acquaint students with a wide range of occupations. The appearance of buildings is indicated by the company / institution branch located in the given building. Occupational icons are presented in both female and male images. Each profession is then specified with:

- description of the profession
- the skills needed to pursue the profession
- a typical educational path
- labour market statistics
- an overview of similar occupations

In Picture 1 are seen for example buildings of natural museum, philharmonic, theatre, sports field, film production studio, security agency, market place, etc.

For the development of the C-Game database of occupations we laboriously selected all Mapa Karier included occupations and buildings in which the occupations are placed. There are 583 occupations in 159 buildings.[60] The resulting list of occupations and the buildings in which the occupations are located will serve as a reference point (ANNEX 2 in Czech language).

Mapa Karier, provides also an opportunity for pupils to call their teacher to join. However, how the teacher connects is not described.

Picture 1: Virtual city Mapa Karier

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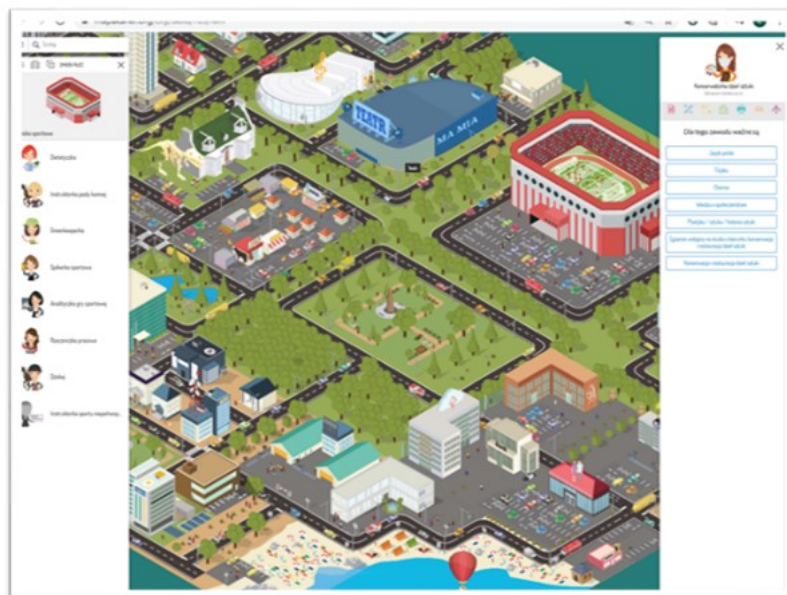
[60]   Situation at 27.5.2020. The portal is constantly being worked on and the number of occupations is increasing and occupations´ details enriching.

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Comments

The map is very nicely graphically processed and visually attractive. Occupations are described in plain language. The descriptions are structured (Why do I like this profession? What he/she does?), and seem quite long for pupils. Skills are presented in a simple form providing the possibility of further information and with an indication of the educational institution where these skills can be acquired. There are also examples of possible educational paths towards a given occupation.

Mapa Karier is equipped with an elaborate database that allows for individual occupations to provide statistics on the Polish labour market (data on employee demand, job offers, and average earnings of the professional groups). C-Game project team does not have access to such a database and therefore cannot enter this information into C-Game.

Although this is a nicely graphically designed game which provides a lot of information, it does not contain any game elements, does not have a reward system to encourage students get involved and obtaining information, and lacks fun and entertaining elements.

Possible inspiration

This game provides plenty of inspiration as far as graphics is concerned. The appearance of the city as well as the way of presentation of individual occupations, the option to choose employee´s gender, the breadth of information about individual occupations, the list of occupations and buildings (ANNEX 2), the inter connection of professional groups, etc. all constitute sources of inspiration for the creation of C-Game.

In C-Game, players could wander around a town and see different buildings which represent different occupations. In each building, players can play a mini quiz (related to the occupation represented in the buildings) and gain prizes to unlock other buildings' activities.

3.3.2 Career Locker

Country: USA
Language: EN
Availability: Online, charged
Webpages: https://careerlocker.wisc.edu/Products/Elementary

CareerLocker is an Internet-based career development program developed by the Centre on Education and Work in Wisconsin. It has 8 different entrance categories:
  - Elementary School Website
  - Middle School Website
  - High School Website
  - Adult Website
  - Elementary Curriculum
  - Intermediate Curriculum
  - High School Curriculum
  - Peterson's Practice Tests

Elementary school website, helps pupils aged 10-14 to learn about 16 national Career Clusters™ and explore over 1.100 occupations through their descriptions.

CareerLocker offers 5 activities *(Picture 2)*:

- Visit Career Clusters *(Picture 3)* - groups of occupations within the same industry that share knowledge, skills, and work environments.
- Discover Occupation,
- Career Explorer Game,
- My Town Game
- ePortfolio.

Picture 2: CareerLocker introductory page   **Picture 3: Career Clusters**

CareerLocker for elementary schools, gives pupils the opportunity to:
- Visit a colourful interactive landscape of the 16 national Career Clusters™
- Meet a Virtual Ambassador from each of the clusters *(Picture 4)*
- Watch and listen to a slideshow about the job responsibilities and training needed for each occupation *(Picture 5)*
- Create an avatar *(Picture 6)*
- Save information about their skills, interests & values, achievements, activities, and favourites to their ePortfolios *(Picture 7)*
- Learn about the relative salary and some of the tools that are used in each occupation
- Play career exploration games

Picture 4: Virtual Ambassadors   **Picture 5: Example of occupation description**

Comments

Two of the CareerLocker games (Career Explorer Game, My Town Game) were not explored because entering them required a charge. Neither information nor pictures of the My Town Game city were found on the internet. However, according to the available description, CareerLocker is similar in scope and focus to C-Game. A significant advantage of CareerLocker is its connection with the national register of occupations and with educational opportunities.

Possible inspiration

Possible inspiration can be found in all the above pictures. However, as far as colour combinations are concerned, we would prefer them to be a little less intense. The avatar is decent, and appears on most screens. The presentation of Career Clusters is also very imaginative. The "ambassador" job, which provides the CREATIVE JOBS information offered in every Career Cluster, is a good and useful idea. The use of photographs for the presentation of occupations is also useful, our project budget though, does not include costs for it. The ePortfolio in which pupils can get an overview of their skills, interests and values, activities and favourite subjects and can be shared with a school counsellor, is also inspiring.

3.3.3 Paws in Jobland

Country: Canada
Language: EN
Availability: Online, charged
Webpages: https://www.xap.com/paws/
                  http://paws.cascaid.co.uk/pdf/about.pdf

Paws in Jobland is an easy-to-use internet tool, designed to introduce children 7 to 11 years of age, to the world of work. Young pupils are aided to find their way around by Paws the dog, a friendly character that provides a helpful guide to exploring the program. *Picture 8* shows example of the first assignment. The dog says "I like this game. Open a drawer to find a question, then point to the answer you want. If you´re right you get a piece of the picture puzzle. If you pick a wrong one by mistake there is a prompt "it´s ok, you can try again." Picture 9 shows the task.
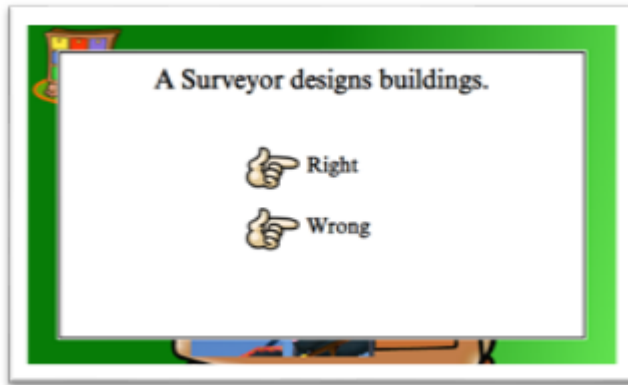
Pupils can explore 21 job areas and find out about 118 jobs, and places such as shops, building site, port, hotel, armed forces, office, airport, railway station, hospital, TV station, workshop, etc. Each place contains a number of people who "talk" to the pupils about the job they do.

In addition to exploring Jobland, pupils can use other sections of the program, including:

- **Jobfinder**. Children answer questions about their likes and dislikes and are shown the areas of Jobland where they may like to work in the future.
- **ABC Search**. Children can search for information on jobs that they might have heard about.
- **Quiz.** Children can learn more about jobs and play a picture puzzle game.

Paws in Jobland helps teachers to deliver many elements of the Key Stage 2 Curriculum in a range of subjects, including English, Mathematics, ICT, Design and Technology, Art and Design, Citizenship, PSHE and Geography.

Teachers can use the accompanying set of worksheets and teacher's notes to deliver interesting lessons where pupils use Paws in Jobland to help them complete a range of activities which also support Cross-curriculum themes including Creativity, Key Skills and Thinking Skills.

Comments

Paws' in Jobland target group pupils of a younger age than those of the C-Game target group. Game tasks are therefore quite simple and easy to do.

Possible inspiration

Possible inspiration can be **the guide** which in Paws in Jobland is the dog. A game that will have a **parrot** as a guide can be built. The parrot can fly around the town and land in different buildings. In each of the buildings, the parrot can perform some quests to understand the occupations that are working there.

3.4   Career games

3.4.1 The Real Game

Country: Canada
Language: EN, NL, HU, FR, GE, DE, EL
Availability: Online, charged

Webpages: https://www.realgame.com/
                  http://www.realgame.co.uk/content/1186564342.590/
                  https://www.lifework.ca/lifework/affiliates.html

The Real Game was originally developed in 1994 by Bill Barry, a Canadian teacher whose 12-year-old daughter felt the subjects she was studying at school were not relevant to her future life. This inspired Bill to create a career and life skills education programme that would help pupils see the connection between school studies and adult life beyond school.

Over time, The Real Game became a series of 5 programs for young people aged 8 to 18 years and 1 for adults (Picture 10). Individual programmes have been successfully adapted in the United States, the United Kingdom, France, Australia, New Zealand, the Netherlands, Denmark, Hungary, Germany, and Ireland and are now used in over 50,000 classrooms globally. All the programmes include role-playing scenarios and are designed for group- work in the classroom. They have been very well received by teachers and students, who find them easy-to-use, engaging, informative and effective at increasing pupils' understanding of the world of work and their future roles in it.

The Real Game for 12-14 aged pupils (Picture 11) gives youngsters the opportunity to explore adult realities such as taxes, lining expenses, workplace environments and unexpected emergencies. Students role-play adults in randomly assigned occupational roles and see how schoolwork relates to occupational choices and, therefore, to lifestyle and income. Delving deeper into their roles, students learn how to budget time and money and see the value of a balanced lifestyle, community involvement and lifelong learning. An exciting transition scenario illustrates the importance of adaptability and introduces the concept of transferable skills. By the end of The Real Game, students realize that satisfaction in work is a priority issue in life and that it is an outcome that they can achieve by making the choices that are right for them.[61]

Picture 10: The Real Game series

Picture 11: The Real Game for 12-14 aged pupils

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[61]   Source: https://www.lifework.ca/TRG1.pdf

Project ERASMUS+ C-Game. 2020

Comments

Each of the Real Game games is a complex game designed to be unit by unit taught with target group inside the class. We had no access to the online version to test it and from available information we are not able to distinguish its functionalities.

Possible inspiration

Inspirational on the Real Game is the integrity of the content, which has a given story that allows the teacher or career counsellor to work with the class team, while each game participant has their own role, which is gradually developed and fulfils certain tasks.

3.4.2 Learn English Kids

Country: United Kingdom
Language: EN
Availability: Online, free of charge
Webpages: https://learnenglishkids.britishcouncil.org/word-games/jobs-1

Learn English Kids is a word game intended for younger children to learn English about the titles of jobs (Picture 12). The task is to match the word to the picture.

Picture 12: Three screens of the word game jobs-1

Comments

It a very simple game for small kids.

Possible inspiration

Perhaps it would not be out of place to enrich the C-Game with a similar game intended for smaller children, which would thus attract to the exploration of the city and the profession in it.

3.4.3 Jobs that care

Country: United Kingdom
Language: EN
Availability: Online, free of charge
Webpages: http://www.jobsthatcare.co.uk/

Jobs that care is a quiz for those that would like to be employed in health and social care sector. The game is designed to help increase the number of young people that seek employment in health and social care. Knowledge of Health and Social Care is tested. It is available also as online app.
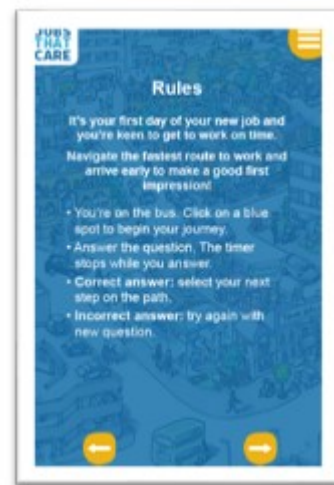
In the introductory screen (Picture 13) it looks like the game is taking place in the city which is not true. It is only a genre image that is not inside the game. The quiz has quite simple rules (Picture 14), questions (Picture 15), game plan (Picture 16), as well as simple ending page (Picture 17).

The rules: It´s your first day of your new job and you are keen to get to work on time. Navigate the fastest route to work and arrive early to make a good first impression? You are on the bus. Click on a blue spot to begin your journey. Answer the question. The timer stops while you answer. Correct answer: select your next step on the path. Incorrect answer: try again with new question.
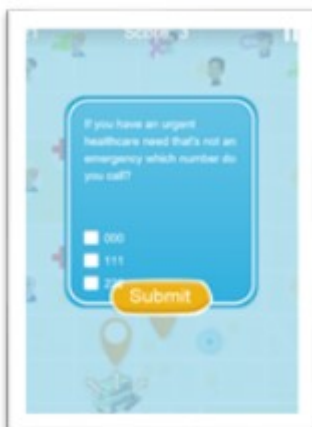
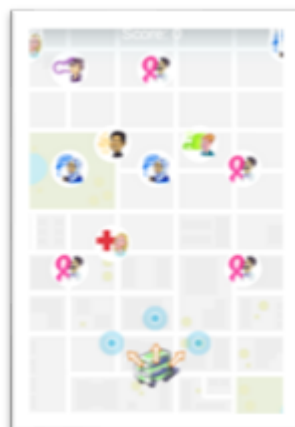**Picture 13: Introductory screen JobsThatCare – the city with health and care**   **Picture 14: JobsThatCare rules**
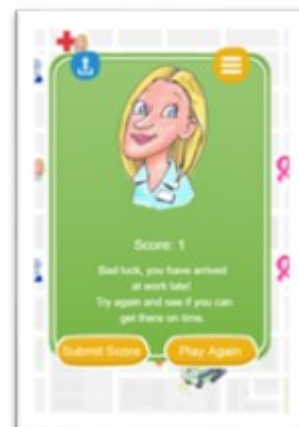

Picture 16: Example of selection of questions

Picture 15: Example of questions   **Picture 17: JobsThatCare last page**

Comments

This is a knowledge quiz from one professional area.

Possible inspiration

This application is inspiring due to its graphic image of the city in the home screen. According to our graphic designer however, it would be very difficult to paint in vectors whole C-Game city with all the necessary buildings, roads, cars, buses, greenery, parks, etc.

Within the C-Game it is also possible to give the user similar task as in "Jobs that care" to imagine that he/she is about to start work on the first day in a new job and to be able to specify the job´s requirements and duties to make a good first impression.

3.4.4 Career Quest

Country: USA
Language: EN
Availability: Online, free of charge
Webpages: http://j.whyville.net/smmk/fortune/outside
                http://j.whyville.net/smmk/fortune/hex

CareerQuest™ is a free Serious Game designed to help students aged 8 to 15 expand their awareness of possible future careers. It enables students to get through career exploration of 555 different occupation within areas ranging from Performing Arts to Medical Technologies. The occupations are divided into 6 career clusters (Picture 18) which are then further subdivided into Career Areas.

There are 26 Career Areas in total. A Career Area consists of occupations that do similar work tasks. For example, actors and fashion models are in the same Career Area because these occupations share similar tasks. When you drill down to an occupation while playing CareerQuest, you'll see that it's grouped together with similar occupations. The 26 Career Areas are organized into 6 Career Clusters, depending on how the Career Area broadly relates to working with data, ideas, people, or things.

Picture 18: CareerQuest introductory screen	Picture 19: Adjust your avatar (guest-7893)

First task is to change appearance of the avatar (Picture 19) and enter to the game. The tasks are given in the box under "Current Quest" (*Picture 20*). First, is assignment of occupation to one of the six Career Clusters:

- Administration and sales
- Arts

- Business operations
- Science and technology
- Social services
- Technical

Picture 20: Current Quest

Picture 21: Selection of the Career Cluster – "cold"

The answer whether the assignment was successful or not is provided by using the terms "cold", "warm", "hot" (Pictures 21 "COLD", 22 "HOT"). Regardless, of the answer's correctness, the user can enter to the Career Area and select an occupation *(Picture 23)* and read its description *(Picture 24)*.
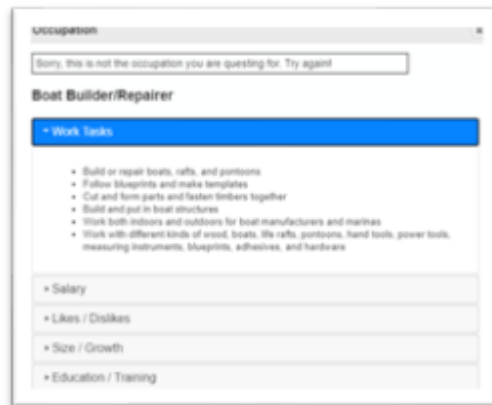
Picture 22: Selection of the Career Cluster – "hot"

Picture 23: List of occupations under Career Area "Construction & Maintenance"

Each of occupations is described in 5 parts
(Picture 24):
- Work tasks
- Salary
- Likes / dislikes
- Size / Growth
- Education / Training

Comments

Career Quest is a serious game that aims to inform users about which professions focus on working with people, data, ideas and things. The user learns to estimate Career Clusters and Career Areas of randomly selected occupations. The game is equipped with a database with descriptions of occupations, average wages, position of occupations in the labour market, etc.

Possible inspiration

Inspiration from the Whyville map (the portal of which the Career Quest is a part) can be drawn for the C-Games' design. In the initial phase, the city could be grey (Picture 25). Gradually, as the pupil builds the buildings and places the relevant professions in them, the buildings will be coloured (Picture 26). In the same way, elements such as roads and greenery could be coloured after reaching a certain goal (Picture 27).

Picture 25: Whyville grey map

Picture 26: Whyville partly coloured map

Picture 27: Whyville fully coloured map

For the C-game purposes, a database of occupations with their description will be created and it would only be a matter of sufficient financial resources for programming to create, in addition to the city, a similar serious game for classifying occupations into Career Clusters and/or Career Areas.

The option to let the player modify player´s avatar (gender, shape and colour of hairs, style and colour of dress, colour of eyes, etc.) could also be considered.

In this game, the match mark of the answer is "COLD" - the answer is wrong, "WARM" - the answer is within reach, "HOT" - the answer is correct.

3.5 Games to plan future based on living costs

3.5.1 Claim your future

Country: USA
Language: EN
Availability: Online, free of charge
Webpages: https://fame.claimyourfuture.com/

The USA game was created by the Finance Authority of Maine. Claim Your Future® is a game that encourages students to explore education after high school, future careers, and money management. It can be played using the handheld game kit, or online. The programme is flexible and can be played with a wide range of audiences from elementary-age students, through middle school, high school and beyond. It can be utilized as a one-time classroom activity, after school activity, or can be used in career guidance.

Through the site, students are able to choose a career and navigate through different spending choices. The game offers:

- 125 unique career options, including descriptions and key vocabulary
- A printable budget worksheet
- Additional financial education resources
- An Educator's Guide, which includes budget worksheets, a detailed lesson plan, and homework activities for students.

Picture 29 shows the page of entrance to the game after a very simple registration and obtaining a code (*picture 28*). First task is to choose an occupation and the system shows average yearly income.

Picture 28: Claim your future entrance screen   **Picture 29: Game code and instructions**

In pictures 30 and 31 are options to choose for housing and food. According to the chosen level, the system calculates the rest of money.

When playing the game in the classroom, pupils are each assigned a unique Claim Your Future game wheel, representing a specific career, college degree and monthly income. Educators are encouraged to discuss various career and college options and lead students through a monthly budget activity.

Through the game, pupils are guided to understand the strong connection between the choices they make today and their opportunities in the future. They also learn that higher education leads to more career options and higher-paying jobs.

Comments

The game offers a very simple tool for gaining basic financial literacy and orientation in the average wages of various professions. The economic model is simple and well developed. The game can be used by both students and adults.
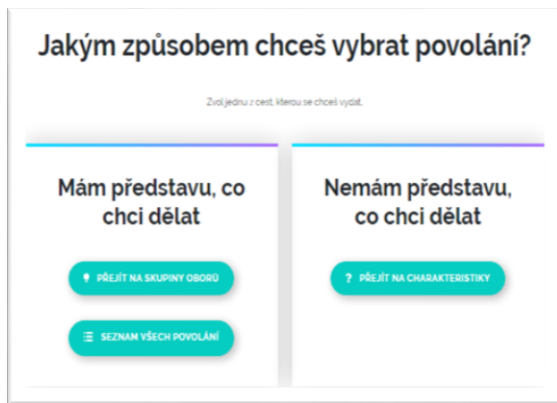
Possible inspiration

Although this game has a different goal than the C-Game, we can draw inspiration from the way its registration is done, the simple economic model, the teachers' guide with detailed lesson plan and the homework activities for pupils.

3.5.2 Můj život po škole – My life after school

Country: Czech Republic
Language: CZ
Availability: Online, free of charge
Webpages: https://www.mujzivotposkole.cz/

The Czech My life after the school (Můj život po škole) took inspiration from USA game Claim your future. The game begins with player´s decision of ways to choose an occupation. The first two options are for those that have an idea on what job they would like to do in the future. The third, is for those who have not decided yet (Picture 32) and have to choose 5 of 26 job characteristics that appeal most to them (Picture 33).

The system recommends several occupations (Picture 35) resulting from matching the choice of job characteristics with occupations´ description. For those already who have already decided, groups of occupations are presented (Picture 34). After selection of one group the list of occupations shows in the same form (Picture 34). Infographics are available for the selected profession (Picture 36).

Picture 34: How do you like to choose your occupation?
Picture 35: Which is your dream job?   Picture 36: Selected occupation infographics

User can choose one of the 176 occupations and then selects level of life costs, like accommodation (with parents, alone, sharing room), travel, food, clothes etc. In the system there are average salaries and it calculates monthly spending and informs the user how much his/her costs of life are covered by the salary.

Comments

The game is based on the Claim your future, game. However, it includes the option of choosing a profession before entering the game.

Possible inspiration

Possible inspiration can be drawn by the use of infographics for the selected profession. However, we have limitations in the databases for its elaboration, because we do not have data on the labour market and average wages, which form the basis of infographics.

We will use the game list of occupations (ANNEX 4) for checking the complexity of our future occupational database.

3.5.3 JA Plan your future

Country: USA
Language: EN
Availability: Online, free of charge
Webpages: http://educgames.ja.org/economics/

Junior Achievement Plan your future, offers two modes of play – quick and regular (Picture 34). The second one offers first an easy self-assessment of interest and then the option to choose a personalized avatar. Its introduction includes a challenge: *"Now that we know who you are, it´s time for you to become who you want to be. Your first decision is whether to stay in school, or drop out and start working right away."*

Picture 37: Plan your future first screen   **Picture 38: Interest self-assessment**

The self-assessment (Picture 35) includes 25 interests (ANNEX 3) distinguished by colour into 4 groups: people (green), things (red), ideas (yellow), data (blue), and some of the interest are two-coloured. These groups are not evenly represented. The largest group is things (11,5), followed by ideas (7,5), people (5), and the smallest group is data (1). The task is to move 7 interests to the picture of the "head" (Picture 38).

The first task is to consider two options – Find a Job or get High School Diploma (Picture 36). The game presupposes that the player is 14 years old. When deciding for education, a week schedule opens where the player has to consider time for studying, leisure, internship and part-time job (Picture 37). After a while the player is 3 years older (18 years) and if he/she was employed has also some money. The player has again to consider finding a job or continuing learning.

Picture 39: It is time to think about future

Picture 40: Virtual High School Schedule

When choosing learning, after a while the player is 20 years old and the story continues. If choosing a job, a budget appears with all living costs and income (Picture 41). Further the player has to choose level of housing (Picture 42), a car, and insurance. Then it is possible to click on several buildings in the city picture that offer jobs, goods, and entertainment.

Picture 41: Chose your level of housing

Picture 42: Choose your level of food

Comments

After playing several times and selecting another set of interests into the self-assessment tool, almost the same jobs are offered. Likewise, almost the same jobs are offered after the studies regardless of completed education. The city is too small and does not offer variety of jobs. The economic model on which the game is based, seems very simple.

Possible inspiration

Self-assessment is done very simply in this game, by moving the symbols of the "brains", which bear the names of different interests (ANNEX 3). Self-assessment is actually a mini-game of which the design is playful and fun. The division of interests into 4 groups is inspiring, but the possibility of dividing them into 6 groups according to RIASEC is also an option. In both cases, it is necessary to consider the number of interests in total, as well as in each group so that the offer for decision-

52

making is balanced. For the same reason, it is appropriate to consider the interests´ number selected, because to conclude interest predominance from 7 interests seems not very convincing.

3.5.4 JA Build your future

Country: USA
Language: EN
Availability: Online, free of charge
Webpages: https://www.juniorachievement.org/s3/apps/ja-byf/#/career
                  https://play.google.com/store/apps/details?id=com.noggin.byf&hl=en

Junior Achievement Build Your Future™ allows teens to explore more than 142 careers; see what levels of education are required for each of occupations - from no education to a doctorate; learn about potential income; and then calculate the cost of education, including factoring the cost of attending in-state, out-of-state public universities and private universities. Teens can then adjust the level of money they and their parents will contribute, combined with student loans they may need to secure. At the end of the exercise, they are given a Return on Investment (ROI) score between 1 and 5. A score of 1 means it will be difficult to pay off the debt accrued based on future income; 5 means they should have no problem paying off debt with estimated future income.

There are 5 tables: Career Choice (Picture 44), Education (Picture 45), Payment (Picture 46), Calculator (Picture 47), and Return of investment (Picture 48). Career Choice offers selection of 142 occupations with a photo, short description of working activity, education requirement, median salary, projected growth (2010-202), and related careers.

Picture 43: Build your future Introductory page   **Picture 44: Career Choice**

Next step is to fill in the Education (Picture 45) which leads to third step Payment (Picture 46).

Filling in payment options (Picture 46) lead to ROI – Return on investment (Picture 48)

Picture 47: Calculator   **Picture 48: Evaluate return on investments**

Comments

When working with schoolchildren, it is advisable to pay also attention to average salaries when choosing a profession in relation to the costs of living. Nevertheless, it should not be the only measure in career choice. All 4 games should be taken only as information and to some extent fun not the only tool and way how to make a good career choice.
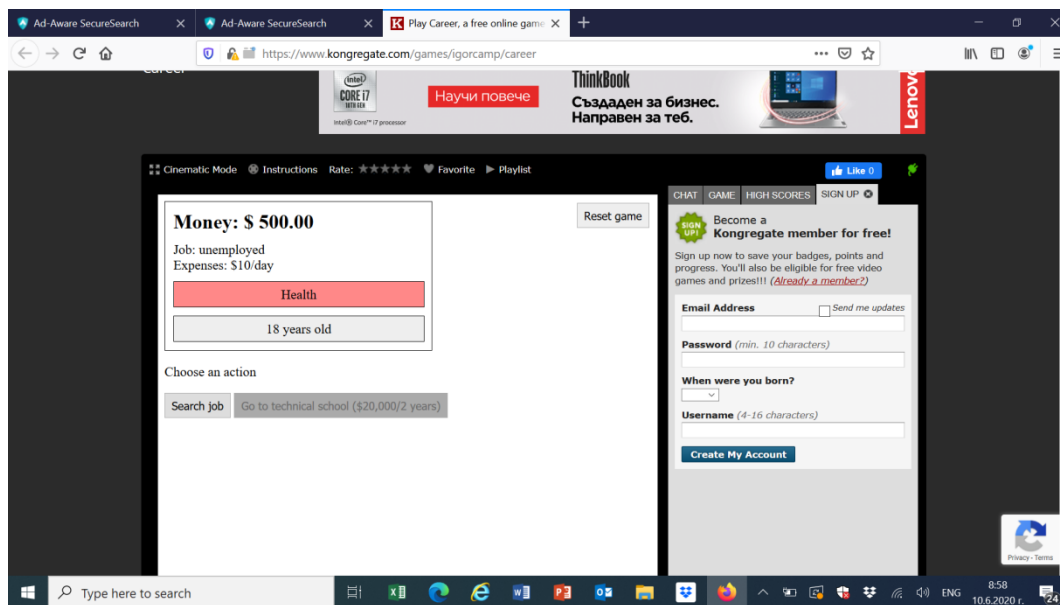
Possible inspiration

It would also be appropriate to incorporate the average occupational salaries into C-Game, but this is not feasible. The main reasons are that the project did not take this into account, the data are probable not available for all partner countries in the same format, the data on average salaries need to be updated at least once a year, etc.

3.5.5 Career by Kongregate

Country: USA
Language: EN
Availability: Online, free of charge
Webpages: https://www.kongregate.com/games/igorcamp/career

Kongregate Inc. created a game (not finished) where a realistic life scenario is created (Picture 49). The player (user) starts with a wallet with 500$ and day expenses. According to the educational level different job position are offered with realistic to the American market salaries. There are upgrade education options which open new job positions with higher salaries.

Picture 49: Introductory screen of the game

Comments

When working with schoolchildren, it is advisable to pay also attention to average salaries when choosing a profession in relation to the costs of living which are different in partner countries. Nevertheless, it is should not be the only measure in career choice. All games should be taken only as information and to some extent fun not the only tool and way how to make a good career choice.

Possible inspiration

It would also be appropriate to incorporate the average occupational salaries into C-Game, but this is not feasible. The main reasons are that the project did not take this into account, the data are probable not available for all partner countries in the same format, the data on average salaries need to be updated at least once a year, etc.

3.6 Game-like self-assessment

3.6.1 Berufe Universum – Universe of occupations

Country: Germany, German Labour Office
Language: DE
Availability: Online, free of charge
Webpages: http://portal.berufe-universum.de/

The game Berufe Universum is intended for students in the final years of primary school. As its name suggests, the environment of the game is a universe in which there are almost 500 planets and it is possible to get a job on each of them. On this trip, pupils will learn:

- which occupational fields and occupations suit their interests (self-assessment test),
- for which professions they are particularly suitable,
- in which professions they can land well.

Although the game seems to be dynamic with some kind of traveling throughout the universe, it is built on texts which presentation is static. The game is said to last at least 30 minutes. Pupils can print individual texts.

The BERUFE-Universum is a self-service programme that is performed anonymously. Students are asked to insert their credentials (Picture 50) to enter the game which allows them to save their results and continue later. Identification of individual users and thus the assignment of stored data is not possible. However, this means that if the user has forgotten their login name or password, these cannot be reset by the system. In this case, it is necessary to go through the programme again from the beginning. After anonymous registration and the welcome page (Picture 51) follows self-assessment test of professional interests (Picture 52) which leads to selection of occupations (Picture 53).

Picture 50: Registration form
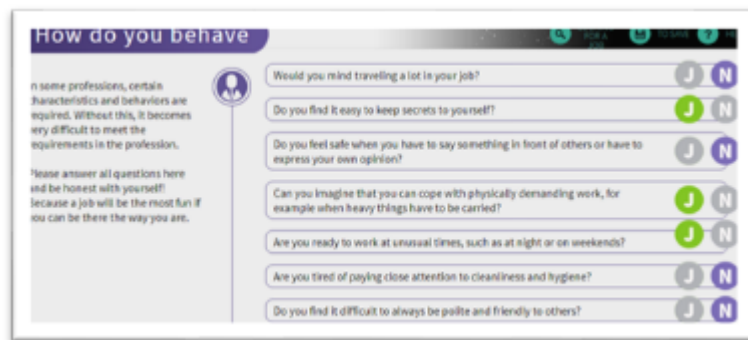
Picture 51: Game welcome page

A self-assessment test of strengths (Picture 54) follows. In the next step, there are several questions on behaviour related to job conditions (Picture 55).

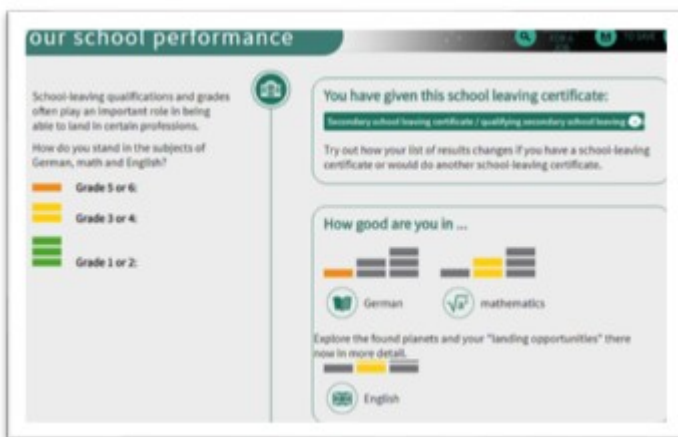Picture 54: Self-assessment of strengths   Picture 55: How do you behave

The next step is marking 3 school subjects (Picture 56) and then the overall results shows (Picture 57). It has a shape of universe part with several planets that represent individual occupations. The closer a planet is to the centre the better the occupation fits users' strengths.

Picture 56: School performance   Picture 57: Final report

Information on age, gender, class level and social status is used exclusively for statistical purposes and the formation of standard groups within the "control group". Students are free to choose their

credentials (login and password) to save their results and continue later. Identification of individual users and thus the assignment of stored data is not possible. However, this means that if the user does not know their login name or has forgotten their password, their login details cannot be reset by the system. In this case, it is necessary to go through the programme again from the beginning.

If the programme is run at school and the results are required to be printed, first name is required, which is printed on a PDF document. The result lists are therefore "personalized", and user anonymity is respected (surname is not required).

Comments

The game is handled very professionally and has good results in public employment services.

Possible inspiration

We can draw inspiration from the creative way of self-assessment and the anonymous registration.

3.6.2 KomposyT: Semafor – Traffic lights

Country: Slovakia
Language: SK, HU, Romany
Availability: Online, free of charge
Webpages: https://www.komposyt.sk/pre-ziakov/poradenske-hry/semafor/index.php?tlang=sk&size=big&age=16&gender=f&okres=9&skola=2&year=1&odbor=&intro=hidden

Traffic lights is an online questionnaire using three traffic light colours to provide answers (Picture 58):

- Green - you agree with the statement, this activity is very important for you and you prefer it
- Orange - This activity is moderately important to you
- Red - you disagree, this activity has no meaning for you

After a simple registration process (Picture 58), users are presented one by one 38 questions aimed to find out what type of career suits them, personality type, work values and what occupations are most suitable for the user type. The questionnaire does not have correct and incorrect answers. There is a statement that the questionnaire is anonymous, the data are processed exclusively for research purposes of the Research Institute of Child Psychology and Pathopsychology in Bratislava.

Picture 58: SEMAFOR – registration screen   **Picture 59: SEMAFOR – example of self-assessment question**

It is not a game but a self-assessment questionnaire.

Inspirational is the use of the traffic lights (Picture 59) for providing answers to the system.

3.6.3 Profitest infoabsolvent

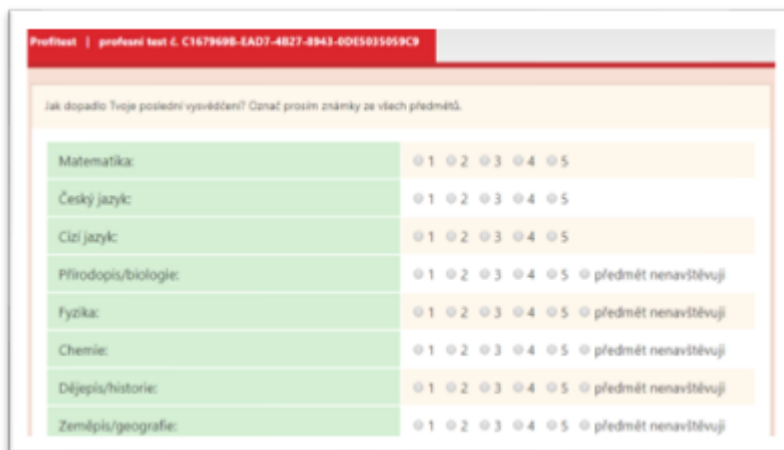Country: Czech Republic
Language: CZ
Availability: Online, free of charge
Webpages: https://www.infoabsolvent.cz/Profitest

Profitest, is a test created for the population of pupils attending currently eighth and ninth grade of elementary schools. It is designed to help with career orientation.

It is a lengthy test with several parts:

- Completion of marks from 8 subjects (mathematics, mother tongue, foreign language, natural history, physics, chemistry, history, geography) *(Picture 60)*
- Test for memorizing the positions of digits in the table 8x8 *(Picture 61)*
- Test for completing number series
- Aptitude test
- Interest test

Picture 60: First user´s task to mark their school evaluation from several educational subjects

Picture 61: Second task is to remember position of numbers and to mark them on the second screen

Comments

It is not a game but a set of self-assessment psychometric tests leading to career orientation.

Possible inspiration

A platform can be built that will provide career guidance psychometric tests to school children. This way, it will be easier to identify and guide pupils to more suitable occupations.

3.6.4 Career aptitude test

Country: Netherlands
Language: NL, EN, DE, FR, ES
Availability: Online, free of charge
Webpages: https://www.123test.com/career-test/

Career aptitude test is self-assessment focused on job personality. It is based on Holland's RIASEC codes and results to learning what kind of work environments and occupations suit the user best including a list of occupations that fit their career personality.

Career aptitude test, takes five to ten minutes to complete. The test consists of 15 sets of 4 pictures that show specific work activities (Picture 62). The user task is to choose only one work activity that appeals most to them (the user can imagine him/herself performing this occupation), and one that does not appeal to him/her at all (no way he/she would do such work).

Instructions say:

> *Do not choose a work activity based on the status or money associated with it. Do not make your choice based on gender or race. Just imagine yourself performing the task shown and decide if you would like to do it or not.*
>
> *If you like doing the activity, click the* ✔ *on the picture. If you do not like doing the activity, click the* ✖ *on the picture. You must choose a like and dislike for each set.*

Picture 62: Example of 3 sets consisting of 4 pictures

Comments

Career aptitude test is not a game, nevertheless, because of the use of pictures, it looks more interesting and fun compared to other tests based on texts.

Possible inspiration

Processing of Career aptitude test can be inspiring for the development of C-Game. The test is based on RIASEC, is short using 90 images of occupations. This kind of self-assessment is for pupils aged 12-14 much more favourable than any text based self-assessment.

3.7 Strategic and development games

3.7.1 SimCity

Country: USA
Language: EN, CZ, DK, DE, ES, FI, FR, IT, JP, KR, NO, PL, PT, RU, SE, TW
Availability: Online, charged
Webpages: https://www.ea.com/cs-cz/games/simcity

SimCity is one of the very popular strategy games developing virtual cities – city building simulation video game (Picture 63). It gives users options to make decisions within a relatively simple economic model combined with an urban simulation model. Most players do not realize that SimCity is just about the economics of things, and instead, focus on "just" beautifying their city.[62]

The game is still under development and there is more than one version. The series includes six main games (SimCity, SimCity 2000, SimCity 3000, SimCity 4, SimCity Societies and SimCity) and three spin-offs, Sim City: The Card Game, SimCopter and Streets of SimCity.[63] The influence of SimCity on the further development of building strategy games and economic simulations is relatively large, as it turned out that it is possible to create a very commercially successful game in which there is no war.[64]

Players have four elements which they can use: buildings built automatically by people living in the city, buildings with a certain fixed meaning built by the player himself, infrastructure and finally decorative elements such as a park. In order to develop the city successfully, it is first necessary to create plots and determine which types of buildings it is intended for. The plots are intended for three types of buildings (Picture 64): residential buildings, commercial buildings (shops, banks…), and various types of factories.[65]

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[62]   TIŠNOVSKÝ, P. Historie vývoje počítačových her. 67. Část – budovatelské strategické hry SimCity a Moongave. Available at: https://www.root.cz/clanky/historie-vyvoje-pocitacovych-her-67-cast-budovatelske-strategicke-hry-simcity-a-moonbase/

[63]   Wikipedia, Maxis. Available at: https://en.wikipedia.org/wiki/Maxis#SimCity_series

[64]   TIŠNOVSKÝ, P. Historie vývoje počítačových her. 67. Část – budovatelské strategické hry SimCity a Moongave. Available at: https://www.root.cz/clanky/historie-vyvoje-pocitacovych-her-67-cast-budovatelske-strategicke-hry-simcity-a-moonbase/

[65]   ibid

Picture 63: SimCity screen shot[66]   Picture 64: SiMCity 3 types of plots[67]

It only depends on the player how the individual plots are distributed on the surface of the simulated world, but it is necessary to keep in mind that the different types of buildings interact. This means, for example, that commercial buildings and factories attract new immigrants and if these plots are close to residential buildings, transport to work is simplified. However, on the other hand, factories generate pollution, so that the residential buildings around the factories practically never develop into villas, but rather in the grey periphery. In a city where the individual plots are close to one another, there will be frequent traffic collapses, but the densely built-up city has the advantage that one police or fire station will be able to guard a larger number of buildings. Finding a balance leading to the sustainable development of the city may not always be easy.[68]

Comments

In SimCity the idea is that practically everything is related to everything. Residents do not want to live next to a landfill. On the contrary, the price of land will rise if you build for example, a park or a hospital in the neighbourhood. If there is a shortage of schools the crime increases. The variability in the selection of buildings is fun and gives the city the opportunity to specialize, for example in industry or tourism. The game is dynamic. If one problem is solved in the city, another will appear.

Possible inspiration

Certainly, inspiration can be drawn from many of the SimCity principles. For example, the role of increasing the city's population through job opportunities, monitoring indicators of health, cleanliness, safety, energy, ecology, industry or general amenities. It is also inspiring that there are advisors for individual areas. In case of any problem, it is possible to use their services and only then decide how to solve the problem.

3.7.2 Venture Towns

Country: USA
Language: EN, JA, KR, CH
Availability: Online, charged

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[66]   NEWMAN, H. SimCity BuildIt ha become teh most played SimCity eve, ESA Mobile claims. Available at: https://venturebeat.com/2015/06/06/simcity-buildit-has-become-the-most-played-simcity-ever/

[67]   MANAGER, J. SimCity 2013 needs a lot of Improvements by DIRTCOLINS. Available at: http://worldsims.org/files/2012/10/simcity-strategy1-05641.png

[68]   TIŠNOVSKÝ, P. Historie vývoje počítačových her. 67. Část – budovatelské strategické hry SimCity a Moongave. Available at: https://www.root.cz/clanky/historie-vyvoje-pocitacovych-her-67-cast-budovatelske-strategicke-hry-simcity-a-moonbase/

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Webpages: https://www.nintendo.com/games/detail/venture-towns-switch/,
                 https://play.google.com/store/apps/details?id=net.kairosoft.android.zaibatu3&hl=cs

Venture Towns is a SimCity-style building strategy (Pictures 65, 66) with the difference that the inhabitants of the city gain experience depending on what services are provided in the city, etc. So if one wants educated residents who can work for a law firm, they will not be able to make profits to invest not only in the construction of entertainment establishments, but also in educational institutions and the improvement of the city itself.

Picture 65: Venture Towns – screen example [69]   Picture 66: Venture Towns – screen example[70]

Comments

See SimCity.

Possible inspiration

See SimCity.

3.8   Other online career guidance activities

3.8.1 Balance Careers
Country: USA
Language: EN
Availability: Online, free of charge, public
Webpages: https://www.thebalancecareers.com/career-paths-4161858

The Balance Careers is a career guidance platform for all who are searching for a new job, or are interested in advancing at their current labour market position, or want to explore new paths.

Comments

The Balance Careers is not a game but we find there, the following inspiration for presentation of occupation´s description.

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[69]   (Tip na hru) Venture Towns je budovatelská strategie ve stylu SimCity. Available at:
        http://www.androidtip.cz/tip-hru-venture-towns-je-budovatelska-strategie-ve-stylu-simcity/
[70]   Svět aplikací. Available at: https://svetaplikaci.tyden.cz/venture-towns/

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Possible inspiration

Inspirational can be the way of presenting individual or group of occupations in an attractive form for pupils aged 12-14 (Pictures 67-68).

Picture 67: One day in the life of an animator

Picture 68: One day in the life of a hospitalist

3.8.2 Job Labyrinth

Country: Italy
Language: IT, EN, SK, ES, HU
Availability: Online, free of charge
Webpages: http://joblab.cnos-fap.it/

Job Labyrinth is a video game aimed to foster inclusive education, training and youth employability in Europe through an enhanced access to training and to more efficient and integrated guidance, public and private employment services particularly by disadvantaged youth. The game was created within the ERASMUS+ project.

The game starts with choosing the avatar *(Picture 69).* The figure is controlled with the keyboard arrows for walking and running. Game introduction is on an information table *(Picture 70)*, game guidelines are missing. You then lead the avatar to walk through the nature, enter the cellar, avoid dangerous places, read information board, etc.

Picture 69: First task: Choose your avatar

Picture 70: Game introduction
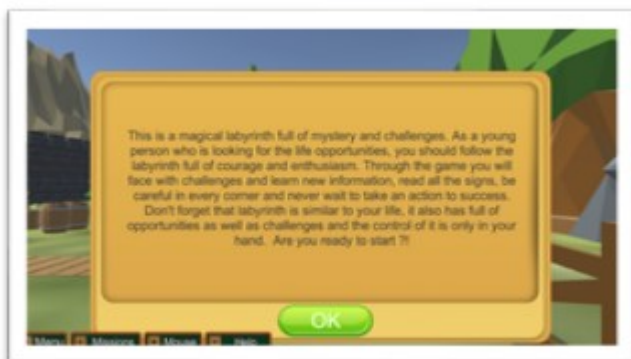
Main activities are held in a cellar *(its map is on Picture 71).* One of them gives the task of watching video on European youth policies *(Picture 72).* The tasks focused on policies do not seem very fun to do.
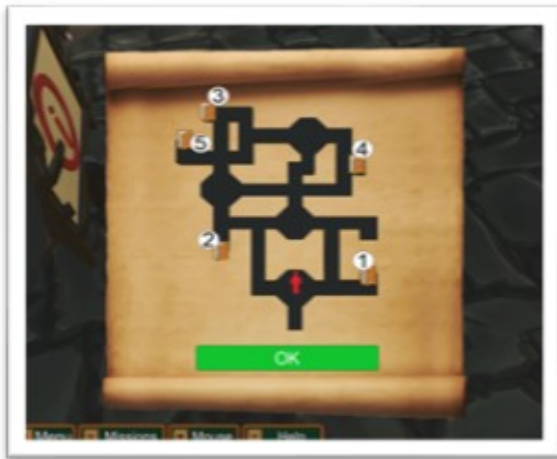
Comments

It requires upload of the game base to individual PC. Transitions between individual scenes take time.

Possible inspiration

A town with different kinds of buildings which will represent different occupations can be made in C-Game. For example, a building that will represent the hospital etc. The goal of the player will be to unlock every building and answer questions about the occupations that will provide.

3.9 Conclusions

We spent hours and hours by searching on internet career guidance games driven by idea to find all from which we can take inspi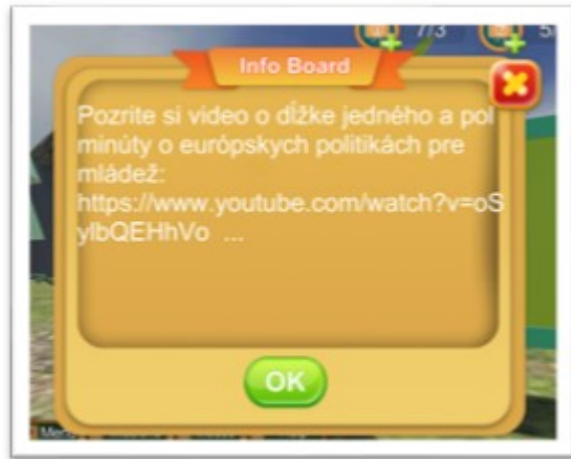ration for the sake of the development of the C-Game. The result of our desk research is the conclusion that there are not many online serious career guidance games and activities related to career guidance that can be seriously used in career guidance.

Nevertheless, multiple inspiration can be drawn from existing online games and similar activities that have been studied. In the next stage of the project, the inspiration received will be evaluated with respect to the intended results and the target group, in order to make the design of an original and fun C-Game for our target group feasible.

The following list, is a selection of good practices, creative approaches, and inspiring examples sorted thematically which have been taken from the online career guidance games and with career guidance related activities. This list will be further discussed with the project partnership, the game designer as well as the game programmer to decide on which of its elements will be utilized for C-Game and how. Afterwards, it is intended be presented also to our target group of pupils aged 12-14.

3.9.1 List of inspiring examples

Registration

In selected web applications there are 2 examples how it is possible to make user- friendly and GDPR-corresponding anonymous registration (Berufe Universum, Claim your future)

Virtual game guide

Virtual game guide who accompanies the player, gives advice or instructions can take the shape of:

- An advisor (SimCity)
- A job ambassador
- An animal (Paws in Jobland)

Virtual game guide scope:

- Each of career clusters (SimCity)
- Selected career clusters like creative or green career clusters (Career Locker)
- Whole game (Paws in Jobland)

Avatar representing user

Avatar (picture of a person which represents the player) design options:

- Any
- Possibly modified by the player (gender, shape and colour of hairs, style and colour of dress, colour of eyes, etc.) (Career Quest, Job Labyrinth)

Avatar position:

- Moves in the centre of the game (Job Labyrinth)
- Fixed in a position on the most game screens (Career Locker)

Game instructions

Game instructions are very important to understand the game and the game model as such, the principles and principles of the game. They should be communicated to the player in a simple form at the beginning of the game and before each step that further specifies these rules. (Claim your future)

Game principles

Game principles can be based on:

- Built-in scenario indicating the way of play (Excluding Mapa Karier all the mentioned web applications)
- Free use model (Mapa Karier)

Game principles can be:

- Simple working with only few variables, i.e. personal & occupation characteristics & RIASEC types (Mapa Karier, Berufe Universum)
- Complicated working with several variables (Career Locker, The Real Game, Claim your future, My life after school, JA Plan your future, JA Build your future, etc.)

- Complex using economic model involving of the role of increasing the city's population through job opportunities, monitoring indicators of health, cleanliness, safety, energy, ecology, industry or general amenities, etc. (SimCity, Venture Towns)

Examples of possible basics of the game:

- Unlocking the buildings by answer questions about the occupations that are located inside the given building (Job Labyrinth)
- Imagine to be in the position of the City Mayor which task is to maintain and completely manage and operate the city in a complex of services, industry, education, social, health, communal and other services (SimCity)
- Imagine the first day in new job and to be able to specify job´s requirements and duties to make a good first impression (Jobs that care)

City design

Position of the city in the map can be:

- Fixed – position of each of the building has its pre-determined plot, the same is valid for communications, parks, greenery, etc. The player cannot move with anything (Mapa Karier)
- Optional – the player can place everything elsewhere (SimCity)
- Mixed – some of the city requisites can be fixed (lake, river, see) and the rest optional

Distinguishing the game level by colours

- Non changeable colours (Mapa Karier)
- Change of colour (Career Quest):
    o grey if any of the building is not built
    o coloured buildings that are built or occupied by the proper occupations
    o whole city coloured in the final stage of the game

Game design can be:

- 2D (Mapa Karier)
- 3D (Job Labyrinth)

Interest self-assessment

Most of the web applications explored contain some sort of interest self-assessment of which the content and presentation, differ. Most self-assessments are based on Holland´s RIASEC occupations (Profitest infoabsolvent, Career aptitude test, Plan your future). As source for comparison can be used the List of interests from JA Plan your future (ANNEX 3).

Information about occupations

Ways of presenting information about occupations:

- Avatar bearing the specific features of the given occupation in the style of clothing, its colour, headgear, tools in hands, etc. with possibility to choose avatar´s gender (Mapa Karier)

- Infographics in style "One day in the life of an <occupation>" (Balance Careers) or a poster (My life after school)

The occupational databases can be used as source of data:

- Occupational database (ANNEX 4) (My life after school)
- List of occupations and buildings (ANNEX 2) (Mapa Karier)

The data in the occupational databases are divided into several professional groups according to certain keys (Career Locker, My life after school, Career Map). These clusters thus contain occupations that have certain characteristics similar.

Correctness of answer

Ways of indicating correctness of answer can be:

- Like in kids game hot & cold: "COLD" - the answer is wrong, "WARM" - the answer is close, "HOT" - the answer is correct (Career Quest)
- In Traffic lights – "RED" - the answer is wrong, "ORANGE" - the answer is close, "GREEN" - the answer is correct (KomposyT: Traffic lights)

ePortfolio

ePortfolio is a useful tool in which the pupils can save information of their skills, interests and values, activities and favourite subjects. ePortfolio can be under certain conditions shared with the school guidance counsellor or teacher (Career Locker). Websites that offer this type of service must properly comply with the GDPR because they include personal information.

Teacher´s guide

Teacher's Guide has several functions (Claim your future):

- It is essential to acquaint the teacher with the game, include instructions for working with the class team, a detailed schedule of individual lessons or homework for students.
- An equally important function of the handbook is its marketing role. It should be publicly accessible, shared and promoted among teachers.

Activity for users up to the age of 12

A suitable form for the preparation of a younger age group than our target can be the enrichment of the C-Game with a simple game like Learn English Kids, which can attract small children to explore the city, buildings and professions that reside in them (Learn English Kids), and maybe also to learn languages.

Chapter 04: National frameworks of occupation, skills and competencies in the Czech Republic, Slovakia, Greece, and Bulgaria

4.1 Czech Republic

4.1.1 National Register of Qualifications
http://www.narodnikvalifikace.cz/

The National Qualifications Framework (Národní soustava kvalifikací, NSK) is an open public directory containing specifications of all professional qualifications recognized within the territory of the Czech Republic. It doesn't only contain the list of full qualifications, i.e. the qualifications obtained as a result of formal school education, but also partial qualifications which make up only part of a certain profession. The National Register of Qualification serves those who obtained their professional skills in addition to their originally acquired education but have no documentation for it. Single professions are described in the form of standards which allow the examination and a certificate to be issued. The comparison of foreign and local qualification is thus made easier. Standards of the National Register of Qualification were developed in accordance to the National Register of Occupation.

The basis of the system is the creation of professional qualifications that have a direct link to occupations applicable in the labour market. NSK has a practical application in the verification and recognition of gained professional qualifications, which results in passing an exam and obtaining a nationally recognized certificate.

Number of qualifications: 1.337 (12.2.2020)

Figure 7: Overview of the Czech National Qualifications Framework

Field of qualification	Number
Transport and communications	64
Ecology and environmental protection	15
Economy	11
Economics and administration	8
Electrical engineering, telecommunication and computer technology	71
Gastronomy, hotel and tourism	38
Mining and mining geology, metallurgy and foundry	83
Informatics courses	7
Leather and shoemaking production and processing of plastics	46
Store	50
Fields of history	1
Personal and operational services	53
Pedagogy, teacher training and social care	15
Printing, paper, film and photo processing	42
Food and food chemistry	96
Law, legal and public administration activities	12
Journalism, librarianship and informatics	21
Special and interdisciplinary fields	9
Construction, geodesy and cartography	159
Engineering and engineering production	119
Technical chemistry and chemistry of silicates	105
Physical culture, physical education and sport	17
Textile production and clothing	54

Art and applied art	44
Veterinary and veterinary prevention	1
Agriculture and forestry	132
Manufacture of wood and musical instruments	64
Total	1337

4.1.2 National System of Occupations

https://www.nsp.cz/

The National System of Occupation (Národní soustava povolání, NSP) is an online catalogue of occupations', descriptions, skills and competencies that are practiced in the Czech Republic. Each occupation is defined by a list of activities that make up the content of the occupation, the competences necessary for its performance. It serves as an up-to-date, effective and flexible system for mapping labour market needs and serves as a practical and comprehensive source of information on employers' requirements for individual occupations. The NSP is administered by the MLSA, which "ensures the creation and, in accordance with the development of the labour market, the updating, and publishing in electronic form in a manner enabling remote access.

The reason for the establishment of the National System of Occupations was to create an important instrument of state employment policy in the field of labour and social affairs, which supports the mapping of labour market needs, serves for effective human resources development and deepens the link between the world of work and vocational education. It helps to solve questions in the area of choosing a study, profession, preparation for a profession, in deciding on changes in qualifications, changes in career paths and in finding a new job.

The occupations are described by:

- Work activities
- Examples of private sector work
- Qualification to practice – formal education
- Competency requirements for the performance of the profession (professional skills, professional knowledge, general skills, soft skills
- Burdens and risks of the occupation
- Medical fitness to practice
- CZ – ISCO and wages
- Job vacancies

Number of occupations: 2.461 (12.2.2020)

4.1.3 National version of ISCO

https://www.czso.cz/csu/czso/klasifikace_zamestnani_-cz_isco-

The CZ-ISCO National Classification of Occupations was introduced by the Czech Statistical Authority in 2011 for the purpose of monitoring individual groups (types) of occupations in the Czech Republic and the possibility of their international comparison. The CZ-ISCO National Classification of Occupations was created strictly on the basis of the international standard ISCO-08. It copies the ISCO-08 international classification job codes to the 4-digit job code level. At the level of the 5-digit code, it was expanded according to the needs of the Czech labour market.

4.1.4 Comments (positives and negatives of usability)

Positives of usability of information for C-Game development

- Information of both registers should be useful for adapting the C-Game to Czech language.
- The Czech ISCO is available in xls format with 5 digit codes and it is usable for the Czech version.

Negatives of usability of information for C-Game development

- The Czech national registers (NSK, NSP) do not offer possibility to download their database.
- The occupations in NSP have the ISCO code but to reach individual codes it is needed to do several steps.
- The occupations in NSP are not equipped with RIASEC codes.

4.2 Slovakia

4.2.1 National Register of Qualifications
https://www.kvalifikacie.sk/

The National Qualification Framework – Národná sústava kvalifikácií (NSK) is a publicly accessible register that contains descriptions of qualifications differentiated and verified in Slovakia. Its aim is to create a unified and transparent system based on the premise that we can acquire the skills, knowledge and competences needed to obtain a qualification through different paths of education and learning.

The National Qualifications Framework unifies the requirements for individual qualifications and describes the various ways of obtaining them. It is creating a single, clear and transparent system of recognition of qualifications, from which it can benefit individuals, employers, and educational institutions in designing their training programs. The main barer of the National Qualifications Framework are qualifications cards, in which the public will find qualification and assessment standards. This includes the Slovak Qualifications Framework (Slovenský kvalifikačný rámec, SKKR), which is a tool that assigns a certain level to individual qualifications from the National Qualifications Framework on the basis of predetermined criteria. The qualifications framework consists of descriptors expressed in three categories - knowledge, skills and competences, which are unique within each level. These are actually the performances that the individual has to demonstrate when verifying and recognizing the qualification at a given level of SKKR. Thanks to the connection of the National Qualifications Framework to the Slovak Qualifications Framework and the European Qualifications Framework, qualifications are more understandable in other European Union countries as well.

Number of qualifications: 1000

4.2.2 National System of Occupations
https://www.sustavapovolani.sk

The National System of Occupations - Národná sústava povolaní (NSP) is defined by Act no. 5/2004 Coll. on employment services as a nationwide, unified information system describing the standard demands of the labour market for individual jobs. The NSP determines the requirements for professional skills and practical experience required to perform work activities in the labour market. Its centre is the Employment Register made up of national employment standards, which describe employers' requirements for qualified employment.

The individual employment cards contain, in addition to the description of the profession itself, the required level of education, NKR, EKR, ISCED, necessary professional experience, ISCO-08, SK ISCO-08, SK NACE, also the required competencies for the profession (general competences, professional knowledge, professional skills) and other possible education in the profession (certificates and written certificates required for the exercise of the profession).

Number of occupations: 1606

Picture 74: Example of occupational description "Chef" in the Slovak National System of Occupations

Information from both registers should be useful for adapting the C-Game to Slovak language. The National System of Occupations also contains illustrations of some professions that could also be used in C-Game. Databases can´t be downloaded and the occupations are not equipped with RIASEC codes.

4.2.3 National version of ISCO

https://slovak.statistics.sk/wps/portal/ext/metadata/

SK ISCO-08 represents the Slovak national classification of occupations based on the international classification ISCO-08 of the International Labour Organization (ILO). The last, so far used version of the ISCO-88 was implemented into the national environment under the name Job Classification, version 2001 (KZAM). KZAM defines jobs and their groups on the basis of the most common combinations of work tasks and responsibilities.

4.2.4 Comments (positives and negatives of usability)

Positives of usability of information for C-Game development

- Information of both registers should be useful for adapting the C-Game to Slovak language.
- The Slovak ISCO is available in cvs format with 5- digit codes and it is usable for the Slovak version.

Negatives of usability of information for C-Game development

- The Slovak national registers (NSK, NSP) do not offer possibility to download their database.
- The occupations in NSP have the ISCO code but to reach individual codes it is needed to do several steps.
- The occupations in NSP are not equipped with RIASEC codes.

4.3 Greece

4.3.1 National Qualifications Framework

Εθνικό Πλαίσιο Προσόντων - Hellenic Qualifications Framework (HQF)

https://nqf.gov.gr/en/index.php/ethniko-plaisio-prosonton

The Hellenic Qualifications Framework (HQF) is a single tool or a mechanism, which facilitates transparency and comparability of qualifications in the Greek context. It will be a benefit for students, graduates and stakeholders of the Greek labour market. On the other hand, in accordance with the common European strategy "Europe 2020", which aims at smart, sustainable and inclusive growth the Hellenic Qualifications Framework and its referencing to the European Qualifications Framework provides a tool for "translating" and comparing qualifications and aims at becoming an opportunity to help promote the mobility of learners and employees.

Picture 75: Introductory web page of the Hellenic Qualifications Framework
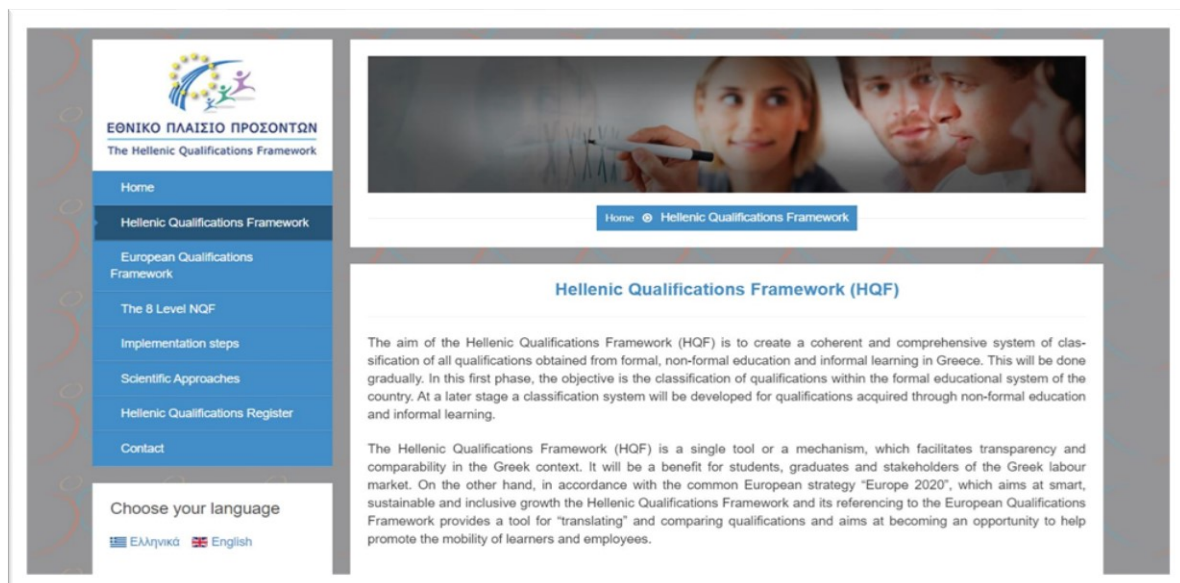
The structure of the National Qualifications Framework

The eight-level structure reflects the existing formal education and initial vocational training system in Greece. Levels are defined in terms of knowledge, skills and competencies. Work on level descriptors for HQF and on a qualifications framework for higher education has taken place separately, but the final objective is to have a comprehensive framework, covering all levels and types of qualification.

Its structure is defined by the following features:

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Levels: Eight levels cover the entire range of qualifications, from compulsory education to higher education. Each level is defined by a set of knowledge, skills and competencies which determine the learning outcomes. The learning outcomes constitute the qualifications for this particular level

Learning outcomes: The qualifications have the form of learning outcomes and are classified into levels. Learning outcomes signify what a person knows, understands and is able to do upon completion of a learning process. They are classified into knowledge, skills and competencies

Descriptors: the learning outcomes which correspond to the qualifications of a specific level are defined by descriptors. These descriptors are defined by qualitative and quantitative grading of knowledge, skills and competences

Qualification Types: Qualifications are classified into qualification types. They represent groups of titles with common characteristics which are classified in the same level.

Picture 76: Levels of national and European qualification framework

LEVELS OF NATIONAL & EUROPEAN QUALIFICATIONS FRAMEWORK	VOCATIONAL EDUCATION AND TRAINING	GENERAL EDUCATION	HIGHER EDUCATION
1		PRIMARY SCHOOL CERTIFICATE	
2		LOWER SECONDARY SCHOOL CERTIFICATE	
3	VOCATIONAL TRAINING SCHOOL (SEK) 'DEGREE' (***) (post lower secondary level) (granted to graduates of the apprenticeship year of vocational training schools following certification) *VOCATIONAL TRAINING INSTITUTE (IEK) CERTIFICATE (post lower secondary level)		

4	**VOCATIONAL SCHOOL (EPAS) CERTIFICATE** (granted to graduates of the second class of EPAS-post lower secondary level) **VOCATIONAL UPPER SECONDARY SCHOOL (EPAL) CERTIFICATE** (equivalent to the general upper secondary education leaving certificate, granted to graduates of the third year of EPAL following in-school exams) **VOCATIONAL UPPER SECONDARY SCHOOL (EPAL) 'DEGREE' (***)** (granted to graduates of the third year of EPAL following in-school exams)	**GENERAL UPPER SECONDARY SCHOOL CERTIFICATE** (granted to graduates of general upper secondary education following in-school exams)	
5	**VOCATIONAL POST-SECONDARY SCHOOL 'DEGREE' (***)** for graduates of EPAL apprenticeship class, level 5 (post-secondary level) (granted to graduates of the apprenticeship year of EPAL following certification) **VOCATIONAL TRAINING DIPLOMA** (post-secondary level) (granted to graduates of vocational training institutes (IEKs) following certification) ****VOCATIONAL TRAINING DIPLOMA (IEK)** (post-secondary level) **POST-SECONDARY AND NOT HIGHER EDUCATION DIPLOMA or 'DEGREE' (***)**		

6			BACHELOR DEGREE (University /technological educational institute (TEI)
7			MASTER'S DEGREE (Universities/technological educational institutions (TEI)
8			DOCTORATE (Universities)

Source: EOPPEP www.eoppep.gr

* This qualification is no longer awarded.

** This qualification is no longer awarded.

*** The word 'degree' used with quotation marks is a direct translation from the Greek terminology as it appears in the legislation (ptychio). In Greek, the word "ptychio" is used for titles of study from different education levels (higher, secondary, etc.). It is not to be confused with its usage in the English language, where degree refers to a higher education title of study, i.e. bachelor degree.

4.3.3 National System of Occupations
Currently, Greece is not using any national system of occupations, instead it uses the international classification system adapted to the STEP-92.

4.3.4 National version of ISCO
https://www.statistics.gr/en/occupation

http://web.statistics.gr/MainPage/step-92/step-92.pdf

The Statistical Classification of Occupations provides a classification system and a grouping of information concerning the professions which derives either from population censuses, other statistical surveys or from administrative sources.

This Statistical Classification of Occupations (STEP-92) reviews and replaces the previous classification of the of the year 1981.

Until now, Greece used the classifications provided by ESYE (**Hellenic Statistical Authority)** for the classification of Occupations which were based on structure of the International Standard of Classification (International Standard Classification of Occupations-ISCO) of the International Labour Office in which there was an absolute identification at the Digital level, while at the two-digit and three-digit levels, in order to meet national needs for professional statistics.

So, for reasons of harmonization of statistics of Occupations in its Member States the European Union (EU) has drafted ISCO-88 (COM), which is based on ISCO-88. Minimal deviations, both in the number of groups of occupations and in some of some categories (executives, public servants, etc.), in this case to be portrayed, as much as fully as possible, the structure of the labour market in EU countries.

4.3.5 Comments (positives and negatives of usability)

Positives of usability of information for C-Game development

- The Hellenic Classification of Occupations is available in a excel format and easy to download.

Negatives of usability of information for C-Game development

- The occupations in Hellenic Classification of Occupations are not equipped with RIASEC codes.

4.4 Bulgaria

4.4.1 National Qualifications Framework

The Bulgarian national qualifications framework (NQF) for lifelong learning (BQF) was adopted in 2012 (Picture 77). It is a single, comprehensive, eight-level framework with an additional preparatory level 0. All levels are described in terms of knowledge, skills, and competences (personal and professional). The framework includes qualifications from all levels and types of formal education and training (pre-primary education, primary and secondary general education, VET, and higher education. The overall objective of the BQF – compatible with the EQF and the QF-EHEA – is to make the levels of the Bulgarian education system clearer and easier to understand by describing them in terms of learning outcomes. Apart from offering transparency, the NQF is seen as important to national reforms. The BQF aims to play a role in supporting lifelong learning and in promoting the participation of adults in learning in Bulgaria. The BQF is not yet operational. The referencing report was adopted by the Minister for Education and Science in March 2014, paving the way for action, but actual implementation has been delayed. The BQF, as proposed for referencing, is a classification framework. Its future reforming role to support the development and revision of qualifications and quality assurance arrangements is acknowledged. The BQF will be embedded in wider education reforms with legislative changes to strengthen its implementation. The BQF was linked to the EQF and the QF-EHEA in May 2013.

Picture 77: Bulgarian NQF

Table 4. **Bulgarian NQF (BQF)**

NQF levels	BQF	EQF levels
8	Doctoral degree continuing training	8
7	Master degree continuing training	7
6	Bachelor degree Degree of 'professional bachelor in…' continuing training	6
5	Vocational training (IV degree of a vocational qualification)	5
4	Upper secondary education school leaving certificate general/vocational education and training (III degree of a vocational qualification)	4
3	Lower secondary school certificate general/vocational education and training (II degree of a vocational qualification)	3
2	Basic education certificate (five to eight class) general/vocational education and training (I degree of a vocational qualification)	2
1	Primary education certificate	1
0	Pre-primary education	N/A

Source: Adapted from Bulgarian Ministry of Education, Youth and Science, 2013.

4.4.2 National System of Occupations

National Classification of Occupations and Duties, 2011 (for a short statement Nkpd-2011) defines a professional and job structure in the Republic of Bulgaria. NCOD 2011 is directly presented at the International Station-Dart Classification of Occupations (International Standard Classification of Occupations, 2008 (ISCO-08)) in the practice of the Republic of Bulgaria. in defining the scope of positions and will affect European and national construction, such as these and specific national news, refer to the education system and adult education programme, the organization of work, labour and budget management, wages, social security and others.

The last edition (2016) attempted to group together occupations according to similarity of work performed and contained information about 2484 occupations on the following hierarchical pattern:

8 Occupational Divisions (one-digit code number)
95 Occupational Groups (two-digit code number)
462 Occupational Families (three-digit code number)
2484 Occupations (five-digit code number)

This was a 5-digit classification system, which gave a unique title to every occupation (called the Standard Title) and in some cases alternative titles have also been given. This classification gave definitions of the occupations, a brief outline of the main tasks, and functions of each occupation thus bringing out the difference between one occupation and another.

NCO is designed to work in full correspondence with ISCO–08 where national statisticians have a tool to make national occupational data available internationally, also to simplify the international character of the classification, only four, broad skill levels were used. This classification of skill levels was more or less based on the educational categories and levels, which appear in the International Standard Classification of Education (ISCED).

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Full list of occupations can be found on
https://www.nsi.bg/sites/default/files/files/pages/Classifics/NKPD-2011_1-928.pdf (Bulgarian) or in
table format https://www.nsi.bg/bg/content/261/basic-page/ (in Bulgarian) where all professions
are listed with codes and alphabetical order is also available in table format there. Every job position
is described in details. This information can be used for the descriptors in the Game.

4.4.3 National version of ISCO
NCO is designed to work in full correspondence with ISCO–08 where national statisticians have a tool
to make national occupational data available internationally, also to simplify the international
character of the classification, only four, broad skill levels were used. This classification of skill levels
was more or less based on the educational categories and levels, which appear in the International
Standard Classification of Education (ISCED).

Educational and qualification levels from 1 to 4 are formulated in accordance with the Vocational
Education and Training Act, and educational and qualification levels from 5 to 7 - in accordance with
the Higher Education Act. For each position in the NCAP-2011 is determined the minimum
educational and qualification level for its occupation.

4.4.4 Comments (positives and negatives of usability)
Positives of usability of information for C-Game development

- Information of both registers should be useful for adapting the C-Game to Bulgarian language.
- The Bulgarian NCOD, corresponding to ISCO is available in xls format with 5 digit codes and it is
  usable for the Bulgarian version of the game for descriptors.

Negatives of usability of information for C-Game development

- The occupations in NCOD are not equipped with Holland Occupational Themes (RIASEC) which
  refers to a theory of careers and vocational choice (based upon personality types) and gives
  direct link to professions.

4.5 Conclusions

In the desk research we found out that in all of the 4 partner countries we can rely on the national
sources.

All 4 partner countries' **National Qualifications Frameworks** are very good source for adapting the C-
Game to national languages. They can serve as a framework for setting the educational level required
by the occupations or groups of occupations.

In all 4 partner countries is implemented the **national version of the ISCO** which will be the base of
C-Game classification of occupations, and the ISCO is available for download in xls format. There
might be slight differences in numbering of occupations but the C-Game database will be equipped
by short description of the occupation which will serve as reference for checking the correctness of
the word and number of each profession.

However, from the point of view of creating C-Game, it is not favourable that none of the mentioned
databases is equipped with RIASEC codes. If it were, we would have the advantage of specifying the
characteristics of each profession.

Chapter 05:   European and other classification of occupations, skills and competencies

5.1 ISCO - International Standard Classification of Occupations (United Nations)

https://www.ilo.org/public/english/bureau/stat/isco/

The International Standard Classification of Occupations (ISCO), prepared by the ILO, is one of the main international occupational classifications. ISCO is a tool for organising jobs according to the tasks and duties undertaken. Its aims are to provide: a basis for international reporting, comparison and exchange of occupation data; a model for the development of occupational classifications; and a system that can be used directly in countries without a national classification. In the most recent edition, jobs are categorised by occupation by the type of work done and ranked on the basis of the skill level and skill specialisation they require.

ISCO recognizes 10 major occupational groups: 1 Managers, 2 Professionals, 3 Technicians and Associate Professionals, 4 Clerical Support Workers, 5 Services and Sales Workers, 6 Skilled Agricultural, Forestry and Fishery Workers, 7 Craft and Related Trades Workers, 8 Plant and Machine Operators and Assemblers, 9 Elementary Occupations, and 0 Armed Forces Occupations. Each of the 10 major groups is further organized into sub-major, minor and unit (not shown) groups. The basic criteria used to define the system are the skill level and specialization required to competently perform the tasks and duties of the occupations.

Positives of usability of information for C-Game development

Development of C-Game requires to have a database of occupations that is international, fully supported by the international community, accepted standard, can apply to all countries regardless any national classification standards they may have, and available in partner project languages. ISCO meets all these requirements.

Negatives of usability of information for C-Game development

Main ISCO disadvantage is that it is only an occupational classification – a list of occupations without any of their descriptions. In each country under certain occupation titles can the work contents differ.

General remark on usability for C-Game development

When developing the C-Game the ISCO will be used as main occupation database.

5.2 ISCED - International Standard Classification of Education (United Nations)

http://uis.unesco.org/en/topic/international-standard-classification-education-isced

It is a tool to assemble, compile and report education statistics both within individual countries and internationally. It allows mapping national educational classifications into an internationally

comparable system. In ISCED, programmes are categorised by level of education on a hierarchical scale, which ranges from pre-primary education to the doctoral level. The classification scheme relies on both the levels and the fields of education. ISCED (2011) distinguishes nine education levels.

Positives of usability for C-Game development

ISCED is also internationally recognized and accepted. It includes a complete classification system of education programmes which can apply to all countries as it allows mapping national education classifications into an internationally comparable system.

Negatives of usability for C-Game development

None.

General remark on usability for C-Game development

If needed ISCED can be used without any limitations.

5.3 DISCO - European Dictionary of Skills and Competences (European Commission)

http://disco-tools.eu/disco2_portal/

DISCO is a comprehensive database of skill and competences terms (over 104,000) and sample phrases (over 36,000). In the database, skills and competences are classified, described and translated. Today, 11 languages are supported but the tool is being expanded to cover even more languages. DISCO is compatible with other European tools such as Europass and ESCO.

Positives of usability for C-Game development

DISCO helps to understand and accurately express individual skills and competences in several European languages and can prove a valuable tool for the accurate translation of occupational skills in various languages. It includes an adequate number of terms and its compatibility with other European tools, may be considered an indicator of its credibility.

Negatives of usability of information for C-Game development

Greek and Bulgarian languages are not included at the moment, which means that it cannot be utilized by Bulgaria and Greece for the customization of the game.

General remark on usability for C-Game development

See point above.

5.4 ESCO - European Skills, Competences, Qualifications and Occupations (European Commission, together with CEDEFOP)

https://ec.europa.eu/esco/portal/skill

ESCO stands for European Skills, Competences, Qualifications and Occupations. It is a classification developed by European Commission, under the direction of DG Employment, Social Affairs and Inclusion (tasked to manage the continued development and updating of ESCO). The ESCO

classification consists of three pillars: skills and competences, qualifications and occupations. As such, it bridges the gap between education/ training and work. Attention is also being paid to the link between them. ESCO further aims to contribute to labour mobility, online matching and shifting labour outcomes. ESCO's occupation pillar is linked to ISCO.

Positives of usability of information for C-Game development

It is based on ISCO codes. It is translated into 27 languages (all official EU languages plus Icelandic, Norwegian and Arabic). It provides extensive descriptions of occupations, skills/competencies and qualifications.

Negatives of usability of information for C-Game development

ESCO manual says "*ESCO currently provides a service API that is a version of the ESCO API accessible through the internet. In the near future, ESCO will provide a downloadable version of the ESCO API, allowing the software to be used locally on a computer*." But if you are not a programmer with installed Linux you will be not able to download the database. Web pages https://ec.europa.eu/esco/portal/download/e4 offer downloading of several files but the information is in format that is not usable. For the C-Game we wanted to download the database of occupations with their description and did not succeed. Not all information is translated to national languages.

General remark on usability for C-Game development

If we had access to the database, it could be utilised and this should facilitate the preparation of the occupations' database. However, we were not able to download it, which means that more than 600 titles of occupations and their description will be translated manually.

5.5   O*NET (US Department of Labor)

https://www.onetonline.org/

The Occupational Information Network (O*NET) is specific to the US economy, developed under the sponsorship of the US Department of Labor/Employment and Training Administration (USDOL/ETA). O*NET was introduced as an online version of the Dictionary of Occupational Titles and during years it became one of the most widely used databases for information on workers, occupations, the labour market, and so on by researchers, policy- makers, career centres and other labour market agents. The data are organised as a content model with six domains. One important advantage is that this extensive database is updated very regularly and the database are available free of charge under favourable license conditions. The database includes more than 900 occupations that are equipped with a lot of indicators as well as with the Holland RIASEC codes. There is also a file with O*Net crosswalk to European ISCO.

Positives of usability of information for C-Game development

It contains a lot of useful information about the world of work and its extensive database is updated regularly. Much of the information that O*Net is provided could definitely be of value for the content implementation of the C-Game. A great advantage is that the O*Net Resource Centre offers with a very easy fulfilment of license conditions all data in several Excel files free of charge. The available converter allows us to obtain from O*Net datasets the necessary information about selected professions and their connection to ISCO.

Negatives of usability of information for C-Game development

Information is related to the US labour system and any information used, should be cross – checked to ensure that it applies to EU countries also. The US occupations in titles as well as in descriptions have to be adjusted to the European labour market by transformation them to ISCO codes and national ISCO occupations´ titles.

General remark on usability for C-Game development

In the development of C-Game, the O*Net database will be used and acquired information will interconnect with ISCO.

5.6 Conclusions and further steps

Each of the above-mentioned resources has their own value to contribute to the populations' career education. However, they could not all be of equal value as far as their usefulness for C-Game implementation.

International standards have the credibility needed to be used in C-Game but their compatibility with national standards has to be checked. European resources can also have a significant contribution to the game, since they are adapted to EU countries' needs and are compatible with other tools used by EU citizens. From the US resources, O*NET of the US Department of Labor, seems to be an extensive source of information on occupations and other work-related data which could significantly enrich C-Game content.

In conclusion, almost all these resources (except DISCO) can contribute their separate part to the C-Game, making it a complete, effective and reliable career education game for our target group.

From the desk research are foreseen following steps:

- Uploading all available databases from O*Net Resource Centre and under their licensing conditions
- Automatic translation of O*Net occupation names into Czech
- Automatic assignment to O*Net occupation ISCO codes with Occupation classifications crosswalks: ONET SOC to ISCO
    (https://ibs.org.pl/app/uploads/2016/04/onetsoc_to_isco_cws_ibs_en1.pdf)
- Manual control of Czech occupation translations and selection of approx. 600 occupations´ titles into longlist of occupations that will be base of the C-Game
- Manual completion of ISCO codes
- Manual check of Czech names and their correction according to CZ-ISCO
- Adjustment and adding missing professions
- Request from partners their national versions of ISCO codes.
- Automatic translation of the occupation titles to Slovak, Greek, and Bulgarian languages
- Partners check the occupation titles, if there are all professions that they supposed to be important, and add missing ones
- Preparation of occupation description in EN and their translation to national languages

Conclusions

As it has already been stated, the main objective of C-Game, is to support pupils aged 12-14 in gaining information about a wide range of occupations, increasing their self-confidence and self-efficacy during the online game, which aims to be fun and entertaining for them and at the same time usable both for pupil - teams in the classroom and for individual pupils outside the classroom. The partnership's aim, is to contribute towards the achievement of comprehensive career development, which is essential in schools.

For the purpose of creating an original game that will serve as a useful tool for pupils' aged 12-14 career guidance, desk research has been undertaken that would enable gathering necessary information in order to proceed to the game design phase, with knowledge and confidence. After concluding a thorough desk research, through which the partnership collected existing theories, methods, games, frameworks of occupation, skills, competencies and occupations' classification, the partnership evaluated the most important and relevant ones and came to a common agreement on possible approaches to identifying pupils´ interests and constraints that are appropriate for the choice of the follow-up study and/or the first career choice. These will form the basis for the scenarios that will be worked out, for both pupils and facilitators in C-Game.

According to the results of desk research, C-Game's conceptual and logical framework, will be based on six independent complementary facets involved in game development:

  - domain modelling (or domain simulation),
  - specification of learning objectives,
  - definition of interaction rules (or game rules),
  - level design and difficulty progression,
  - decorum description,
  - deployment of the game in an operational environment.

  However, it is expected that the C-game conceptual and logical framework will be adjusted several times before moving on to the C-game programming phase, due to the difficulty of achieving a common "visualization" of its concept and logical framework among partners.

The following interesting and potentially useful points for the development of C-Game, were identified as a result of our career guidance theories study:

-   Initial self-assessment
-   Matching skills, abilities and interests with occupations.
-   Using RIASEC to devise interests', vocational personalities' and work environments' inventories.
-   Providing information about the set of skills that will assist pupils in their efforts to establish a satisfying working life.
-   Categorization of occupations using classification levels, based on degree of responsibility and ability.
-   Chaos theory application to assist maintaining balance and work with future uncertainty.

Career counselling games for 12-14 year olds have a well-known important place, as they constitute a popular form of getting specific information about job opportunities, developing personalities and finding a career path with subsequent employment. Due to the experience provided by the game, the pupil will have the opportunity to become better informed about different professions, and

particularly, about the individual activities involved, in a specific job or profession. An online game focused on career opportunities, will help pupils to virtually experience various professions and jobs for which, a lot of time to discover in real life would be needed. Freedom of choice according to intuition and interest in the game can reveal to the pupil their career direction.

Thorough internet search indicates, that not many of the online career guidance games and activities available, can be considered as credible means of assisting career guidance. Nevertheless, multiple inspiration can be drawn from existing online games and similar activities that have been studied. In the next stage of the project, the inspiration received will be evaluated with respect to the target group and the intended results, in order to ensure that an original, useful, effective and entertaining C-Game for our target group, will be designed. Creative approaches, and inspiring examples that emerged during the research, have been recorded in the inspirational guidelines in order to facilitate game designers' and programmers' evaluation and decision on which elements can be utilized in C-Game and how. Afterwards, it is intended be presented also to our target group of pupils aged 12-14 and receive feedback from them.

Desk research on national frameworks of occupation, skills and competences indicated that all 4 partner countries have national sources that can be relied upon. All 4 partner countries' National Qualifications Frameworks constitute very good sources for adapting the C-Game to national languages and can serve as a framework for setting the educational level required by occupations or groups of occupations. National version of the ISCO are available for download in xls format. There might be slight differences in the numbering of occupations, but the C-Game database will be equipped by short description of the occupation which will serve as reference for checking the correctness of the word and number of each profession. However, from the point of view of creating C-Game, it is not favourable that none of the mentioned databases is equipped with RIASEC codes, therefore there is not an advantage of specifying the characteristics of each profession.

International standards have the necessary credibility in order to be used in C-Game but their compatibility with national standards has to be checked. European resources can also have a significant contribution to the game, since they are adapted to EU countries' needs and are compatible with other tools used by EU citizens. From the US resources, O*NET of the US Department of Labor, seems to be an extensive source of information on occupations and other work-related data which could be used to significantly enrich C-Game content.

Specific elements to consider integrating, in order to design a safe, fun, interesting, educative and effective C-Game were also identified:

1. **GDPR**
   GDPR compliant registration, providing choice of personalized avatar.

2. **Virtual interface**
   Virtual interface including a friendly game - guide (character).

3. **Game instructions**
   Comprehensive, short, game instructions. Game instructions are very important for the game's effectiveness. It is vital that the users have a clear understanding of the game model, rules and principles from the beginning. Therefore, these should be communicated to the players in a simple form at the beginning of the game and before each step that further specifies these rules.

4. **Game logic and principles**
   - Built-in scenario for developing the city with defined parameters (population, number of buildings, etc.
   - Mission scenarios
   - Simple- working with only few variables, i.e. personal & occupation characteristics & RIASEC types
   - Complicated- working with several variables
   - Complex -using economic model involving the role of increasing the city's population through job opportunities, monitoring indicators of health, cleanliness, safety, energy, ecology, industry or general amenities, etc.

5. **Possible basics of the game**
   - Unlocking the buildings by answering questions about the occupations that are located inside a given building.
   - Imagine being in the position of the City Mayor whose task is to maintain, manage and operate the city through a series of services, industry, education, social, health, communal and other services
   - Imagine being the first day in a new job where, being able to specify job´s requirements and duties to make a good first impression is needed.

6. **City design**
   Position of the city in the map can be:
   - Fixed – position of each of the building has its pre-determined plot, the same is valid for communications, parks, greenery, etc.
   - Optional – the player can place everything elsewhere
   - Mixed – some of the city requisites can be fixed (lake, river, see) and the rest optional

7. **Game levels**
   Distinguishing game levels, by colours - non changeable colours, or change of colours:
   - Grey parts, where buildings should be built but have not been built yet.
   - Coloured parts, where buildings have been built and occupied by the proper occupations
   - Whole city coloured in the final stage of the game.

8. **Game design**
   Game design can be 2D or 3D

9. **Self-assessment**
   Self-assessment, to identify spheres of interest. A set of self-assessment questions based on Holland´s RIASEC model, will be integrated in the game in a "hidden" form so that players can provide their answers during playing the game. Also, the List of interests from JA Plan your future (ANNEX 3) can be used as a source for comparison.

10. **Information about occupations**
    Ways of presenting information about occupations:
    - Avatar bearing the specific feature of the given occupation in the style of clothing, its colour, headgear, tools in hands, etc. with option to select avatar´s gender.
    - Infographics of "One day in the life of an <occupation>" or poster-like "My life after school"

11. **Occupational database**

Occupational databases can be used as source of data:
- Occupational database (ANNEX 4) with markers about educational level or additional requirements (languages, professional skills etc.)
- List of occupations and buildings (ANNEX 2)

12. **ePortfolio**

ePortfolio - is a useful tool in which pupils can save information of their skills, interests and values, activities and favourite subjects. ePortfolio can be under certain conditions shared with the school guidance counsellor or teacher (Career Locker). Websites that offer this type of service must properly comply with the GDPR because they include personal information.

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ANNEXES

ANNEX 1: Theories, methodological approaches and tools related to vocational choice for pupils aged 12-14[71]

No	Title / author, year	Short description
1	Matching / Parsons, 1909	the wise choice of a vocation includes three broad factors: 1) a clear understanding of oneself, their attitudes, abilities, interests, ambitions, resources, limitations and their causes, 2) a knowledge of the requirements and conditions of success, advantages and disadvantages, compensations, opportunities and prospects in different lines of work, 3) true reasoning in the relations of these two groups.
2	Individual Differences / Thorndike, 1911	Individuals differ in intellect and character.
3	School-to-Work Transition/ Bloomfield, 1915	To bridge the gap between school and work, requires making school life more interesting and purposeful and working life more educative and productive.
4	Guidance / NVGA, 1921	Vocational guidance is the process of assisting the individual to choose an occupation, prepare for it, enter upon and progress in it.
5	Interest Inventories / Strong, 1927	Interest scores measure a complex of liked and disliked activities selected so as to differentiate members of an occupation from non-members.
6	Interests / Fryer, 1931	Interest is present when we are aware of an object or, better still, when we are aware of our disposition towards the object.
7	Congruence / Brewer, 1936	Probable success in entering an occupation depends on the correspondence between the requirements of an occupation and the qualifications an individual possesses for that particular occupation.
8	Case Conceptualization / Williamson and Bordin, 1941	What counselling technique and conditions will produce what types of results with what types of clients.
9	Occupational Self-Concept / Bordin, 1943	Vocational interests express the individual's view of self in terms of occupational stereotypes.
10	Work Values / Hoppock and Super, 1950	Work values are the general goals or satisfactions sought from work.
11	Career Counselling / Super 1951	The process of helping people to develop an integrated and adequate picture of themselves and of their role in the world of work, to test this concept against reality and to convert it into a reality, with satisfaction to themselves and benefits to society.

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Project ERASMUS+ C-Game. 2020

No	Title / author, year	Short description
12	Vocational Development / Ginzberg, 1951	Occupational choice is a developmental process which typically takes place over a period of ten years.
13	Vocational Maturity / Super 1954	Counsellors help students to look ahead (planfulness) and look around (exploration) to increase career choice readiness.
14	Parental Status / Blau, Gustad, Jessor, Parnes, and Wilcock, 1956	A sociological perspective on occupational choice in which parental status affects occupational attainment of offspring.
15	Occupational Classification / Roe, 1956	Occupations can be classified by eight interest fields and six ability levels.
16	Career Stages / Super, 1957	Careers develop over the life course through a predictable series of stages and tasks.
17	Types / Holland, 1959	Vocational personalities and work environments can both be described in terms of resemblance to six prototypes.
18	Decision and Vocational Development / Tiedeman, 1961	The theory is based on assumption that one is responsible for one's own behaviour because one has the capacity for choice and lives in a world which is not deterministic.
19	Project TALENT / Flanagan, 1961	Over time, individuals change their career plans to fit their abilities and interests.
20	Career Consciousness / Tiedeman, 1964	Career is the imposition of meaning on vocational behaviour.
21	Opportunity Structure / Roberts 1968	Individuals are more or less constrained in their choice of occupations by social variables that are outside their control e.g. gender, ethnicity and social class.
22	Decision-Making Difficulties /Osipow, 1976	Individuals may face many different difficulties in making a career choice.
23	Social Learning Theory / Krumboltz, 1976	Teach clients career decision techniques and examine four basic factors to understand why people choose the work they do (i.e., genetic endowment, environmental conditions, learning experiences, and task approach skills).
24	Career Education / Hoyt, 1977	An effort aimed at refocusing American education and the actions of the broader community in ways that will help individuals acquire and utilize the knowledge, skills, and attitudes necessary for each to make work a meaningful, productive, and satisfying part of their way of living.
25	Vocational Identity / Holland, 1980	Vocational identity is a clear and stable picture of one's interests, talents, and goals.
26	Transitions / Schlossberg, 1981	A model for assessing and facilitation of an individual's adaption to transitions in terms of self, support, and strategies.
27	Circumscribed Aspirations / Gottfredson, 1981	Most youngsters circumscribe their vocational aspirations according to sex-type and prestige by age 13.
28	Career Self-Efficacy / Betz and Hackett,1981	Differential background experiences associated with gender role socialization may lead to gender differences in self-efficacy and confidence with respect to specific domains of career behaviour, especially those associated with traditionally male dominated career fields.

No	Title / author, year	Short description
29	Career as Story / Jepsen, 1990	Career is a narrative told by a working person.
30	Social Justice / Pope 1995	Best practice requires that career counsellors understand and appreciate cultural diversity and advocate for social justice.
31	Cognitive Basis of Interests / Lent, Brown, and Hackett, 1996	Interest in an activity grows and endures when people (a) view themselves as competent (self-efficacious) at the activity and (b) anticipate that performing it will produce valued outcomes (positive outcome expectations).
32	Fit Work into Life / Richardson, 1996	Rather than fitting people into work, help individuals fit work into their lives.
33	Integrative Life Planning / Hansen, 1996	The ILP framework enables career professionals, counsellors, and their clients to develop career and life patterns that are holistic and focused on both individual satisfaction and community benefit.
34	Career Adaptability / Savickas, 1997	The post-corporate global economy requires that individuals develop the readiness and resources to cope with repeated vocational choices, occupational transitions, and work traumas.
35	Work and Meaning / Bloch and Richmond 1997	Find meaning and wholeness by infusing work by with values and spirit.
36	New-DOTS Thinking For Careers Education / Law, 1999	The DOTS analysis is a tool for reviewing and sharpening learning aims for careers education and guidance: decision learning (D); opportunity awareness (O); transition learning (T); self - awareness (S). New-DOTS were created as a new NICEC evidence-based theory. It sets out: how the DOTS analysis can be extended by mapping, not only what people learn, but how and why they learn; learning processes essential to learning-to-learn for life-long use; career learning for a changing range of work roles; how New DOTS can be used as an improved tool for designing and developing effective programmes.
37	Career Construction / Savickas, 2005	People build careers by turning their preoccupations into occupations and thereby actively master what they passively suffer.
38	Happenstance / Krumboltz, 2009	The goal of career counselling is to help clients learn to take actions to achieve more satisfying career and personal lives—not to make a single career decision.
39	Work Volition / Blustein, 2011	Starting with the work of Parsons (1909), vocational guidance addressed the needs of immigrants and working-class people, many of whom lived in poor urban communities. I propose that we need to get back to our roots in order to move forward as a discipline that will have life, vitality, and relevance in the years to come.
40	PIC model for career decision making / Gati, Asher, 2001	The PIC model consists of 3 stages—pre-screening, in-depth exploration, and choice. Each stage is presented in detail and compared to the other stages. The chapter concludes with a presentation of research that is relevant to the PIC model, as well as what implications the PIC model holds for the future of career decision making and counselling.
41	Myers-Briggs Type Indicator (MBTI) 1995, 2019	The Myers–Briggs Type Indicator (MBTI) is an introspective self-report questionnaire indicating differing psychological preferences in how people perceive the world and make decision

ANNEX 2: Mapa Karier: Buildings and occupations (CZ version)

Č.	Budova	Počet povolání v budově	Povolání
1	analytická laboratoř	1	laboratorní diagnostik
2	archeologický průzkum - vykopávky	1	archeolog
3	architektonická kancelář	3	architekt, interiérový architekt, krajinný architekt
4	autobusové depo	4	řidič autobusu, řidič taxíku, dispečer dopravy, dispečer parkoviště
5	automobilka	4	přesný mechanik, tovární archivář, operatér výrobní linky, mechatronický technik
6	autoservis	7	automechanik, autolakýrník, auto diagnostik, autoklempíř, autoinstalatér lpg, obsluha mycí linky, mechanik motocyklů
7	banka	7	daňový poradce, osobní srážce, bankovní pokladník, finanční poradce, bankéř, specialista na investiční účetnictví, zaměstnanec služby atm
8	benzínka	1	obsluha čerpací stanice
9	betonárna	1	brusič kamene
10	bezpečnostní agentura	1	instalátor bezpečnostního zařízení
11	burza	2	makléř, specialista "compliance",
12	centrum krizového řízení	5	horský záchranář, příslušník pohraniční stráže, hydrolog, specialista na řešení krizí, plavčík,
13	centrum sociálního zabezpečení	1	sociální pracovník
14	centrum vzdělávání	4	učitel cizích jazyků, osobní trenér, teletutor, tutor
15	cestovní kancelář	5	horský turistický průvodce, cestovní agent, referent cestovní kanceláře, průvodce městem, tester turistických destinací,
16	cirkus	2	Iluzionista, akrobat,
17	čistírna odpadních vod	2	obsluha zařízení na čištění odpadních vod, technik nakládání s odpady,
18	dětský domov	1	koordinátor pěstounské péče
19	divadlo	9	herec, kostymér, parukář, loutkář, scénograf, tanečník, osvětlovač, choreograf, rekvizitář
20	dopravní středisko	1	instruktor řízení

Č.	Budova	Počet povolání v budově	Povolání
21	drobné řemeslné služby	3	sklenář, zámečník, obuvník
22	drobné řemeslné služby	3	pokrývač, stavební malíř, podlahář
23	dům módy	3	módní návrhář, produktový manažer, modelka
24	farma	6	včelař, technik venkovského cestovního ruchu, technik zemědělské mechanizace, půdní vědec, zemědělský poradce, rekultivátor půdy
25	filharmonie	6	šatnářka, dirigent, varhaník, zpěvák, houslař, klavírní technik
26	filmové studio	7	ředitel, kaskadér, scénárista, pyrotechnik, kameraman, producent filmu, filmový barvář
27	finanční úřad	1	referent finančního úřadu
28	fotografické studio	2	fotograf, kameraman,
29	hangár	2	letec, letecký inženýr,
30	hasiči	3	hasič, náčelník státní hasičské služby, požární technik
31	hospic	1	doktor - specialista na paliativní léčbu
32	hotel	9	hotelový manažer, manažer stravování, vrátný, hotelový osobní asistent, bookmaker, krupiér, recepční, animátor volného času, stevard
33	hudební klub	2	dj, pořadatel akce,
34	hutní závod	3	hutník, galvanizér, slévat
35	chov hospodářských zvířat	6	zootechnický technik, chovatel kožešin, dojička, chovatel krav, chovatel koní, genetik
36	ict firma	4	systémový analytik, ict bezpečnostní specialista, specialista počítačových sítí, key account manager - manažer pro největší klienty
37	ict servis	3	elektronický technik, systémový programátor, servisní technik dronů
38	inspekce silniční dopravy	1	technik silniční dopravy
39	interaktivní agentura	10	textař, lovec módních trendů, trendsetter, webmaster, seo specialista, analytik webového provozu, plánovač médií, distributor letáků, privacy broker
40	jaderná elektrárna	2	inspektor radiologické ochrany, inspektor jaderného dozoru,
41	kancelář soudního vykonavatele	1	komorník

Č.	Budova	Počet povolání v budově	Povolání
42	klenotnictví	2	klenotník, specialista na drahokamy,
43	konferenční centrum	2	tajemník, pořadatel konferenčních akcí,
44	kosmetický salón	3	kosmetolog, kosmetička, vizážista
45	kostel	2	kněz, varhaník,
46	kovárna	3	kovář, zvonař, zbrojař
47	kožedělná výroba	3	brašnář, koželuh, kožešník
48	krejčovství	5	krejčí, modysta, technik módního průmyslu, pletař, ruční švadlena,
49	kulturní centrum	4	malíř, arteterapeut, animátor kultury, knihovník
50	laboratoř budoucích profesí	25	youtuber, mimozemský důlní inženýr, virtuální asistent, sociální média ninja, data scientist, etický hacker, meziplanetární cestovní kancelář, 3d tiskový operátor, chovatel hmyzu
51	lékárna	2	farmaceutický technik, farmaceut,
52	lesnictví	4	dřevorubec, lesník, provozovatel lesních strojů, hraničář
53	letiště	7	meteorolog, pilot, stevard, letecký dispečer, kontrolor letového provozu, obsluha pohybu robota
54	loď	3	námořník, námořní mechanik, technik námořní navigátor
55	loděnice	4	stavitel lodí, lodní inženýr, svářeč podvodní, opravář jeřábů v loděnici
56	lyžařský areál	2	technik lyžařského zařízení, lyžařský instruktor,
57	makléřská společnost	2	pojišťovací makléř, specialista kontrolingu - to je ale účtař, ne makléř!!,
58	mateřská školka	2	učitel mateřské školy, opatrovník dítěte,
59	metro	1	dispečer metra
60	mlékárna	2	mlékař, výrobce sýra,
61	muzeum	7	archivář, umělecký restaurátor, muzeolog, konzervátor, etnograf, turistický informační pracovník, historik
62	nadace	5	fundraiser, projektový manažer, humanitární pracovník, správce sociálních sítí, tazatel,
63	nakladatelství	4	novinář, korektor, editor, kritik
64	nákupní centrum	10	kadeřník, květinář, cukrář, hodinář, pekař, falešný

Č.	Budova	Počet povolání v budově	Povolání
			zákazník, knihkupec, tatéř, osobní nakupující
65	náměstí	1	taxikář
66	námořní záchranná stanice	1	plavčík
67	nemocnice	5	anesteziologická sestra, biomedicínský inženýr, psychiatr, toxikolog, zdravotnický záchranář,
68	nemocnice	8	chirurg, lékařský záchranář, eletroradiolog, zdravotní sestra, porodní asistentka, zdravotní bratr, gynekolog, hygienik,
69	obchodní škola	1	učitel odborného předmětu
70	observatoř	2	astronom, astrofyzik,
71	obytný dům	4	blogger, domácí pomoc, hodinový manžel, domovník
72	opravna kolejových vozidel	4	železniční mechanik, auditor kolejových vozidel, servisní technik železničních tratí, posunovač
73	orgán technické kontroly	1	poradce adr
74	otevřený důl	2	obsluha povrchové těžby, studnař,
75	ovocná a zeleninová plantáž	4	chmelař, zahradnický inženýr, polní zemědělec, technik zahradník
76	papírna	1	papírenský technik
77	parlament	1	politik
78	patentový úřad	3	patentový zástupce, metrolog, legalizátor
79	pila	2	programátor obráběcích strojů, obsluha pily,
80	plynárna	3	plynový technik, technik těžby plynu, operátor vrtných zařízení
81	podzemní důl	3	horník, technik důlního zařízení, důlní záchranář
82	pohřební ústav	1	hrobník
83	pojišťovna	4	likvidátor pohledávek, upisovatel, pojišťovací agent, pojistný matematik
84	policejní stanice	6	policista, policejní vyjednavač, velitel policie, kriminolog, člen protiteroristické jednotky, profiler
85	poradenská kancelář	7	informační makléř, telemarketér, obchodní analytik, gamifikátor, digital death manager, hr obchodní partner, devops inženýr
86	pošta	3	kurýr, listonoš, poštovní úředník

Č.	Budova	Počet povolání v budově	Povolání
87	pozemní stavby	4	obsluha silniční techniky, pískovač, obsluha věžového jeřábu, zeměměřič
88	právnická firma	2	notář, právní poradce,
89	provinční úřad	2	technik administrativy, auditor životního prostředí,
90	průmyslová laboratoř	4	chemický laboratorní technik, parfémář, klimatolog, technický analytik
91	přírodní medicína	2	sběratel bylin, osteopat ,
92	přístav	8	celník, přístavní a terminálový technik, potápěč, kapitán přístavu, průzkumník mořského dna, jeřábový technik, řidič v doku, provozovatel podvodního stroje,
93	psychologická klinika	5	psychoterapeut, psycholog, psychoonkolog, terapeut závislosti, podpora paliativních pacientů,
94	rádiová stanice	3	zvukový technik, rádiový hlasatel, softwarový editor
95	radnice	6	koordinátor projektů eu, urbanista, ekonom, ekolog, specialista na sociální marketing, auditor
96	realitní kancelář	3	odhadce nemovitostí, správce nemovitostí, realitní agent
97	rekreační objekt	4	asistent zdravotně postižené osoby, pečovatel, podolog, pracovní terapeut
98	restaurace	9	kuchař, číšník, sommelier, dodavatel potravin, manažer restaurace, barista, pořadatel stravovacích služeb, barman, přípravář pokrmů
99	rybářský přístav	3	námořní inspektor, chovatel ryb, rybářská stráž
100	řemeslná dílna	2	dekorativní keramika, sochař,
101	řeznictví	3	chladicí technik, řezník, technik řeznické linky
102	sad a zahradnictví	4	pěstitel, arborista, producent biopotravin, ochranář přírodního prostředí
103	salaš	1	bača
104	sanatorium	3	fyzioterapeut, masér, doktor infekčních chorob
105	skansen	1	košíkář
106	sklárna	2	sklář - vyfukuje skleněné předměty, operátor sklářského zařízení,
107	služby občanům	6	pořadatel svateb, soukromý detektiv, kominík, elektrikář, exekutor, finanční poradce

Č.	Budova	Počet povolání v budově	Povolání
108	softwarový dům	8	vývojář mobilních aplikací, tester počítačových aplikací, specialista na rozpoznávání řeči, návrhář počítačových her, olfaktonik, specialista na umělou inteligenci, herní tester, vývojář webbotů,
109	soud	7	právník, soudce, simultánní překladatel, úředník-stenograf, soudní prostředník, správce, probační úředník
110	sportovní hala	7	sportovec, instruktor fitness, sportovní trenér, taneční instruktor, instruktor bojových umění, sportovní manažer, wellness instruktor
111	sportovní hřiště	8	dietetik, instruktor jízdy na koni, údržbář zeleně, sportovní hlasatel, analytik sportovních her, tiskový mluvčí, žokej,
112	státní zastupitelství	1	státní zastupitel
113	stavební dozor	2	stavební inspektor, specialista bezpečnosti práce,
114	stavební firma	7	stavbyvedoucí, tesař, zedník štukatér, přípravář betonář, pokrývač, hrnčíř, montér ocelových konstrukcí
115	stavební firma	6	stavební technik, svářeč, dlaždič, cestář, mostní stavební inženýr, rozpočtář výstavby
116	stěhování kanceláře společnosti	4	řidič traktoru, ruční balič, zasilatelský technik, logistický technik
117	studio grafického designu	5	návrhář webu, kartograf, ilustrátor, návrhář designu, operátor cad ,
118	supermarket	4	prodavač, obchodník, prodejní technik, marketingový specialista
119	škola	8	učitel domácího jazyka, učitel zdravého životního stylu, logoped, asistent učitele, ředitel školy, školní poradce, ekologický pedagog, asistent učitele dítěte cizince,
120	telekomunikační společnost	3	telekomunikační technik, telekomunikační montér, optoelektronik
121	televizní stanice	7	moderátor, reklamní technik, tlumočník znakového jazyka, specialista na multimediální animace, videografie, image mixer, lektor filmu
122	teplárna	1	technik tepelné elektrárny
123	tiskárna	3	knihař, počítačová grafika dtp, tiskař
124	továrna na domácí spotřebiče	3	tvůrce vstřikovacích forem, instalatér domácích spotřebičů, key acccount manager
125	továrna na nábytek	4	skladník, čalouník, návrhář průmyslového designu,

Č.	Budova	Počet povolání v budově	Povolání
			technik dřevařské techniky
126	tramvajové depo	1	řidič tramvaje
127	trh / bazar	3	novinář, pouliční prodejce, starožitník
128	truhlářství	2	tesař, řezbář,
129	účetní a poradenská firma	2	nezávislý účetní, účetní,
130	úklidová společnost	3	čistič, průmyslový horolezec, deratizátor
131	úřad práce	2	personální poradce, kariérový poradce,
132	úřad sociálního pojištění	2	úředník sociálního zabezpečení, úředník pro ochranu osobních údajů,
133	veterinární klinika	8	veterinář, úpravář vzhledu domácích mazlíčků, veterinární laborant, zoopsycholog, veterinární technik, cvičitel psů, hlídačka domácích mazlíčků, zoo fyzioterapeut,
134	větrná elektrárna	5	elektroinženýr, inženýr pro obnovitelné zdroje, energetický inženýr, solární montér, montér elektrické energie,
135	vězení	3	vězeňský ředitel, vězeňský pedagog, specialista na sociální rehabilitaci
136	vlakové nádraží	7	strojvedoucí, vlakvedoucí, průvodčí vlaku, železniční technik, vedoucí směny, výpravčí, technik automatizovaného řízení vlakového řazení
137	vnitrozemský přístav	2	technik vnitrozemského rybolovu, technik vnitrozemské plavby,
138	vodárna	3	instalatér, mikrobiolog, meliorant
139	vodní elektrárna	1	inženýr vodní elektrárny
140	vojenská základna	3	voják, důstojník, dálkový operátor vojenské techniky
141	vulkanizační závod	1	vulkanizátor
142	výroba obuvi	1	technik obuvi
143	výrobce plastů	1	technik chemické technologie
144	výrobce potravin	5	obchodní zástupce, technik potravinářské technologie, mlynář, obsluha potravinářských strojů, manažer značky,
145	výrobce umělých hnojiv	1	provozovatel chemického zařízení
146	výrobce zdravotnického vybavení	3	technik servisní techniky, instalátor bio analytických systémů, telemedicínský inženýr

Č.	Budova	Počet povolání v budově	Povolání
147	výrobní provoz	4	náborář, kontrolor průmyslových výrobků, návrhář osobních dopravních prostředků, řidič vysokozdvižného vozíku
148	vysoká škola	9	biotechnolog, anatechnolog, bioinformatik, chemik, oceánolog, demograf, fyzik, biolog, geograf
149	vysoká škola	4	materiálový inženýr, automatizační a robotický inženýr, geolog, geofyzik
150	webhostingová společnost	6	administrátor databází, ict technik, správce počítačových systémů, cloudový specialista, analytik kybernetických systémů, vývojář blockchainu
151	zámečnická dílna	2	zámečník, soustružník,
152	zařízení na čištění města	3	inženýr životního prostředí, obsluha recyklačního zařízení, provozovatel sběru odpadů
153	zařízení na zpracování ovoce a zeleniny	2	potravinářský technolog, mykolog,
154	zařízení na zpracování plastů	2	operátor strojů na zpracování platů, specialista kontroly kvality,
155	závod na výrobu keramiky	1	stavební keramik
156	zdravotní středisko / klinika	5	odborník na péči o sluch, oční technik, lékařský asistent, dermatolog
157	zubař	5	zubař, ortodontista, zubní asistent, protetik, dentální hygienista ,
158	zvláštní škola	4	fyzioterapeut, speciální pedagog, tyflopedagog, pedagog neslyšících
159	železárny	2	ocelářský technik, obsluha lisu kovu,

ANNEX 3: JA Plan your future – List of interests

	Interests	People	Things	Ideas	Data
1	Baking		0,5		0,5
2	Biking		1		
3	Camping	0,5	0,5		
4	Clubs	0,5		0,5	
5	Collecting		1		
6	Computer games			1	
7	Earning money		0,5	0,5	
8	Family	1			
9	Friends	1			
10	Gardening		1		
11	Hiking	0,5	0,5		
12	Internet			0,5	0,5
13	Listening to music		0,5	0,5	
14	Movies		0,5	0,5	
15	Painting			1	
16	Pets		1		
17	Playing music		1		
18	Reading			1	
19	Science			1	
20	Shopping	0,5	0,5		
21	Skateboarding		1		
22	Snowboarding, skiing		1		
23	Team sports	0,5	0,5		
24	Volunteering	0,5	0,5		
25	Writing			1	
	Sum	**5**	**11,5**	**7,5**	**1**

Advokát

Agronom

Analytik kybernetické bezpečnosti

Animátor cestovní kanceláře

Antropolog

Aranžér

Arborista - technik

Archeolog

Architekt

Asistent

Asistent pedagoga

Asistent zubního technika

Astronom

Auditor

Automechanik

Bankovní pokladník

Bankovní pracovník

Barman

Biolog

Botanik

Brusič kovů

Burzovní/investiční makléř

Celní deklarant

Copywriter

Cukrář

Čalouník

Číšník/servírka

Daňový poradce

Delegát

Dentální hygienista

Dispečer v dopravě

Dozorce, příslušník vězeňské správy

Dramaturg

Ekolog

Elektrikář

Exekutor

Fakturant

Farmaceut, lékárník

Farmaceutický asistent

Finanční analytik

Finanční poradce

Florista

Fotograf

Fyzioterapeut

Geolog

Grafik

Hasič

Herec

Hlavní účetní

Hydrolog

Chovatel a jezdec koní

Instalatér - topenář

Interiérový designér

Jazykovědec, lingvista

Jeřábník

Kadeřnice

Kalič

Kameník

Karosář

Klempíř

Knihař, restaurátor knih

Knihovník

Kominík

Konstruktér

Korektor

Kosmetička, vizážistka

Kovář

Krejčí

Kuchař

Kurátor

Kurýr

Laboratorní asistent

Lakýrník

Lékař

Lektor, instruktor

Letecký mechanik

Letuška/stevard

Lisař

Logistik skladových operací

Logistik v dopravě a přepravě

Malíř-natěrač

Marketingový pracovník

Masér

Masér ve zdravotnictví

Maskér

Mechanik optických přístrojů a brýlové techniky

Mechatronik

Módní návrhář

Nákupčí

Nástrojař

Notář

Nutriční asistent

Nutriční terapeut

Obchodní zástupce

Obkladač

Obráběč kovů

Operátor v zákaznickém centru

Optometrista

Osobní trenér

Ošetřovatel

Ošetřovatel zvířat v zoo

Pedagog volného času

Pekař

Personalista

Pilot

Pokrývač

Policista

Popelář

Porodní asistentka

Poštovní doručovatel

PR specialista

Pracovník poštovní přepážky

Praktická sestra

Prodavač

Prodejce v cestovní kanceláři

Producent v umění

Programátor

Programátor CNC strojů

Projektový inženýr ve stavebnictví

Projektový manažer

Průvodce cestovního ruchu

Průvodčí/steward

Psycholog

Puškař

Realitní makléř

Recepční

Redaktor

Revizní technik elektrických zařízení

Revizor v osobní dopravě

Řezník - uzenář

Řidič nákladní dopravy

Řidič osobní dopravy a MHD

Řidič sanitky

Skladník

Sladovník - pivovarník

Slévač

Sociální pracovník

Sociolog

Sommeliér

Soudce

Speciální pedagog

Správce IT

Statik

Státní zástupce

Stavbyvedoucí

Strážný, pracovník ostrahy

Strojvedoucí

Svářeč

Švadlena, šička

Tesař

Tiskař

Tiskový mluvčí

Tlumočník a překladatel

Trenér sportovních družstev

Truhlář, stolař

Účetní

Učitel na VŠ

Učitel v MŠ

Učitel ZŠ, SŠ

Úklidový pracovník

Veterinář

Vinohradník a inař

Voják z povolání

Všeobecná sestra

Výpravčí

Webdesigner

Zahradník

Zámečník

Zdravotnický laborant

Zdravotnický

záchranář

Zedník

Zemědělec farmář

Zpěvák

Zubní instrumentář

Zubní technik

Inspirational guidelines for career guidance games development

Project	C-Game: Career guidance game in a city full of occupations
	No 2019-1-CZ01-KA201-061204
Output	O1
Funding	ERASMUS+ program, 2019-2022
Partners	Asociace výchovných poradců, ČR
	Národní vzdělávací fond, ČR
	K.A.B.A. Slovakia, SK
	TeCeMko, SK
	Znam I Moga, BG
	ISON, GR
Date	June 2020
Citation record	FREIBERGOVA, Z. at all. (2020*) Inspirational guidelines for career guidance games development.* Output O1. Project ERASMUS+. C-Game: Career guidance game in a city full of occupations. NTF & Avp. Prague.