

---

## **Impacto del Proyecto AEi: Adultos, Empleo e Inclusión** *Impact of the AEi Project: Adults, Employment and Inclusion*

Javier Fombona Cadavieco y Rafael Navas Sanz (Coords.)

Edita Universidad de Oviedo



Universidad de Oviedo

---



Reconocimiento-No Comercial-Sin Obra Derivada (by-nc-nd): No se permite un uso comercial de la obra original ni la generación de obras derivadas.



Usted es libre de copiar, distribuir y comunicar públicamente la obra, bajo las condiciones siguientes:



Reconocimiento – Debe reconocer los créditos de la obra de la manera especificada por el licenciadore:

Fombona Cadavieco, Javier; Navas Sanz, Rafael (coords.) (2022). *Impact of the AEi Project: Adults, Employment and Inclusion / Impacto del Proyecto AEi: Adultos, Empleo e Inclusión. 2nd International Conference Adult Education for Employment and Inclusion, CyLAEI 2022.* Medina del Campo, 1 Julio 2022. Universidad de Oviedo. ISBN: 978-84-18482-58-8. DOI: 10.6084/m9.figshare.21158698

Javier Fombona Cadavieco [fombona@uniovi.es](mailto:fombona@uniovi.es)

La autoría de cualquier artículo o texto utilizado del libro deberá ser reconocida complementariamente.



No comercial – No puede utilizar esta obra para fines comerciales.



Sin obras derivadas – No se puede alterar, transformar o generar una obra derivada a partir de esta obra.

© 2022 Universidad de Oviedo

© Los autores

Algunos derechos reservados. Esta obra ha sido editada bajo una licencia Reconocimiento-No comercial-Sin Obra Derivada 4.0 Internacional de Creative Commons.

Se requiere autorización expresa de los titulares de los derechos para cualquier uso no expresamente previsto en dicha licencia. La ausencia de dicha autorización puede ser constitutiva de delito y está sujeta a responsabilidad.

Consulte las condiciones de la licencia en:

<https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode.es>

Servicio de Publicaciones de la Universidad de Oviedo

Edificio de Servicios - Campus de Humanidades

33011 Oviedo - Asturias

985 10 95 03 / 985 10 59 56

[servipub@uniovi.es](mailto:servipub@uniovi.es)

[www.publicaciones.uniovi.es](http://www.publicaciones.uniovi.es)

ISBN: 978-84-18482-58-8

## INDICE

<b>Presentación</b>	<b>Pág. 6</b>
<b>1. Formación para el empleo y la inclusión social.</b>	
1.1. Formación para el empleo de migrantes, para su inclusión.	Pág. 8
1.2. Experiences in teaching of Italian language at the CPIA (Centro Provinciale Istruzione Adulti) in Padua.	Pág. 19
<b>2. Competencia digital (Educación de Personas Adultas - EPA).</b>	
2.1. <i>Seriality and transition experience in adulthood: a study on edutainment of serials.</i>	Pág. 26
2.2. Implementación y desarrollo de un curso experimental de competencias básicas para el acceso al mundo laboral en un centro a distancia.	Pág. 34
<b>3. Metodologías educativas eficaces (EPA).</b>	
3.1. Una experiencia de inclusión social adulta mediante la capoeira.	Pág. 44
3.2. Análisis exploratorio del tipo de puntos de gamificación asignados en un contexto educativo de personas adultas con discapacidad intelectual.	Pág. 52
3.3. Una propuesta para el desarrollo de competencias clave en educación de adultos.	Pág. 60
3.4. Breakout: uso de una herramienta metodológica de gamificación para el fomento de la lectura y la visibilización de pioneras femeninas.	Pág. 70
3.5. <i>Promoting sustainable workplace and wellbeing through innovative educational practices.</i>	Pág. 85
<b>4. Formación Profesional y Educación de Adultos.</b>	
4.1. Los enfoques de enseñanza y aprendizaje del profesorado y alumnado cuando se utiliza la estrategia didáctica del juego serio para la adquisición y desarrollo de las competencias STEAM en formación profesional.	Pág. 88
4.2. Integración sociolaboral a través de los módulos de formación socio-sanitaria en el CEPA san jorge de Palencia.	Pág. 96
4.3. <i>Simulations and educational games in vocational training and adult education.</i>	Pág.107
4.4. <i>Resilience for changes - how to develop managerial competences.</i>	Pág.115
<b>5. Dimensión europea de las acciones educativas (EPA).</b>	
5.1. Mejoras en el ámbito científico-tecnológico del CFPA Mercè Rodoreda a través de los proyectos europeos Erasmus+.	Pág.124
5.2. In Vino Expertise.	Pág.134
5.3. Apoyar a las personas mayores es nuestra responsabilidad(S.E.N.I.O.R)	Pág.146
5.4. Proyecto europeo AEI, Adultos, empleo e Inclusión. Estrategias de diseño, difusión e impacto. / <i>AEI European project, adults, employment and inclusion. design, dissemination and impact strategies.</i>	Pág.157
<b>6. Retos y desafíos, nuevos perfiles profesionales.</b>	
6.1. El perro de asistencia y el perro de apoyo en FP desde un enfoque paidocéntrico interespecífico.	Pág.175
6.2. <i>Professional supervision: a critical appreciative model for pedagogues and social educators.</i>	Pág.183

## 7. Cualificación de docentes (EPA).

7.1. Una mirada innovadora e internacional en la formación de docentes de educación de adultos. La formación desde las empresas. [Pág.188](#)

7.2. Necesidades formativas del profesorado de educación de adultos para trabajar por competencias. [Pág.198](#)

## 8. Mesa redonda: Experiencias exitosas que contribuyen a la inclusión de adultos. [Pág.205](#)

8.1. No dejar a nadie atrás: participación, equidad e inclusión.

8.2. El Centro de Educación para Adultos como puerto donde entrar y salir para varios destinos.

8.3. El seguimiento de jóvenes en situación de vulnerabilidad de las escuelas de la segunda oportunidad hacia el éxito e inclusión social, educativa y laboral.

### 8. Round table: *Successful experiences that contribute to the inclusion of adults.* [Pág.219](#)

8.1. *Leaving no one behind: participation, equity and inclusion.*

8.2. *The Adult Education Center as a harbour to arrive and leave to other several journeys.*

8.3. *Accompanying of vulnerable young people from second-chance schools to social, educational and working inclusion and success.*

## 9. Mesa redonda/Round table: Experiencias exitosas para el empleo en educación de personas adultas. / *Successful experiences for employment in adult education.* [Pág.229](#)

9.1. Contribución de los CEPAS a la mejora de la empleabilidad de las personas adultas

9.2. *VET in Poland: the case of the Ignacy Mościcki University of Applied Sciences in Ciechanów*

## 10. Poster/Infografías

10.1. “Build your futures piede by piece” Manuel Carabias Herrero. [Pág.239](#)

10.2. “De tal palo tal astilla” Manuel Carabias Herrero y Natalia Viguri Fernández. [Pág.241](#)

10.3. “The cordinator of personal education services: What perspectives for professional development?” Daddi Debora. [Pág.243](#)

10.4. “Entrepreneurship in education: Active learning to Foster employability inyoug adults”. Letizia Gamberi. [Pág.245](#)

10.5. “Talent Project: How to support giftedness? Program for pre-service teachers”. Krzysztof T. Piotrowski y Katarzyna Barani. [Pág.248](#)

10.6. “The quality of the master degree courses 57/85 and 50. The case study of the university of Florence”. Dino Mancarella. [Pág.249](#)

## MAIN THEME: 4. VOCATIONAL TRAINING AND ADULT EDUCATION

### 4.3. SIMULATIONS AND EDUCATIONAL GAMES IN VOCATIONAL TRAINING AND ADULT EDUCATION

#### AUTHOR

1. Katarzyna Szymańska, Ignacy Mościcki University of Applied Sciences in Ciechanów, ORCID: 0000-0003-4131-2484, [katarzyna.szymanska@puzim.edu.pl](mailto:katarzyna.szymanska@puzim.edu.pl)

#### ABSTRACT

Running any kind of business requires knowledge, competencies and skills that devalue over time. Games and simulations can be used as tools for vocational training, improving skills or adult education. They are an attractive form of training: they make market and work conditions more realistic, show the effects of actions taken or reduce the costs of training an employee. The aim of this article is to analyze and evaluate the educational potential of simulations and games in vocational training and adult education in the context of knowledge, competencies and skills.

**KEYWORDS:** learning, simulation, games, training

#### 1. INTRODUCTION

Working in any profession requires up-to-date knowledge, competencies and skills, regardless of the sector of employment: private or public. Existing knowledge and skills become obsolete over time - new technical, technological, digital, mechanical solutions emerge, etc. Updating existing skills, expanding knowledge in the current world is a natural path of development necessary to work in the profession. A doctor's lack of knowledge about treating patients, conducting procedures or new medications puts him out of the profession after some time - patients begin to avoid him. Ignorance of engineers on energy collection and use, accountants on current legal solutions, local government employees who do not know how to use technology affects the development of companies. Businesses need skilled people with the awareness and ability to continuously learn. Learning process, to be effective, should be adjusted to the changing world, the message should be attractive, and the knowledge (theoretical or practical) should be skillfully used. More and more often games based on simulations are used for teaching, updating knowledge, expanding competences. Their advantages include, first of all, making market and work conditions more realistic, attractiveness, showing the effects of actions taken and reducing costs.

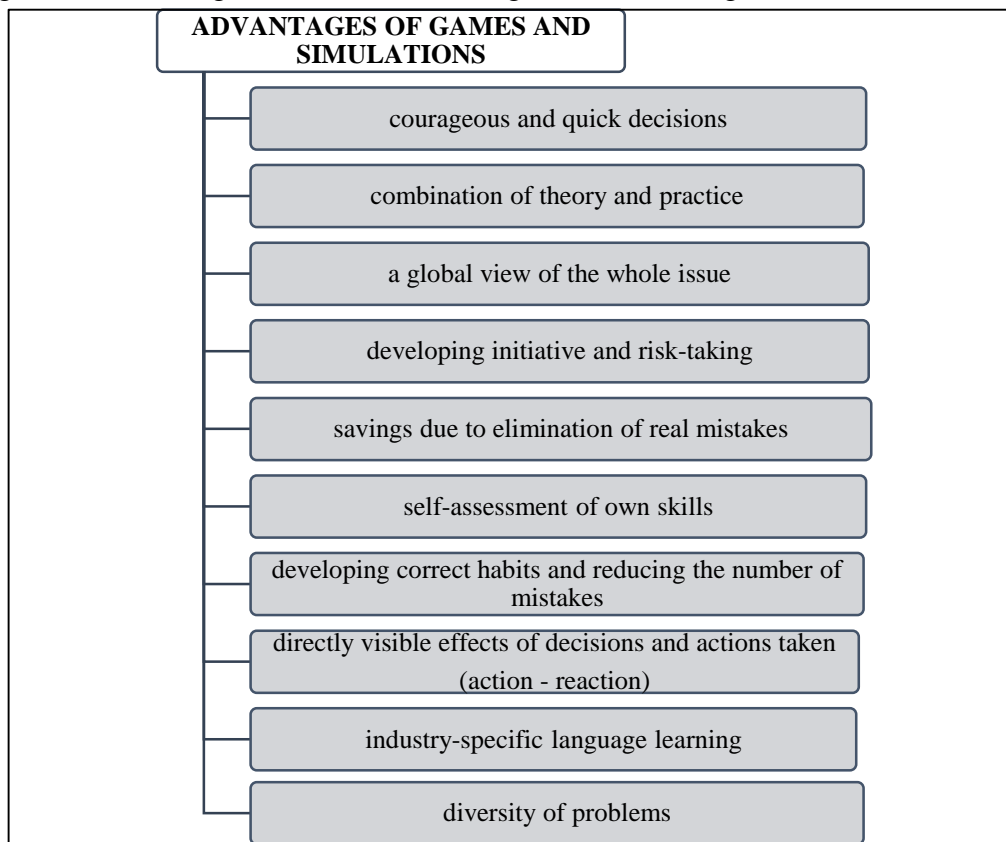
#### 2. JUSTIFICATION AND INTEREST OF THE TOPIC

Training and development topics are important in any profession. Learning does not end with getting a diploma, going to training once, or finding a job. Teaching becomes an ongoing process, especially for workers and adults. The article is intended for people who train adults, choose appropriate training methods, make the forms of training more attractive, show the reality of the work, also for employees showing alternative forms of training, based on the reality of work in the company.

### 3. THEORETICAL FRAMEWORK

Human development is important in every area of life. Nowadays, it is difficult to find people reading specialist (scientific) literature. Fewer people also use dictionaries, encyclopedias or textbooks to find answers to their questions. Everyone has technology and digital learning methods at their disposal (e.g. YouTube videos, presentations, multimedia dictionaries, digital maps, direct references to topics of interest) (Filipowicz 2019). Digital teaching methods are more effective, more interesting, faster, explore selected topics in depth, and allow for more engaging learning and practice. Simulations<sup>1</sup> and educational computer games (Polcyn – Matuszewska 2017), which are an interesting method of personal development, are becoming an important source of teaching.

Diagram 1. Advantages of simulations and games as teaching methods



Source: author's own research.

Knowledge transferred through this channel is based on stimuli and repetition of activities or interactions with specific environments. This learning process is designed to stimulate creativity, curiosity, making each session a unique experience for the participant (Taraszkiewicz, 2022).

<sup>1</sup> Simulation is a technique that mirrors real-world experiences. It allows you to recreate important aspects of the real world in an interactive way, to use a hypothetical situation or process to analyze it and draw conclusions.

### *Industrial nature of simulations*

Virtual simulators or strategy games are used in many important areas of life, in many industries and by a variety of institutions - both from the government and private sector. The military industry uses simulators that visualize and guarantee realism, and at the same time do not entail the risk of negative consequences of mistakes made during traditional training that lead to the death of not only soldiers.

**Figure 1.** Virtual live ammunition shooting range of a special unit from Lubliniec



Source Fig. 1: Davis, N. (2019). *New virtual trainer improves marksmanship skills*, [https://www.army.mil/article/217204/new\\_virtual\\_trainer\\_improves\\_marksmanship\\_skills](https://www.army.mil/article/217204/new_virtual_trainer_improves_marksmanship_skills), (access: 05.01.2022).

The aviation industry uses simulators for pilot training. Each pilot, after acquiring basic theoretical knowledge, is redirected to control an aircraft in specially adapted simulators made with accuracy comparable to the original cockpit interior, with a system of actuators mimicking the sensation of movement, equipped with instruments to control and steer the machine. Learning in simulators does not generate risk and stress for the trainee and the company training the future pilot. In case of an aircraft accident, you will not lose equipment worth millions of zlotys. Simulators also allow to repeat, control, analyze and improve achieved results (Korzeniowski, 2011).

**Figure 2.** PZL-130 TC-II Training Aircraft Simulator in Dęblin



Source Fig. 2: Radio Lublin. *Dęblin: Polskie Siły Powietrzne otrzymały nowy symulator samolotu szkoleniowego PZL-130 TC-II*, <https://radio.lublin.pl/2021/01/deblin-polskie-sily-powietrzne-otrzymaly-nowy-simulator-samolotu-szkoleniowego-pzl-130-tc-ii/>, (access: 05.01.2022).

Simulators are also used in medicine. They reproduce the working conditions of a real hospital or doctor, make it possible to use medical equipment in simulated conditions and under the supervision of specialists. Created hospital rooms (delivery rooms, pediatric, intensive care, operating theaters, ambulances) equipped with medical equipment and specialized phantoms (of a woman giving birth, a child, an infant, an adult) allow future medics to get acquainted with the order of performing tasks, observe the effects of decisions made without exposing them and the patients to stress related to the clinical situation. Moreover, which is important - there is a possibility of improving and repeating the action without any side effects for the patient; the risk of making a medical error is eliminated.

**Figure 3.** Monoprofile Medical Simulation Center at Ignacy Mościcki University of Applied Sciences in Ciechanów



Source Fig. 3: Ignacy Mościcki University of Applied Sciences in Ciechanów, <https://puzim.edu.pl/kierunek-pielegniarstwo/mcsm>, (access: 10.01.2022).

Simulators are also used in sports in various disciplines - soccer, basketball, volleyball, car racing, skiing, snowboarding, etc. All are designed to train athletes, improve their performance, reduce the cost of trips, tests, access to paid tracks, equipment, etc. Simulators are also found in learning to drive cars or trucks and motorcycles. Programs show what a future driver may encounter - entering lighted and unlighted pedestrians, signs, sudden changes of lights, emergency vehicles on the road, allow you to anticipate events, show how driving under the influence of alcohol looks like, how the car behaves during an accident, what the driver experiences, how the car behaves when driven on skid plates, etc. (VREAL, 2022).

**Figure 4.** Rollover Simulator



Source: Interia Motoryzacja, <https://motoryzacja.interia.pl/wiadomosci/bezpieczenstwo/news-mozna-sprawdzic-jak-to-jest-miec-wypadek,nId,3218925>, (access: 05.01.2022).



### Simulations and business games

In contrast to military, sports, medical or aviation simulators, simulators needed in the private sector are cheaper, although the costs of their creation depend on a particular specialization and the level of advancement of equipment. A business simulation is not able to reflect in 100% the realities of running a business, as it does not fully take into consideration all the aspects of running a business, e.g. the tax system - in the real world, regulations are subject to constant changes. Often to keep up to date with them it is necessary to employ accounting offices or personal accountants and create a special organizational unit. A simulation is usually created with basic diagrams so that the learner can understand the basics of how manufacturing or finance works.

Employers or universities, especially those with a practical focus, purchase so-called training devices that take the form of real machines in terms of their appearance, how they behave in traffic or what functions the company operates on. Conducting training on them allows for faster acclimatization with work tools. The simulator registers the results and may show the mistakes made (Bogacki, 2015), and the employee practicing and gaining the knowledge necessary to work does not generate stoppages in production and unnecessary costs - with a traditional form of training, it would be necessary to send such a person to the appropriate unit of the company, appoint a mentor to watch and train the employee, take into account the fact of making mistakes by newly employed workers. Interesting simulation games showing the possibility of running a business are: Business PLAY, StartUp Simulator "*Entrepreneur*" or Business Manager.

Business PLAY replicates events from the everyday life of an entrepreneur. It allows to play the role of a company owner/management board member, to experience setting up a business in any organizational and legal form, simplified accounting and labor law. It shows the entrepreneur's obligations to the Social Insurance Institution (ZUS), tax obligations (including settlements with the US), recruitment and personnel management, sales, negotiations or marketing activities (Business Play, 2022). The Center for Promotion and Development of Civic Initiatives OPUS, within the framework of the Lodz Social Economy Support Centre (Łódzki Ośrodek Wsparcia Ekonomii Społecznej) project, conducted free of charge trainings on the simulation game "*Business PLAY - simulation of running a business*", in which groups ran businesses in accordance with applicable Polish law and business realities (Fijałkowski, 2019).

Start-up simulator "*Entrepreneur*" teaches the practical basics of management, allows to develop managerial skills and experience in creating a business (Vitronomics, 2022).

Business Manager shows the principles of running a company and the influence of strategy and operational activities on the final financial result and profitability. Participants simulate the work of a company and observe the results of their actions by analyzing the relevant economic indicators, learn how a company operates, why to rationalize operating costs, recognize their impact on shaping company profits, build strategies, learn about company processes, identify their own role in it and the impact of their effectiveness on the overall results, learn and understand resource (financial) management in a company.

At the Ignacy Mościcki University of Applied Sciences in Ciechanów we use games and business simulations. The game used at the first level of studies is the board game *Cashflow*, which shows the possibilities of investing and breaks the standard conservative thinking of students about investments and risk taking. At the second level of study, there

are more games, as the students' knowledge is higher (they have basic economic and management knowledge, understand the interrelationships that occur in companies, and can predict the consequences of decisions made). Purchased board games (*Vineyard*) support strategic thinking, process management or team integration, on-line games: *Expreso* (allow to manage virtually dispersed teams) and Industry business simulations *REVAS* (allow students to make appropriate business decisions, show financial results at the end of the game, create conditions for competition e.g. with sales results, allow to plan activities, make calculations or strive to achieve the goal). Industry business simulations *REVAS* also have a quality certificate issued by the Finnish institution assessing the quality of educational tools - Education Alliance Finland and were recommended by the Ministry of Education and Science as tools for passing apprenticeship in high schools and colleges during lockdown. Today they are still used in secondary schools.

#### 4. OUTLINED AIMS

The aim of the following article is to analyze and evaluate the educational potential of simulations and games in vocational training and adult education in the context of knowledge, competencies and skills.

#### 5. METHOD

To meet the objective, I analyzed the literature showing the needs for development and education, forms and methods of effective teaching, pointed out the advantages of games and simulations, shown their application in various areas of economy and evaluated the educational potential of simulations and games in vocational and adult education in the context of knowledge, competences and skills.

#### 6. RESULTS

Combining games with simulation is an interesting and good way of acquiring new skills and knowledge. Advanced simulators and games show that in the right hands, they may be a valuable educational and self-development tool. The player (participant of the simulation) immediately sees the effects of his actions, which makes it possible to verify the experience, skills and knowledge which he possesses.

**Table 1.** Simulations and educational games in employee and management training - knowledge, skills, competencies

Knowledge	Skills	Competences
<ul style="list-style-type: none"> <li>Specialized knowledge (industry-specific language);</li> <li>Knowledge of mechanisms, relations, terminology in a given field;</li> <li>Use of theoretical knowledge in simulated phenomena, economic processes and when making choices or decisions;</li> <li>Knowledge about oneself - your predispositions to</li> </ul>	<ul style="list-style-type: none"> <li>Teamwork;</li> <li>Identification of the relationships occurring in a given field;</li> <li>Analysis and evaluating phenomena</li> <li>Solving and identifying problems</li> <li>Decision-making</li> <li>Optimizing choices</li> </ul>	<ul style="list-style-type: none"> <li>Social - negotiation; assertiveness, responsibility for one's decisions and actions; cooperation and collaboration in a group; assertiveness</li> <li>Adapting to the changeability of the environment; locating and identifying danger;</li> </ul>

<p>perform this profession, your strengths and weaknesses.</p>	<ul style="list-style-type: none"> <li>• Evaluating the accuracy of decisions made;</li> <li>• Drawing conclusions;</li> <li>• Applying knowledge in practice;</li> <li>• Cause-effect thinking</li> <li>• Coping with stress; working and making decisions under time pressure</li> <li>• Working and making decisions under time pressure.</li> </ul>	<ul style="list-style-type: none"> <li>• Creativity and entrepreneurship.</li> </ul>
--	---	--

Source: author's own research.

Thanks to simulations and games, employees may gain necessary knowledge and experience without exposing the enterprise to stagnation in production or the danger of losses and damages connected with operated machines. Additionally, simulation allows for gathering information for analysis (what needs to be improved and what still needs to be worked on). Different simulations may shape different skills and competences. Games focused on business activities are a more interesting way of learning.

## 7. CONCLUSIONS AND CONTRIBUTIONS

The future directs humanity in a very interesting direction. Thanks to modern technologies it is possible to gain knowledge not only from books. Common access to the Internet provides in a very short time information and opinions on a given topic, allows everyone to find the right simulator or game to broaden skills and knowledge in an interesting field: city management, car mechanics, investing in the stock market, running a business, piloting an aircraft, etc. This form of training shows whether the chosen and performed profession is right for the person interested, or whether it should be changed. It may be assumed that the future will belong to games and simulation methods of training. This thesis is supported by the number of companies offering this type of training, university platforms allowing to create and run companies and on this basis to pass apprenticeship, platforms providing access to virtual laboratories, which are an alternative for conducting experiments during intense recurrences of pandemics. This form of training and learning is also supported by the Ministry of Education and Science, which recommended during the lockdown of student work placements based on business simulations.

## REFERENCES

- Bogacki S. (2015). *Symulacja komputerowa wspomagająca szkolenie pracowników*. Zeszyty Naukowe Wyższej Szkoły Zarządzania Ochroną Pracy w Katowicach nr 1(11), p. 65.
- Business Play (2022), <https://business-play.pl/opis-produktu/>, (access: 10.01.2022).
- Davis N. (2019). *New Virtual Trainer Improves Marksmanship Skills*, [https://www.army.mil/article/217204/new\\_virtual\\_trainer\\_improves\\_marksmanship\\_skills](https://www.army.mil/article/217204/new_virtual_trainer_improves_marksmanship_skills), (access: 05.01.2022).
- Fijałkowski R. (2019). *Prowadzenie działalności gospodarczej w formie przedsiębiorstwa społecznego z wykorzystaniem gry symulacyjnej „Business Play*

- *symulacja prowadzenia działalności gospodarczej*”,  
<https://uml.lodz.pl/aktualnosci/artukul/prowadzenie-dzialalnosci-gospodarczej-w-formie-przedsiębiorstwa-społecznego-z-wykorzystaniem-gry-symulacyjnej-business-play-symulacja-prowadzenia-d-id30191/2019/9/9//>, (access: 10.01.2022).
- Filipowicz G. (2019). *HR business partner – koncepcja i praktyka*. wydanie II, Wydawnictwo Wolters Kluwer Polska Sp. z o.o., Warsaw, p. 102.
- Ignacy Mościcki University of Applied Sciences in Ciechanów,  
<https://puzim.edu.pl/kierunek-pielęgniarstwo/mcsm>, (access: 10.01.2022).
- Interia Motoryzacja. (2019),  
<https://motoryzacja.interia.pl/wiadomosci/bezpieczenstwo/news-mozna-sprawdzic-jak-to-jest-miec-wypadek,nId,3218925>, (access: 05.01.2022).
- Korzeniowski L. F. (2011). *Podstawy zarządzania organizacjami*. Wydawnictwo Difin S.A., Warsaw, p. 301.
- Polcyn-Matuszewska S. (2017). *Grać czy nie grać? Oto jest pytanie – zastosowanie multimedialnych gier edukacyjnych w procesie kształcenia*. [in:] A. Iwanicka, K. Kapusta (ed.). *Edukacyjne i społeczne wyzwania rzeczywistości cyfrowej*. Wydawnictwo Naukowe Uniwersytetu Im. Adama Mickiewicza w Poznaniu, Poznań, p. 129.
- Radio Lublin. (2021). *Dęblin: Polskie Siły Powietrzne Otrzymały Nowy Symulator Samolotu Szkoleniowego Pzł-130 Tc-Ii*, <https://radio.lublin.pl/2021/01/deblin-polskie-sily-powietrzne-otrzymaly-nowy-symulator-samolotu-szkoleniowego-pzl-130-tc-ii/>, (access: 05.01.2022).
- Taraszkiwicz M. (2022) *Nauka przez zabawę – kilka skutecznych sposobów*, <https://www.tatento.pl/a/305/nauka-przez-zabawe-kilka-skutecznych-sposobow>, (access: 20.01.2022).
- Vitronomics, (2022). *The business simulation game*, <https://virtonomics.com/pl/top3-najlepsze-gry-symulacyjne-biznesu-startup-tycoon-biz-war/>, (access: 10.01.2022).
- VREAL, (2022). <https://vreal.pl/>.