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Professions of the Future

Lena Bryll
Wojtek Kuberka
Franek Kuberka

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1. Introduction

The publication " Professions of the Future" was created especially for the workshop with the same name for international guests of the Primary School No. 1 in Lębork. The project was organized under the Erasmus+ project SHARKS - Sustainability of Heroes and Restless Knights in School.

The labor market is dynamically changing, when beginning school we have different professions to choose from than after graduation. Some of the professions that are popular today will cease to exist. On the other hand, many new ones will emerge, about which we didn't hear a lot so far. In our presentation, we described the areas and professions that we believe will play an important role in the future, and specialists in these fields will be in demand.



2. Medicine

Lena Bryll:

- Application of the da Vinci system
Pros: in many areas, very precise, which limits side effects during surgery, is beginning to be refunded by the National Health Service
Cons: treatment costs several times higher than during a standard procedure
- It is a futuristic solution starting the era of mechanical robotics
- The movements of the specially designed robotic arms mimic the movements of the surgeon's wrists
- Robot is able to present a given image at a much higher magnification than would be visible to the human eye.
- 3D printing
- Visualization of the human body in 3D
- Examples of its use include printing low-cost prosthetic limbs, as well as internal organs using stem cells, exoskeletons, implants, pills and even skin
- Growing organs
- Thanks to the discovery of the ability to produce stem cells in a clinical setting, we are able to grow the organs necessary for transplants
- The risk of post-transplant rejection of an organ produced from stem cells based on the patient's genetic material is much lower compared to when an organ from a foreign donor was used for transplantation
- The development of technology in the case of growing human organs can be described as being in the early

stage of development and is already criticized by many ethicists, however it is certain that it will continue to develop rapidly in the future

3. Biotechnology

Franek Kuberka:

- People have been trying for years to find ways to live healthier and longer
- With help comes biotechnology
- It involves modifying various elements of nature for some specific purpose such as creating medicines, fuels or food

- Did you ever think that instead of a plate full of food you would get a pill?
- These days we already have parenteral food provided by drip straight into the bloodstream
- Scientists are working to make the product contain as little volume and weight as possible while maintaining nutritional value
- The first such products in the world were used in the army and in space
- Tubes of meat and tubes of liquid chocolate in space more than 50 years ago (1961)
- Meal Ready-to-Eat (MRE) meals, lightweight, took up little space, contained 1,250 kcal which met energy needs for 8 hours
- Liquid diet or tablets completely replacing food. 3-4 drinks/tablets with the right nutrients would be enough to last us all day

- Modern ways of eating can reduce the world's food waste and hunger problem
- Maybe one of you would like to invent a pizza-flavored drink...
- Biofuels
- What are biofuels?
- Biofuels are fuels derived from biomass, that is, from substances derived from plants or animals
- Because of this, emissions from biofuels are lower
- Ethanol and biodiesel are the most commonly used liquid biofuels.
- Ethanol can be produced from any resource containing significant amounts of sugar (e.g. sugar cane) or starch (e.g. corn, wheat).
- Biodiesel is produced by chemically combining vegetable oil or animal fat with alcohol. It can be produced from canola oil, soybean oil, for example.
- Maybe you too would like to invent new types of fuels while helping the planet...

4. Interplanetary Tourism

Wojtek Kuberka:

- If we continue to exploit the earth and abuse its resources, we may have to look toward other planets
- Can you imagine a vacation in space?
- "The earth's environment into space"
- This year saw the first completely private mission to the International Space Station
- It lasted 10 days, for 4 people
- Cost \$55 million

- In 5 years we may be able to travel in even greater numbers and even cheaper, "for only" \$5 million (for 3.5 days)
- In 2027, an orbital station called Voyager is to be built
- Even for 400 people!
- With artificial gravity
- You will probably ask how to build and send such a structure into space
- A giant robot will build it already in orbit
- Humanity will have the opportunity to "Work, play and develop in space"
- If you wanted to go a step further and visit another planet, you would have to wait a little longer
- By 2117, the United Arab Emirates plans to build a city on Mars
- But before that, they will build a complex of buildings that will stimulate the terrain and environment of Mars (the red planet)
- A team of scientists and astronauts will live there for a year
- Who knows, it could be one of you....

5. Design

Lena Bryll:

- We can notice design in every walk of life, because it's more than just looking pretty. As originally conceived, it's all about well-thought-out, aesthetically pleasing and functional solutions used in everyday life

- Design is the design and creation of obvious objects and objects such as armchairs, lamps, etc.
- But also design on a larger scale - from single-family homes to colossal office buildings
- Good design also takes into account those things that we might not pay attention to, yet well-designed are much more pleasantly perceived
- People involved in design often contribute to saving the climate
- One of the keys of good design today is to design solutions that are environmentally friendly
- For example, there are projects such as the creation of fully biodegradable plastic from algae, or looking for new materials to use for creating furniture.
- Art is subjective. Utilitarianism is rather objective. Good design should combine both concepts.
- Most importantly, everyone without exception can create design
- It's important to draw from nature and tradition, but even more to go beyond the patterns.

6. Cybersecurity & Big Data

Franek Kuberka:

- Everything we do online, like a post on Instagram, access a website or buy something virtually leaves a trace behind us
- This is data about our activity, which is stored and analyzed

- A Big Data analyst creates and operates tools that are designed to learn and appropriately use our habits, interests or opinions for marketing purposes
- You must have noticed more than once that the ads you see are similar to your recent searches, now you know whose fault is that
- Staying still on the topic of information technology
- Probably each of you has once seen or heard about a hacking attack on banks, companies and even home networks
- Just a few decades ago this was a completely abstract concept
- Today it's an everyday occurrence so no one will probably be surprised at how important the profession is, and will be for a long time to come, a cyber security specialist.
- In the Internet age, all data, no matter whether corporate or private, is in the cloud
- A cyber security specialist, therefore, first deals with analyzing potential threats. He finds the weaknesses in the system and eliminates them, as well as adapting the system to security-related guidelines

7. Virtual Reality

Wojtek Kuberka:

- Staying on the topic of the Internet, many of you have probably heard of VR technology
- This is a three-dimensional image created by a computer
- Such a virtual imitation of reality
- Natural and real experience

- With the help of special glasses encased on the sides, they cut us off from the real world
- More and more modern equipment, headphones, special treadmills or gloves

- But why do we need virtual reality?

- In entertainment, watching movies, playing games
- Become part of them
- Who among you plays or has ever played minecraft?
- Now you can put on such glasses and jump into the world of minecraft
- This is a sector that is constantly developing and has a big future ahead of it

- This technology can be used not only for entertainment
- It is beginning to play an increasingly important role in education
- As the emotional response increases, the ability to remember increases
- Virtual reality is already being used in Polish universities
- In forensic science at a university in warsaw, students are learning the correct procedure at a crime scene
- in turn, veterinary students, also in warsaw, can take part in animal surgery, carried out by staff
- To learn first aid! This, in my opinion, is particularly important

- In medicine
- Gives a better way to learn human anatomy
- doctors can "train" operations

- In psychology, helping us get used to stressful situations under controlled conditions

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