



VYTAUTO DIDŽIOJO
UNIVERSITETAS
MCMXXII

Seniors
On-line 

Learning in later age - problem solving in technology rich environment

Dr. Elena Trepulė

Faculty of Social Sciences,

Vytautas Magnus University, LT

2017 06 29

LONGEVITY

- Seeking for better life humanity has created better life conditions and life expectancy has increased to 80/90 years.
- Therefore, there are increasing numbers of very mature adults reaching 100 years.



Longevity

- People in their 50s and 60s do not feel old and are full of energy. Many people of this age start a new life, start studying or working something new.
- 50+ age is defined as third age, whereas 75-80+ is defined as the fourth age.



Adulthood

Physical maturity continues up to the 30th birthday, so people in developed countries are willing to retain their youthfulness for another 50yrs – i.e., from 30 to 80.

Unfortunately, naturally keeping youthful for all 50 yrs is not always possible. However, it is increasingly achievable to slow down the ageing process and keep one's intellectual capacities.



Some demography

Year, in EU27	65+	%
1985	59.3 mln	12.8%
2010	87 mln	17.4%
2060	***	30%



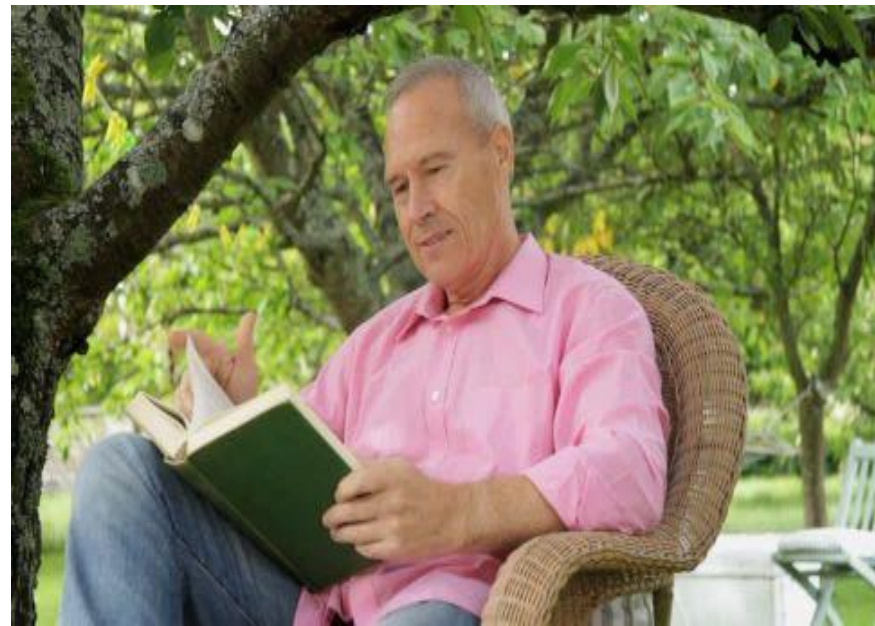
- EU population structure is changing and population is ageing.
- An increasing life expectancy in Europe is increasing longevity, whereas birth rates are decreasing since 1970s are decreasing. These two tendencies in the recent 30-40 years are causing ageing of the population.

A British historian Peter Laslett (1915-2001) in the 80s created a positive ageing theory about the *Third age*.

According to Laslett, human life consists of *four ages*, while the culmination of a human life is the Third age.

A phrase *Third age* traces to the universities in France - *les Universités du Troisième Âge*, (Laslett, 1987).

What is third age?



According to Laslett (1987, 1991)
Third age theory, human life
consists of *four ages*:

First age: age of dependency,
socialization, immaturity and
learning.

Second age: age of dependency,
maturity, responsibility and work.

Third age: age of personal
achievements and self-realization
after retiring.

Fourth age: age of final
dependency, ageing and dying.

Four ages

- /Laslett, P. (1987). The emergence of the Third Age. *Ageing and Society*, 7./



Adults learn as well as young people

- People over the age of 40 have an *advantage*, when it comes to learning material which calls for good judgment or related to experience.
- The reasons adults may appear to learn not as well is based on reaction time, not intelligence. If time is not a factor, *there is no difference in ability to learn.*



Contrary to popular opinion, IQ doesn't decline remarkably with age

- A group of 50 year olds were given IQ tests that had taken 31 years earlier. They made higher scores on every part except math reasoning.
- Wechsler found test scores increased until 35 then declined very slowly after that.



OECD Survey on adult literacy skills – PIAAC

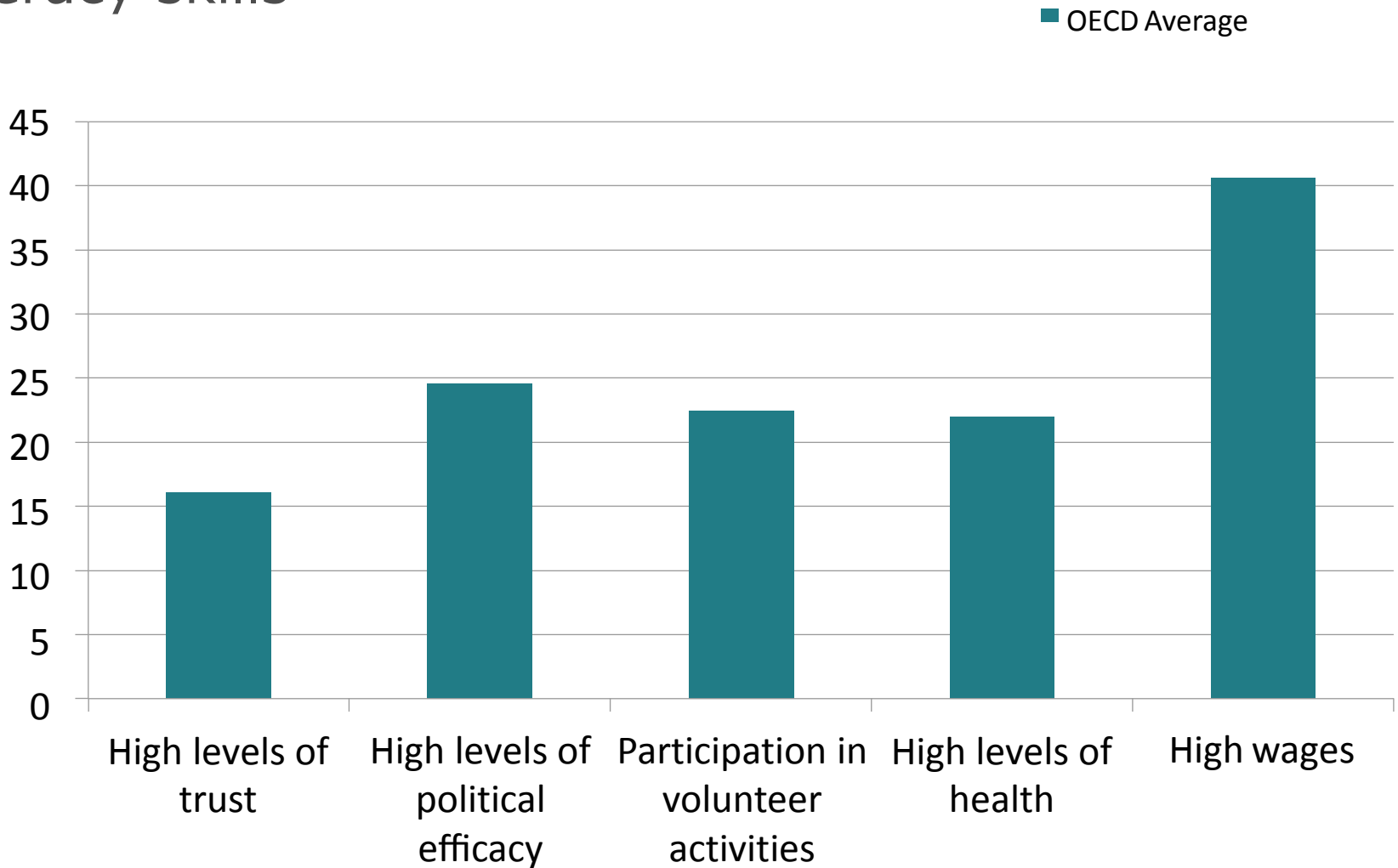
(Programme for the International Assessment of Adult Competencies)

A woman with dark hair and a bindi on her forehead is smiling while talking on a black mobile phone. She is wearing a purple sari with a white border, a silver watch on her left wrist, and a silver bracelet on her right wrist. She is sitting at a desk in what appears to be an office or call center environment, with cubicle walls visible in the background.

Why skills matter?

- What individuals know -- and what they can do with what they know -- has a major impact on their well-being.

Positive outcomes for individuals increase with higher literacy skills



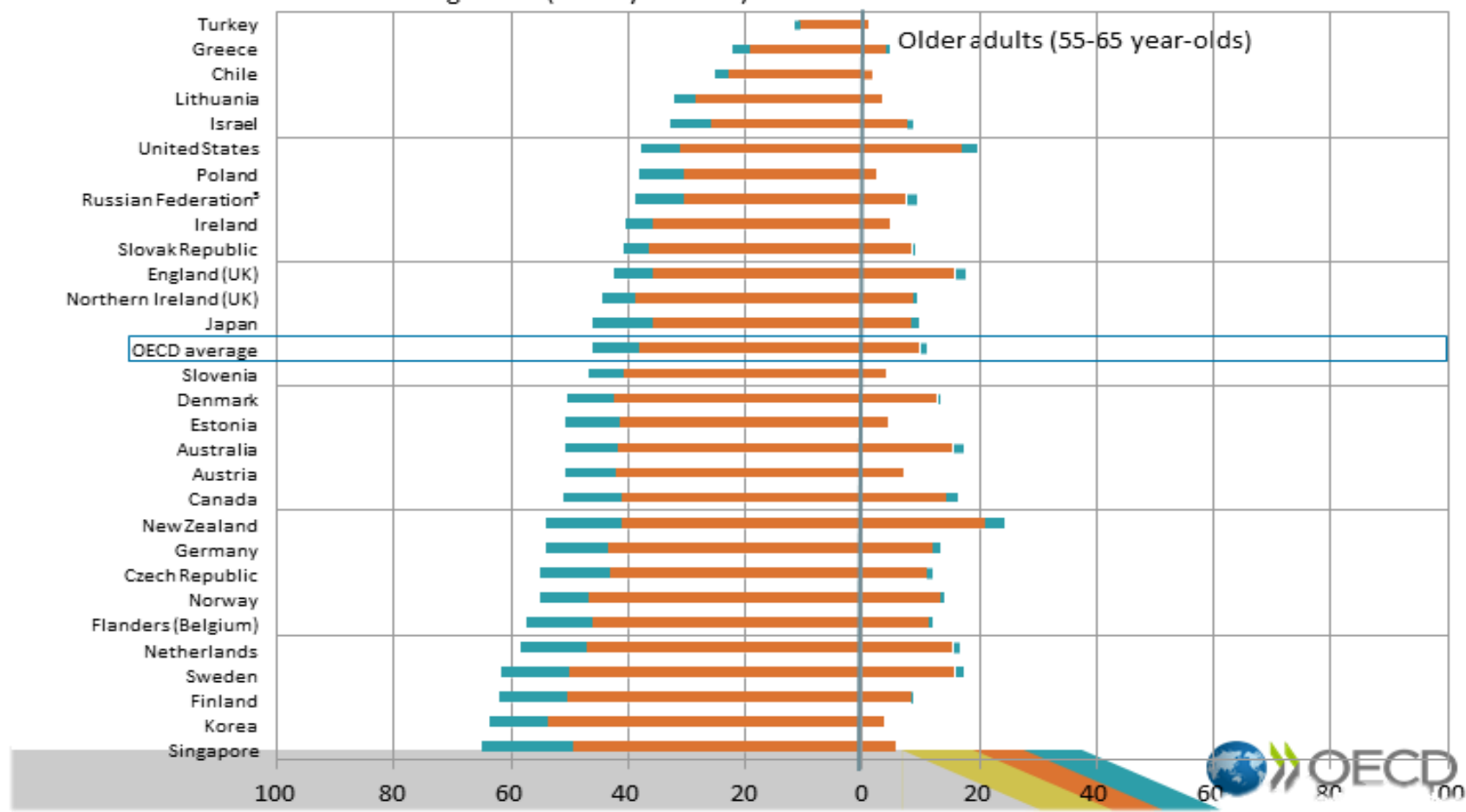
Percentage-point difference between Level 4 or 5 and Level 1 or below literacy skills

Proficiency in PSTRE by age: Proportion at levels 2 or 3

Level 2 Level 3

Young adults (16-24 year-olds)

Older adults (55-65 year-olds)



PSTRE – Problem solving in technology rich environment

- Our technologically-rich world means that many of the tasks require using some sort of technology (e.g., spreadsheets, Internet search, websites, email, or social media) or some combination of several technology resources.

Despite this reality, many adults struggle with one or both dual components of such tasks:

1. Sorting out the steps of solving the problem and
2. Effectively selecting and then using technology to complete the task.



Limitations in skills



- Using computers or other digital devices to perform personal or work-related activities often presents a challenge for the everyday user.
- People often have trouble installing, setting up, and learning how to use new digital devices and software applications. Users often confine themselves to a few basic, but ineffective, procedures.

IT skills and problem solving

- There is a growing body of evidence that mere exposure to technology is not sufficient for people to achieve a satisfactory level of skill in purposeful technology-based tasks.
- So-called computer literacy skills must be integrated with deeper and more abstract problem solving skills (Lazonder & Rouet, 2008).



Problem solving



- To successfully complete computer-based tasks, people must be able to analyze the various requirements of the task, set up appropriate goals and plans, and monitor their progress through the task until the task purposes are achieved.
- This process seems best captured by the cognitive psychology construct of "problem solving,,."

PSTRE in PIAAC

- *"Problem solving in technology-rich environments involves using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks. The first PIAAC problem solving survey will focus on the abilities to solve problems for personal, work and civic purposes by setting up appropriate goals and plans, accessing and making use of information through computers and computer networks."*



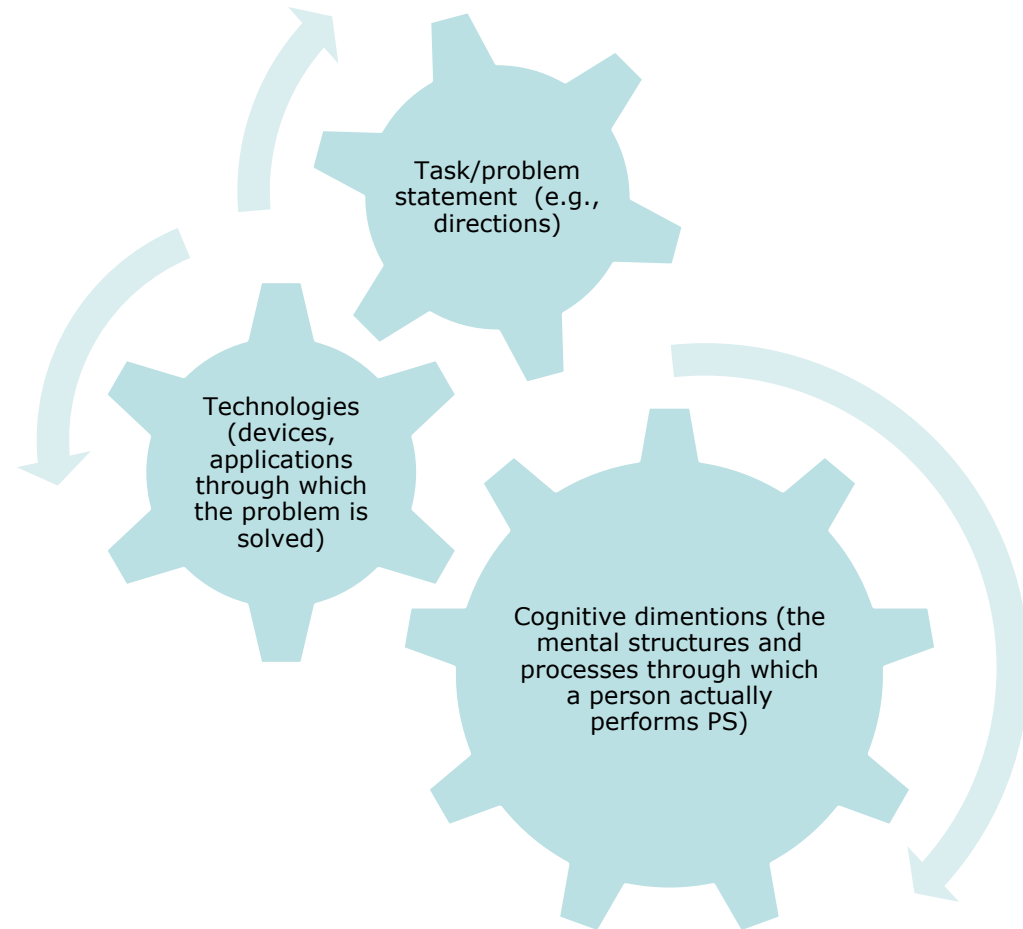
Technology rich environments

- There is more to "technology-rich environments" than merely personal computers in today's world. However, this first survey is limited to problems requiring the use of computers and Internet-based services.



Core dimensions of problem solving in technology-rich environments

The domain of problem solving in technology-rich environments (PS-TRE) may be organized along three key dimensions:



Cognitive dimensions

Involve the mental structures and processes by which a person actually performs problem solving:

- goal setting and monitoring progress;
- planning;
- locating, selecting and evaluating information;
- organizing and transforming information.



Technologies

- The devices, applications and functionalities through which problem solving is conducted.
- These include hardware devices (laptop computers for PIAAC), simulated software applications, commands and functions, and representations (text, graphics, and so forth).



PSTRE - **Below Level 1**

- Tasks are based on well-defined problems involving the use of only one function within a generic interface to meet one explicit criterion without any categorical reasoning, or transforming of information. Few steps are required and no sub-goal has to be generated.



PSTRE - Level 1

- At this level, tasks typically require the use of widely available and familiar technology applications, such as e-mail software or a web browser. There is little or no navigation required to access the information or commands required to solve the problem. The problem may be solved regardless of the respondent's awareness and use of specific tools and functions (e.g. a sort function). The tasks involve few steps and a minimal number of operators.



PSTRE - Level 2

- At this level, tasks typically require the use of both generic and more specific technology applications. For instance, the respondent may have to make use of a novel online form. Some navigation across pages and applications is required to solve the problem. The use of tools (e.g. a sort function) can facilitate the resolution of the problem. The task may involve multiple steps and operators.



PSTRE - Level 3

- At this level, tasks typically require the use of both generic and more specific technology applications. Some navigation across pages and applications is required to solve the problem. The use of tools (e.g. a sort function) is required to make progress towards the solution. The task may involve multiple steps and operators.



How to help adult learners with PSTRE?

- Teachers must not only teach technical skills but also provide opportunities for learners to apply those skills in problem solving activities. Such contextualized skill building can help prepare learners to solve problems they confront in their everyday lives.



Goals of PSTRE instruction:



- to show learners that *planning* is required in order to efficiently conduct tasks in complex digital environments and
- to show that trial and error is not an effective way to conduct tasks or solve a problem.

Access to adult training

Access to education and training, both general and job-related is positively related to literacy proficiency.

- Adults with higher levels of literacy tend to have higher participation rates.
- Norway and New Zealand stand out as countries in which access by adults with low levels of literacy is the highest.



PSTRE and PBL (problem-based learning)

- Learning occurs through addressing real life tasks.
- Assessment in PBL and PSTRE is best contextualized in relevant or authentic tasks. Learners need to actually complete relevant tasks that show both an understanding of the process and accomplishment of tasks they are likely to encounter in daily life.



Ability to solve problems

- To truly prepare learners to succeed outside the classroom, we need to teach more than academic content.
- Our instruction must also help learners develop the resilience they need to address future changes. By building a learner's ability to employ the problem-solving process, we can support their continued learning in a dynamic world.



Sometimes learning may seem tiring for senior learners

Therefore, try different learning methods,
technologies and activities, different learning
speeds and humor...

