Psychological Foundations of the Teaching Profession

Magdolna Estefán Varga – Andrea Hatvani – Tünde Taskó

MÉDIAINFORMATIKAI KIADVÁNYOK

Psychological Foundations of the Teaching Profession

Magdolna Estefán Varga – Andrea Hatvani – Tünde Taskó

Líceum Kiadó
Eger, 2015

Hungarian Online University – Ágazati informatikai együttműködés létrehozása az új típusú e-learning alapú képzések hazai és nemzetközi elterjesztésére

TÁMOP-4.1.1.C-12/KONYV-2012-0003

Nemzeti Fejlesztési Ügynökség
www.ujszechenyiterv.gov.hu
06 40 638 638

MAGYARORSZÁG MEGÚJUL

A projekt az Európai Unió támogatásával, az Európai Szociális Alap társfinanszírozásával valósul meg.

Proofread by:
Mihály Gáspár

Proofread by:
Magdolna Estefánné Varga
Andrea Hatvani
Tünde Taskó

ISBN 978-615-5509-71-1

Publisher: dr. Lajos Kis-Tóth
Made: in the printing office of Eszterházy Károly Főiskola, in Eger
Manager: László Kérészy
Technical editor: Sándorné Nagy

Contents

1. INTRODUCTION

1.1 GOALS, COMPETENCIES, AND COURSE REQUIREMENTS

Psychology is the study of the human mind and human behavior. The goal of psychological research is to understand the factors and underlying principles that affect human behavior. There are a number of such factors to consider in the behavior of teachers and students. A certain amount of psychological knowledge is essential to the teaching profession because without such knowledge teachers have no way to understand many behaviors in the classroom.

The primary goal of the course in the Psychological Foundations of the Teaching Profession is to convey basic psychological knowledge that is essential to the teaching profession, which assists teachers in planning and understanding educational activities and enhance the efficiency of their teaching. It would be a mistake to conceal the additional goal of offering students a possibility for gaining a general understanding of what psychology as a science is, for getting acquainted with its basic concepts, and for developing an interest in other areas of psychology as well. It is not enough to be familiar with the general description of psychological functions. A teacher must also understand their development, the way they manifest themselves at different ages, and their specific aspects, which cannot be ignored in a teacher's work because their understanding, or lack thereof, has important effects on its efficiency.

It is not easy to convey knowledge or to realize that some process is not happening the way it should without a general understanding of cognitive processes. If, for example, a teacher is aware of the limits of sustaining attention, they can reckon with that in planning their classes. The effectiveness of the teaching-learning process may be seriously jeopardized without an understanding of the developmental-psychological characteristics of a particular age group. Personality-psychological knowledge is equally essential, given that, in any educational process, a personality interacts with, and has some effect on, another.

This digital course material offers excellent opportunities for self-access learning. Self-test questions at the end of each unit may help students check their understanding and they may also reveal points and content areas where students may need to do some more work.

1.1.1 Goals

The goal of the course is to offer students an introduction to psychology. Students will learn to understand what psychology is, what it is the study of, and the methods it uses. Students will be given an overview of the major subfields of psychology and, more specifically, they will learn about questions that are of particular significance in teaching: cognitive functions, learning, emotion, and motivation. It is also important for students to have a basic understanding of personality and the processes and factors that determine its development. The course allows students to acquire a theoretical and practical understanding of the development of personality and cognitive processes which will help them enhance the efficiency of the teaching-learning process.

1.1.2 Competencies

An important goal of the course is to develop competencies that are essential to the teaching profession. The course focuses on the following areas of a teacher's competence:

Knowledge

- Knowledge of views on the characteristics and development of personality; knowledge of the formation of subject-specific concepts and its specific age characteristics, and the roles they play in developing students' conceptual systems.
- The qualified teacher is familiar with the issues and subject-specific possibilities of employing methods acquired in general pedagogical-psychological courses.
- Basic understanding of different theories of motivation and methods of recognizing and developing students' motivation to learn.
- Understanding the physical, emotional, and social conditions and specific features of a learner-centered learning environment and knowledge of how to create those conditions.

Competencies

- The qualified teacher is able to analyze their educational experience and a school's everyday reality on the basis of their theoretical knowledge of children's personality development.
- A teacher knows how to support students' autonomous learning in age groups they are qualified to teach as well as in teaching

adults. They are capable of self-reflection and self-correction in decision making.

- The qualified teacher is able to select and employ methods to develop students' motivation, cognitive, problem-solving, and cooperative skills and adjust them to various educational goals and strategies.
- Ability to sustain students' interest and attention.
- Ability to lay down the foundational skills for lifelong learning and involve students in practicing them.

Attitudes

- A teacher respects students' personalities, is able to discover the values in each of them, and relates (emotionally) positively to all of them.
- The qualified teacher believes that it is important to develop students' ability to learn and for students to be aware of the processes of learning and teaching by acquiring the knowledge and skills that are necessary for autonomous learning and is open to lifelong learning.

1.1.3 Course requirements

Once students have completed the course, they will understand the general psychological characteristics and principles of cognitive processes (sensation, perception, attention, memory, imagination, thinking, intelligence, creativity) and they will understand the mechanisms involved in those processes. They will understand the nature of learning and the role of emotion and motivation in learning and human behavior.

They will have acquired the concept of personality and become familiar with major theories of personality. They will have a clear understanding of factors affecting personality development.

They will know about the age-specific aspects of human development, how cognitive processes develop, and the factors to consider in the teaching-learning process.

1.2 TOPICS

The core content of the course is divided into three main modules. The first module focuses on general psychological foundations. The second module discusses personality and its development. The third module describes the psychological characteristics of different age groups.

The module on general psychology is composed of 5 units. The purpose of this module is to introduce students to modern psychology and offer an introduction to the general principles and characteristics of cognitive processes. Students will learn about general psychological aspects of learning, emotion, and motivation, which plays a particularly important role in education.

The areas of knowledge enumerated above serve as an important foundation for the teaching profession and are essential to the planning, interpretation, and implementation of the teaching-learning process.

The second module focuses on questions of personality and factors affecting personality development. It also offers an introduction to major theories of personality. One of the most important tasks of a teacher is to develop students' personality. This requires that prospective teachers are familiar with the major theories of personality and the factors that affect this complex process.

The third module offers what is perhaps the most important kind of knowledge a teacher needs to possess, since teaching is impossible without a good understanding of the age-specific characteristics of the learners. This may clarify several aspects of the factors involved and the problems that may arise in working with learners. In order that students have an understanding of the temporal dimension of the matter, the four units that constitute the module represent the four periods of human life. First we discuss the period from birth to school age. The second period covers the school years, the third is the period of adolescence, and finally, we discuss age-specific characteristics of young people and adults.

In addition to the standard discussion sections, summaries and self-test questions assist students in acquiring the knowledge presented in this course and in studying for the examination.

The content of the course is presented in the mind map below.

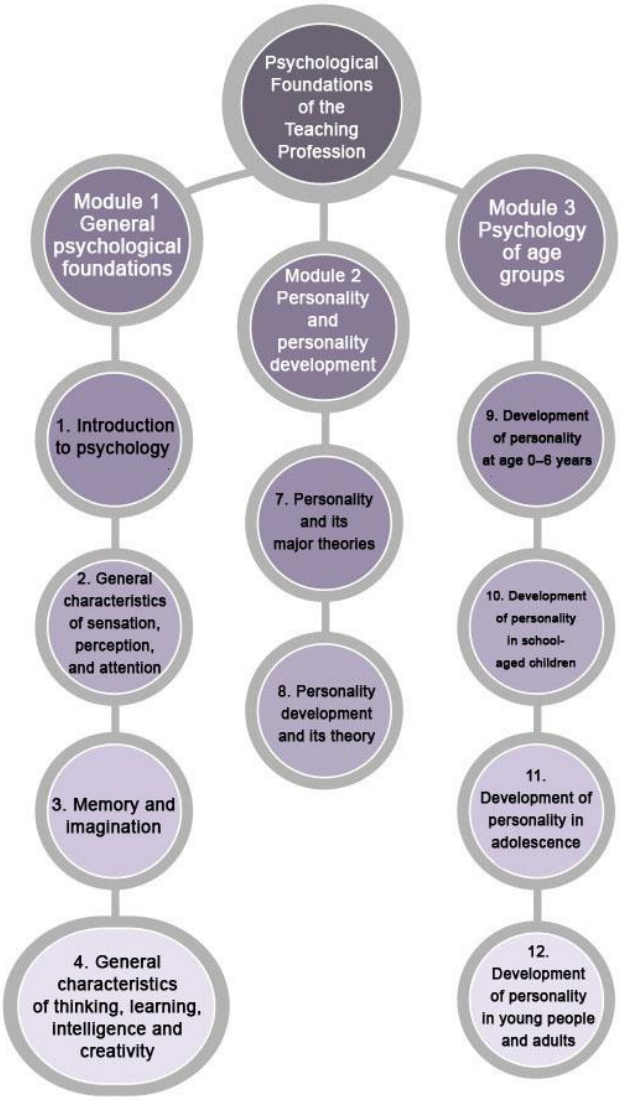

Figure 1. *Structure of the course*

1.3 STUDY TIPS AND ADVICE

Below we offer some study tips and advice, which may help acquire and understand the content of the course.

It is a good idea to skim the entire course to get the gist of what it is all about. A quick look at section and subsection titles, pictures, and tables may help you acquire a general overview of the content of the course.

Units have the following structure:

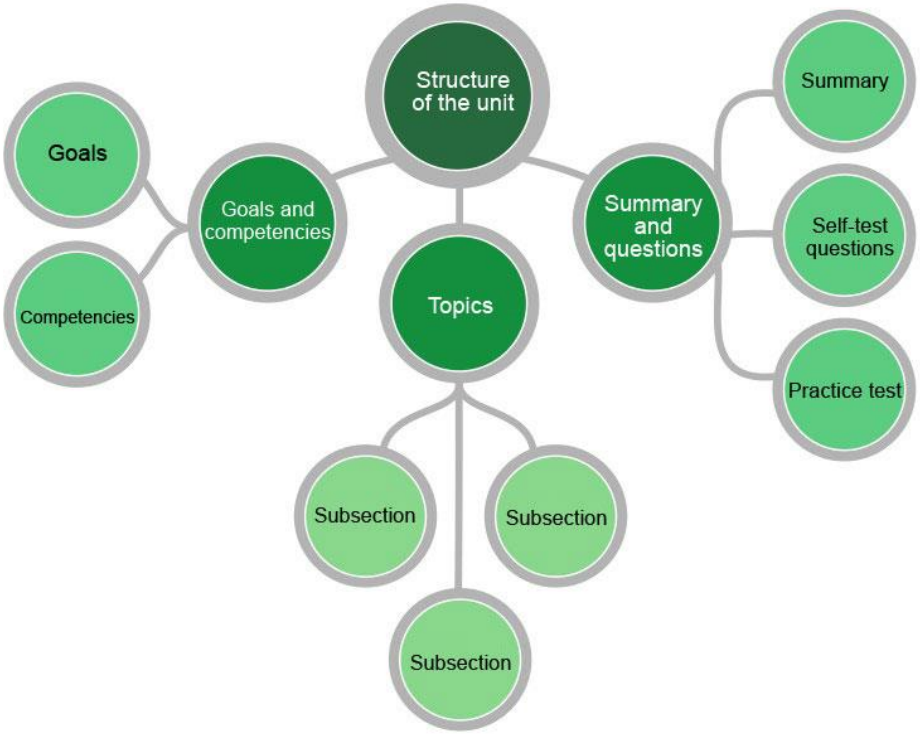

Figure 2. *Structure of units*

You may find the following strategy useful in studying a particular unit:

- Skim the unit to get the gist of it by reading the section and subsection titles. (This may help you organize the content of the unit and facilitate more successful retrieval.) Use the mind map at the beginning of each unit, which presents the main and sub-topics discussed in the particular unit.
- Once you have gained an overall picture of the content of a unit, try and think about it by asking questions which you expect the unit to answer.
- Then read the unit carefully. Proceed step-by-step, from subsection to subsection.

- Once you have read a subsection, try and recall what you have learned by explaining to yourself what you have learned. You can use the text and the self-test questions to check your knowledge.
- Use your imagination whenever possible.
- Try and connect what you have learned to your experiences. This may help you remember it.
- Try not to make the mistake of reading but failing to learn sections which seem too obvious.
- Use the Glossary at the end of the course when you come across a concept you do not think you understand.
- Remember the “a little at a time” principle of learning and the importance of regularity.

We hope that by following our advice you will find studying and completing this course a thrilling intellectual experience rather than an unpleasant duty. If you are interested in additional information and advice on learning, you can visit the following website: www.tanulasfejlesztes.ektf.hu

2. INTRODUCTION TO THE SCIENCE OF PSYCHOLOGY

2.1 GOALS AND COMPETENCIES

The purpose of this unit is to introduce students to the science of psychology, with particular emphasis on fields that bear directly on the teaching profession. Students will learn about what psychology is, its subfields and relations to other disciplines, its research methods, its history, and about its major schools and approaches.

After completing the unit, students will be able to integrate the new psychological knowledge they have acquired into a coherent theoretical framework.

After completing the unit, students should be able to

- define what psychology is;
- understand the difference between basic and applied psychology;
- enumerate the basic areas of psychological research and explain what each is concerned with;
- locate psychology within the system of disciplines;
- understand the difference between research and examinations;
- enumerate and describe methods used in psychological research;
- recall elements of Plato's, Aristotle's, Descartes', and Lock's teachings that contributed to the formation of psychology;
- identify the similarities and differences between Plato's, Aristotle's Descartes', and Locke's ideas;
- understand the contribution of physiological research to the formation of psychology;
- recall when, where, and by whom the first psychological laboratory was established;
- enumerate schools and approaches within psychology: the biological approach, psychoanalysis, behaviorism, the cognitive approach, and the phenomenological approach;
- characterize each of the above schools and approaches by identifying their central features;
- identify the similarities and differences among the schools and approaches enumerated above;

- recall the contexts in which they have learned about Plato, Aristotle, Descartes, Locke, Helmholtz, Fechner, Wundt, Freud, Watson, Rogers, and Maslow.

It will take about two 90-minute sessions to acquire the content of the unit.

2.2 TOPICS

Topics will be discussed in the following structure:

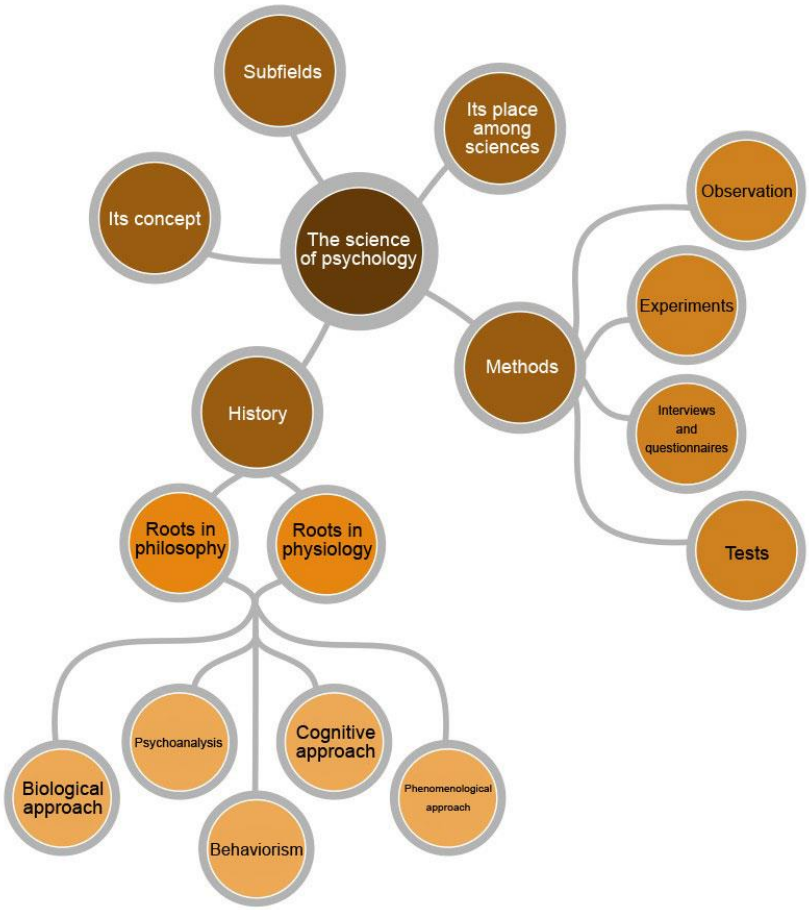

Figure 3. *Structure of topics*

2.2.1 The concept of psychology

In order for us to be able say anything about the psychological foundations of the teaching profession, we need to define what psychology is.

The word is of Greek origin, its first element, “psyche” meaning ‘spirit, soul’ and the second element, which goes back to Greek “logos,” meaning ‘reasoned discourse’ or ‘account’. So, *psychology* may be taken to mean ‘account or theory of the soul.’

- **“Psychology is the study of mental processes and phenomena.”[1]**
- **“Psychology is the study of the characteristics of human beings and of their behavior”[2]**

These two definitions suggest that psychology is the study of human behavior and of all mental factors that affect it.

The ultimate goal of psychology is to understand human behavior, which implies that it is capable of making predictions about an individual’s behavior in particular situations.[3]

- *For example, a teacher should be able to explain why their students behave the way they do in a particular situation and to modify the conditions in such a way that students behave as they are expected to.*

This is of course a utopia. Psychology cannot meet these expectations and we do not think it ever will. Still, by studying psychology we may better understand human actions and the motivations that underlie them.

2.2.2 Subfields of psychology

As the foregoing suggests, psychology is a complex discipline, with several different subfields which are conventionally distinguished. There are several different ways in which psychology may be subdivided into

[1] KEMÉNYNÉ PÁLFFY Katalin: Bevezetés a pszichológiába. Tankönyvkiadó, Budapest, 1989. 7.

[2] N. KOLLÁR Katalin: A pszichológia nézőpontjai, irányzatai és módszerei. In: N. KOLLÁR Katalin, SZABÓ Éva (szerk.): Pszichológia pedagógusoknak. Osiris, Budapest, 15-28. p. 2004. 15

[3] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: Pszichológia elméleti alapok. Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

various areas. The simplest distinction to make is that between basic and applied psychology.

- **Basic subfields are those in which fundamental research results on human (and animal) behavior and the underlying mental functions, phenomena and principles have accumulated.**
- **Applied subfields are those in which knowledge accumulated in basic research is used in various fields relevant for practical life.**

The following are conventionally regarded as subfields of basic psychology:

- General psychology, which is concerned with the characteristics and principles of various cognitive processes, such as perception, attention, learning, etc. and motivation and emotion.
- Personality psychology, which is concerned with the structure and functions of personality.
- Developmental psychology, which is concerned with the development of human personality from conception to the end of old age.
- Social psychology, which is concerned with mental processes affected by others, on the level of the individual, partnerships, groups, and the populace.[4]

Applied psychology comprises many different areas, since psychological knowledge may be necessary in virtually any area of life where people's activities are involved.

- *For example, educational psychology, clinical psychology, occupational psychology, the psychology of advertising, the psychology of art, etc. are generally classified here.*

Educational psychology deserves special attention here, as this is the subfield of applied psychology that is most relevant for prospective teachers.

[4] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: Pszichológia elméleti alapok. Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
SZABÓ, István: (1994): Bevezetés a szociálpszichológiába. Nemzeti tankönyvkiadó, Budapest, 1994.

Educational psychology is concerned with mental principles connected with education[5] and the persons (parents, peers, educators, relatives, etc.) and social institutions (the family, school, kindergarten, etc.) involved in an educational context.[6]

2.2.3 The place of psychology in the system of disciplines

How could we locate psychology in the context of other sciences? The convention in academia is to include psychology among the humanities. Psychologists are trained in faculties of humanities in universities. This might suggest that psychology is one of the arts. However, as we have seen from the subfields of basic psychology, it is connected with the social sciences, e.g. sociology, via social psychology, and it is also connected with the natural sciences, such as biology, via general psychology.

Thus, interdisciplinary areas are created.

- **Interdisciplinary areas are intersecting areas of sciences, to which each of the intersecting disciplines contributes some of its own body of knowledge.**

An example of an interdisciplinary science which intersects with psychology is psycholinguistics, which is the study of questions of language acquisition and language use. Another example is evolutionary psychology, which is the study of genetic and evolutionary determinants of human behavior, at the intersection of psychology and biology.[7]

2.2.4 Research methods of psychology

Psychology, like all other empirical sciences, employs a variety of methods in the study of human nature. Some of its methods are shared by other sciences.

Psychological research methods may be divided into two large classes:

- Research methods, which are used to attain new research results and to derive general consequences.

[5] KEMÉNYNÉ PÁLFFY Katalin: Bevezetés a pszichológiába. Tankönyvkiadó, Budapest, 1989.

[6] VAJDA Zsuzsanna, KÓSA Éva: Neveléslélektan. Osiris, Budapest, 2005

[7] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: Pszichológia elméleti alapok. Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

- Examination methods, which are used in the study of particular cases, based on research results already attained.[8]

Katalin Keményné Pálffy (1989) classifies observations and experiments in the former category and includes tests in the latter. Indeed, that is what happens in most cases, but it is important to note that in practice, all the methods may be used both in research and in examinations.

For example, one of the best known types of tests used in psychology is the intelligence test. This is generally used in examinations. In educational psychology, for example, it may be used to determine the IQ of a child. However, it may also be used as a research tool, when we examine a large group of individuals in order to draw general conclusions about the intelligence of the group.

In what follows, we will describe the most commonly used methods in psychology.

2.2.5 Experiments

Experiments are generally used in psychological research to verify or refute a hypothesis.

A hypothesis is "a set of ideas based on partially verified theses for an explanation of some phenomena, which promotes research."[9]

To conduct an experiment is to create a specific set of controlled conditions for an event to occur, rather than wait for the event to occur under natural circumstances. The advantage of an experiment lies in the fact that the researcher can vary the experimental conditions. We distinguish between dependent and free variables in experiments.

Free variables denote components of an experiment established and controlled by the researcher as determined by the goal of the examination.

A dependent variable is that which is caused to change by one or more free variables, which is measured by the experimenter.[10]

---

[8] KEMÉNYNÉ PÁLFFY Katalin: Bevezetés a pszichológiába. Tankönyvkiadó, Budapest, 1989.

[9] BAKOS F.: Idegen szavak és kifejezések szótára. Akadémiai kiadó, Budapest,1986. 338

- *For example, let us imagine an experiment in which the experimenter examines the effect of the length of memorization time on learning outcomes. In this case, the length of learning time is the free variable, since this is the condition which the experimenter can vary. The dependent variable is going to be the learning outcome, which varies as the function of the length of memorization.*

2.2.6 Observations

Observations are used in both research and examinations. Observations in research are purposeful, since you need to know what and why you are going to observe. This implies that observations need to be planned in advance by determining the aspects of observation. As nobody can draw general conclusions from a single observation, observations must be repeated. Observations may be recorded on video or in writing. Naturally, if observations have been conducted by camera, the recordings ought to be analyzed in terms of the aspects of the observation. It is important that the researcher does not interfere with the observed situations while making observations. They must remain as impartial as possible. This explains the popularity of the use of a one-way mirror in research. A one-way mirror is a special one-way window, which is transparent from one side only. This allows the observed individuals to forget about the observers and behave more naturally, as all they see is a mirror. The picture below shows such a one-way mirror.

[10] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: Pszichológia elméleti alapok. Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

Figure 4. *One-way mirror*

- **We can observe ourselves. This is called self-observation or introspection. Observation of others is called extrospection.**

Introspection comes with a disadvantage. As it is a rather subjective method, the observer can be easily biased toward themselves. Therefore, it is less reliable than observing others.[11]

2.2.7 Interviews and questionnaires

Interviews and questionnaires may also be used both for research and for examinations. An interview is asking somebody questions. It may be structured, semi-structured, or unstructured.

- In a structured interview, you ask planned questions in a previously specified sequence.

[11] KEMÉNYNÉ PÁLFFY Katalin: Bevezetés a pszichológiába. Tankönyvkiadó, Budapest, 1989.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: Pszichológia elméleti alapok. Eger, Eszterházy Károly Főiskola, 2008
http://www.ektf.hu/hefoppalyazat/pszielmal/

- In a semi-structured interview, the topics of the conversation are planned in advance but neither the sequence in which they are discussed, nor the wording of the questions is set.
- In an unstructured interview, the interviewer is aware of what they are interested to hear but neither the topics, nor the questions are specified in advance.[12]

Questionnaires are conducted in writing. Questions on a questionnaire may be open-ended or closed-ended.

In closed ended questions, the respondent may choose from a fixed set of responses. Open-ended questions may be answered freely by respondents giving their opinions without pre-defined constraints.

An advantage of a questionnaire over an interview is that it allows the examination of many people in a relatively short period of time. Its disadvantage is that it is less informative than an interview. An interview allows the interviewer to clarify possible misunderstandings immediately and, on the other hand, an interviewee may say things that the interviewer has not even thought about before.[13]

2.2.8 Tests

Psychological tests are most commonly used for examination purposes. These contain standardized tasks which are administered in unaltered forms with all subjects. The results gained are compared to a standard.

A standard is an evaluation scale determined on the basis of the statistical analysis of results obtained from a large number of individuals.

Tests are classified into two large categories: achievement tests and personality tests.

- Achievement tests examine some area of skills and abilities, such as, for example, intelligence tests.

[12] SZUMSKA Irena: Kutatási módszerek a magatartástudományban. in: BUDA Béla, KOPP Mária: Magatartástudományok. Budapest,Medicina, 2001.701-714

[13] KEMÉNYNÉ PÁLFFY Katalin: Bevezetés a pszichológiába. Tankönyvkiadó, Budapest, 1989.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: Pszichológia elméleti alapok. Eger, Eszterházy Károly Főiskola, 2008
http://www.ektf.hu/hefoppalyazat/pszielmal/

- Personality tests assess some aspect(s) of an individual's personality.

Personality tests are further subclassified into two subclasses. "Paper and pencil" tests are standardized questionnaires, on the one hand, and projective tests, on the other.

Projective tests are based on projection.

- **Projection is the process in which a person projects their internal attributes onto some minimally structured external stimuli.**

- It is a bit like different people looking at some clouds in the sky on a summer afternoon and saying that one can see a dragon, another a snowman, and a third a witch — when each is looking at the *same* clouds. Apparently, what one believes they see is much more symptomatic of their personality or state of mind than it is of the clouds.

One of the best-known projective tests is the Rorschach-test, invented by Hermann Rorschach, which contains symmetrical but irregular inkblots. The picture below shows inkblots similar to those used in a Rorschach-test.[14]

[14] KEMÉNYNÉ PÁLFFY Katalin: Bevezetés a pszichológiába. Tankönyvkiadó, Budapest, 1989.

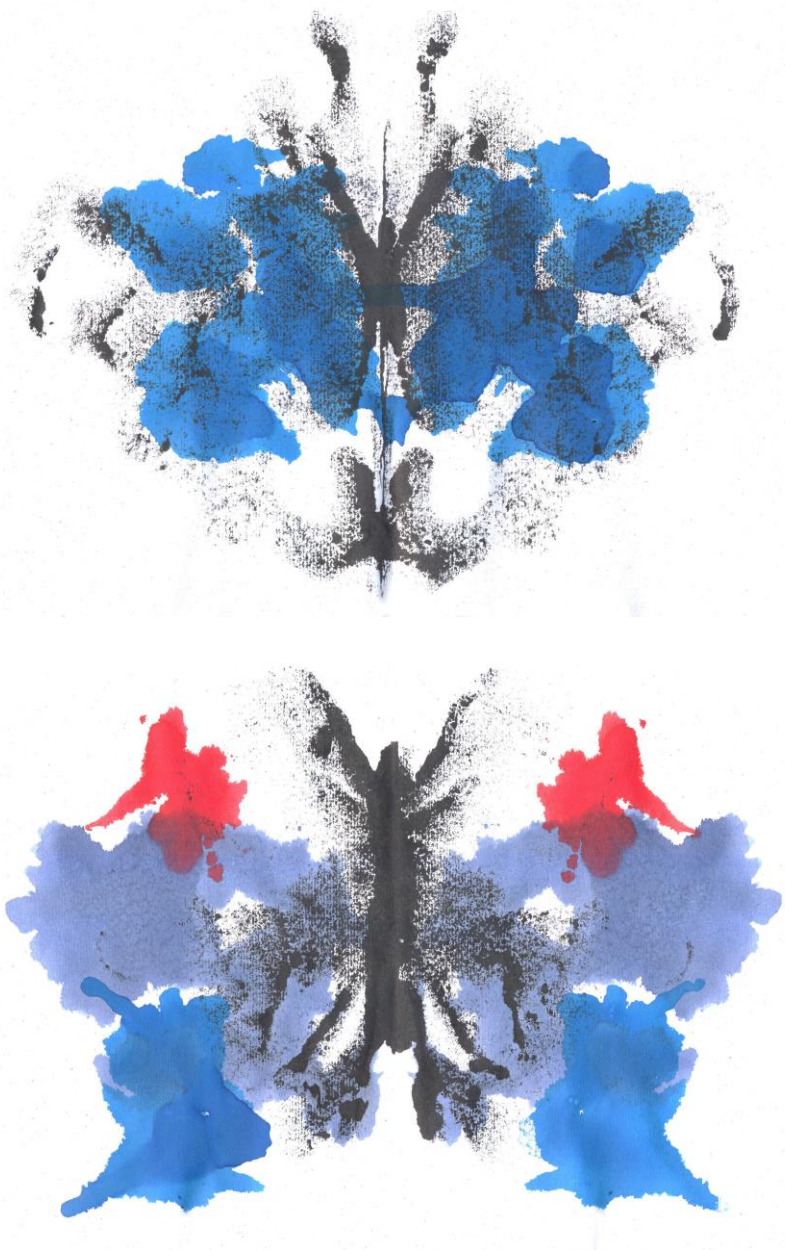

Figure 5. *Pictures that resemble inkblots used in Rorschach-tests*

The interpretation of projective tests is a complicated process which requires a lot of learning, therefore it is always done by qualified psychologists.

2.2.9 Philosophical roots of psychology

The philosophical roots of psychology go back to Antiquity. The teachings of Plato (427–347 BC) and Aristotle (384–322 BC) contain ideas that may be regarded as the origins of psychology.

Plato believed that humans were born with innate ideas that represented their knowledge of the world and of themselves.

- **(Platonic) Innate ideas are concepts humans are endowed with from birth, which they may come to be aware of only later.**

For Plato, man was a "reasoning animal" who was capable of understanding truths about himself and the world solely by reason and so was able to act effectively.

Aristotle, in contrast, believed that our knowledge is not innate but that, instead, it is formed by experience. Man is a "biological animal," with his soul being a function of his body, so he can only be understood in terms of a mutual interaction between body and soul and taking, by all means, bodily processes into consideration.[15]

These thoughts recurred regularly in various philosophical approaches later. Due to constraints of space, we highlight only two outstanding representatives of modern philosophy, Descartes (1596–1650) and Locke (1632–1704).

The French philosopher Descartes combined Plato's and Aristotle's ideas. On the one hand, he believed in the existence of innate ideas and he made a distinction between body and mind, on the other. His views are characterized by interactionist dualism.

- **Interactionist dualism assumes that body and mind are distinct, but they are in causal interaction with each other.**

His well-known proposition was "I think, therefore I am." We can access our own thoughts and mental states by introspection.

According to the English philosopher Locke, a human being is a blank slate, *tabula rasa*, at birth, and our knowledge about the world derives from our experiences, which are later organized into a coherent body of knowledge of the world.[16]

---

[15] SÉRA László: Általános pszichológia. Coménius Bt., Pécs, 1998.

[16] PLÉH Csaba: Pszichológiatörténet. Budapest, Gondolat, 1992.

- If you want to know more about the history of philosophy, click on the link below 12_02_HH01: http://mmi.elte.hu/szabadbolcseszet/index.php?option=com_tanelem&id_tanelem=259&tip=0

2.2.10 Roots of psychology in physiology

Besides philosophy, developments in the life sciences, especially research into the senses and the nervous system, also played an important role in the formation of psychology. We will highlight advances in the study of reflexes and brain localization.

Reflex is still an important concept in psychology and its development contributed greatly to the shaping of psychology as a science. The concept appeared already in Descartes' work, but he had a mechanistic view about it. It became clear by the late 18th and early 19th century that reflexes were governed by biological principles in which the spinal cord played an important role.

Research on brain localization also picked up speed. Phrenology, invented by Gall (1758–1828), was based on the idea that particular enlargements that could be felt on a person's skull corresponded to specific organs in the brain, which represented particular mental faculties and that you could infer the development of a faculty from the size of the enlargement in the skull.[17] Phrenology was a pseudoscience, but the 19th century produced some important discoveries and brain localization research has since continued to contribute importantly to psychological understanding.

- *For example, in the mid-19th century, Broca identified the brain area which accounts for speech production and Wernicke identified the area which is responsible for speech perception.*

2.2.11 The beginnings of scientific psychology

The immediate precursors to scientific psychology were experiments on sensation conducted in 19th-century Germany. Helmholtz was the first to measure the speed of the propagation of nerve impulses and Fechner expressed the relationship between a sensation and a physical stimulus in a mathematical equation. Both of them played an important role in creating the first psychological laboratory, which was founded in the department of philosophy at the University of Leipzig in 1879 under the leadership of Wilhelm Wundt (1832-1920).

[17] PLÉH Csaba: Pszichológiatörténet. Budapest, Gondolat, 1992.

- Although Wundt was a physician by profession, he was appointed professor of philosophy at the University of Leipzig. Thus, he represented the duality in the origin of psychology – its roots in philosophy and physiology.

Wundt's approach combined the German idealist philosophical tradition with scientific experimentation. His laboratory focused primarily on the experimental study of sensation, attention, and memory. One of the principal methods in Wundt's experimental psychology was introspection, which, however, rendered experiments rather subjective, for which Wundt was later criticized by many.

The approach adopted by Wundt is sometimes called elemental or structuralist, as he wanted to identify the elemental components of psychic processes, which he identified with consciousness.[18]

Psychology has been considered a science since 1879, as that was when Wundt and his associates demonstrated that mental processes could be studied by scientific experimental methods.[19]

2.2.12 Schools of thought in psychology: biological psychology and psychoanalysis

A number different schools of thought have developed in psychology for the explanation of human behavior. These schools have worked out different theoretical frameworks, which are often inconsistent with one another. We still do not have a psychological theory which would be accepted by all the approaches, so different schools of thought in psychology continue to live side by side. There are too many different approaches or schools within psychology for us to be able to review all of them. Below we will discuss the most outstanding ones briefly.

Biological approach

It studies biological, genetic factors that underlie human behavior. Most psychologists agree today about the significance of these biological factors, but, aside from exceptional and extreme cases, behavior cannot be explained solely on biological grounds.[20]

---

[18] PLÉH Csaba: Pszichológiatörténet. Budapest, Gondolat, 1992.
N. KOLLÁR Katalin: A pszichológia nézőpontjai, irányzatai és módszerei. In: N. KOLLÁR Katalin, SZABÓ Éva (szerk.): Pszichológia pedagógusoknak. Osiris, Budapest, 15-28. p. 2004.

[19] TÓTH László: Pszichológia a tanításban. Pedellus Tankönyvkiadó, Debrecen. é. n.

[20] ATKINSON R. L., ATKINSON R. C., SMITH E. E., BEM, D. J.: Pszichológia. Osiris, Budapest, 1997.

Psychoanalysis

Psychoanalysis is generally believed to have started in 1901, when Sigmund Freud, the Viennese physician, published his book titled *The Interpretation of Dreams*. This approach lays emphasis on unconscious factors in the study of the human mind.

- **Unconscious factors are phenomena we are not aware of, therefore cannot intentionally recall them, but which have a significant effect on what we do.**

Freud attributed great significance to instincts, particularly to sexual and aggressive instincts. He believed that humans, like all other animals, are controlled by their instincts, therefore people constantly struggle against the social pressure requiring them to keep their instincts at bay, or at least to channel their internal drives in an appropriate manner.[21]

- You will read about Freud's theory in more detail in the second module. Until then, to get an impression of the mood of the period, it may be a good idea to visit the websites of the Freud Museums in London and Vienna.
- Freud Museum, London: 12_02_HH02
- http://www.freud.org.uk/
- Freud Museum, Vienna:12_02_HH03
- http://www.freud-museum.at/cms/

2.2.13 Schools of thought in psychology: behaviorism, cognitivism, and phenomenology

Behaviorism

Behaviorism is believed to have started in 1913 with the publication of a paper titled "Psychology as the Behaviorist Views it" by Watson. Behaviorism, as its name suggests, is the study of what is directly observable in behaviors. Behaviorists believe that behavior is to be

N. KOLLÁR Katalin: A pszichológia nézőpontjai, irányzatai és módszerei. In: N. KOLLÁR Katalin, SZABÓ Éva (szerk.): Pszichológia pedagógusoknak. Osiris, Budapest, 15-28. p. 2004.

[21] ATKINSON R. L., ATKINSON R. C., SMITH E. E., BEM, D. J.: Pszichológia. Osiris, Budapest, 1997.
CARVER Charles S. – SCHEIER Michael F.: Személyiségpszichológia. Budapest, Osiris, 1998.

explained in terms external stimuli. This is why this approach is sometimes called stimulus–response psychology. Behaviorists sought one-to-one correspondences, and predictability, between stimuli and responses and were not initially interested in internal mental processes. They failed, therefore, from the 1950s, they turned to the study of processes internal to a human's or an animal's head, factors which they called "intermediate variables."[22]

Cognitive psychology

Cognitive psychology is concerned with mental processes, primarily with such cognitive processes as perception, memory, thinking, etc. It is a study of what characterizes these processes and how they affect thinking. The main interest of cognitive psychologists is how individuals structure their experience, how they organize their knowledge of the world into a coherent whole and how they integrate elements of knowledge into the system.[23]

Phenomenology

Phenomenologists are concerned with the ways individuals experience and evaluate eventualities in their lives. They think that the only way to understand somebody else is to take *their personal* perspective into consideration.

What deserves special attention within the phenomenological approach is humanistic psychology, as this appears to have the greatest influence. Its main representatives are Rogers and Maslow, who believe that one of the most important drives in individuals is self-actualization.

A major difference between this approach and other approaches is that its goal is to interpret human behaviors rather than understand them.[24]

---

[22] ATKINSON R. L., ATKINSON R. C., SMITH E. E., BEM, D. J.: Pszichológia. Osiris, Budapest, 1997.
CARVER Charles S. – SCHEIER Michael F.: Személyiségpszichológia. Budapest, Osiris, 1998.

[23] ATKINSON R. L., ATKINSON R. C., SMITH E. E., BEM, D. J.: Pszichológia. Osiris, Budapest, 1997.
CARVER Charles S. – SCHEIER Michael F.: Személyiségpszichológia. Budapest, Osiris, 1998.
PLÉH Csaba: Pszichológiatörténet. Budapest, Gondolat, 1992.

[24] ATKINSON R. L., ATKINSON R. C., SMITH E. E., BEM, D. J.: Pszichológia. Osiris, Budapest, 1997.
CARVER Charles S. – SCHEIER Michael F.: Személyiségpszichológia. Budapest, Osiris, 1998.

- You will learn more about these approaches and their roles in personality psychology in the second module.

2.3 SUMMARY AND QUESTIONS

2.3.1 Summary

In this chapter, you have learned about how the science of psychology is the study of human behavior and its underlying mental processes and principles, including cognitive functions, which allow us to understand and interpret the world around us, motivational and emotional factors that energize behaviors (general psychology); the structure of personality and the factors that determine its operation (personality psychology); factors that affect the development of personality (developmental psychology); and the social determinants of mental phenomena (social psychology). You also learned about the methods that psychologists use in their study of these phenomena and problems.

The chapter also gave you an overview of the history of how psychology began. We saw that there were two predecessors to scientific psychology: philosophy, offering the fundamental conceptual framework for the study of human nature, and biology, which laid down the more practical and tangible foundations. By 1879, it had become clear that mental phenomena and human nature were amenable to examinations by experimental methods. Wundt established the first psychological laboratory for the study of these problems.

There does not exist a unified psychological theory which could explain all psychic phenomena and which would be accepted by everybody. Different approaches and schools live side by side. The biological approach focuses on the role of physiological foundations, psychoanalysis emphasizes the role of the unconscious, behaviorism focuses on what is directly observable, cognitive psychology is concerned with how people construct their models of the world, and phenomenology centers on understanding human beings, who are primarily motivated by self-actualization.

2.3.2 Self-test questions

- Define what psychology is.
- What is the difference between basic and applied psychology?

N. KOLLÁR Katalin: A pszichológia nézőpontjai, irányzatai és módszerei. In: N. KOLLÁR Katalin, SZABÓ Éva (szerk.): Pszichológia pedagógusoknak. Osiris, Budapest, 15-28. p. 2004.

- Enumerate and describe the major subfields of psychology.
- What do we mean by interdisciplinary subfields of psychology?
- What is the difference between research and examinations in psychology?
- Enumerate and describe methods used in psychology.
- Which are the main points in the psychological teachings of Plato, Aristotle, Descartes, and Locke?
- What similarities and differences do you see between the psychological views of Plato, Aristotle, Descartes, and Locke?
- What were the physiological precursors to psychology?
- Who established the first psychological laboratory and when and where was it established?
- What are the characteristics of the following schools of thought in psychology: biological, psychoanalysis, behaviorism, cognitivism, and phenomenology?
- What differences and similarities do you see among the schools of thought enumerated above?

2.3.3 Practice tests

1 Which of the following is a subfield of basic psychology?

A. Art psychology
B. Educational psychology
C. Social psychology
D. Occupational psychology

2 Who established the first psychological laboratory?

A. Sigmund Freud
E. Wilhelm Wundt
B. Gall
C. Descartes

3 Which of these statements about the use of questionnaires is false?

A. Contains open-ended questions.
B. Contains closed ended questions.
C. Many people may be examined relatively quickly.
F. The method of introspection belongs here.

3. GENERAL CHARACTERISTICS OF SENSATION AND PERCEPTION. ATTENTION

3.1 GOALS AND COMPETENCIES

The primary purpose of this unit is for students to familiarize themselves with the general psychological characteristics, major components, and operation of sensation, perception, and attention.

After completing the unit, students should be able to

- define the concepts of sensation, perception, and attention;
- understand the roles these processes play in cognition;
- distinguish between the process of sensation and the process of perception;
- characterize the main sensory modalities: vision, hearing, smell, taste, and somatosensation;
- understand the functions of perception;
- discriminate between spontaneous and intentional attention;
- compare different theories of attention.

It will take about two 90-minute sessions to acquire the content of the unit.

3.2 TOPICS

Topics will be discussed in the following structure:

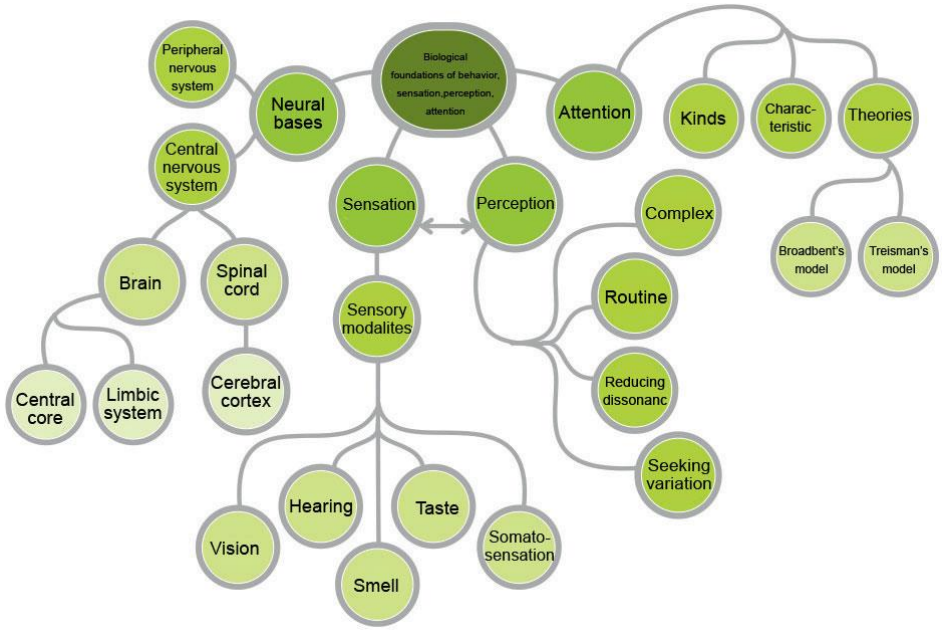

Figure 6. *Structure of topics*

3.2.1 Sensation and perception

Cognition begins with sensation, the process whereby stimuli are transformed into nerve impulses. Nerve impulses then reach particular areas in the brain, where they undergo complex neural processes and eventually become part of our consciousness: perception has taken place. A number of different factors affect perception. The factors that affect this complex process, which involves several different levels, include both subjective and objective factors. It is important for teachers to know about these factors because they may support or, in some cases, distort our perceptions. Learners' perceptions are influenced by their interests, prior knowledge, needs, expectations, and too many other factors to list. We must also bear in mind that our sensations and perceptions impact the way we think, they are decisive about learning and behaviors, and about how we adapt to our environment. All these factors must be borne in mind in the teaching-learning process.

The concepts of sensation and perception

- **Sensation is a biological process whereby stimuli are transformed by receptors into signals that the brain is capable of processing, i.e. electrical impulses.**[25]
- **Perception is a psychological process which is based on sensation and involves the processing of nerve impulses whereby they become part of our consciousness.**[26]
- **These two cognitive processes interact with and have an effect on each other.**

The concept of thresholds

Our sense organs do not respond to all stimuli. Therefore it is important to understand the significance of thresholds. Thresholds determine the lowest and highest stimulus intensity that we are capable of sensing.

- **Absolute lowest threshold is the lowest stimulus intensity we are capable of sensing.**
- **Absolute highest threshold is the highest stimulus intensity we are capable of sensing.**[27]

It is important to mention the concept of difference threshold.

- **Difference threshold is the smallest change in stimulus intensity we are capable of sensing.**[28]

3.2.2 Sensory modalities

We distinguish several different kinds of sensation. The leading sensory modality is vision, as we sense most of the detectable stimuli by

[25] CSÉPE, Valéria: *Érzékelés, észlelés, környezet.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 27-60.

[26] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum] [2014. február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

[27] CSÉPE, V.: *Érzékelés, észlelés, környezet.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 27-60.

[28] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

sight. Nevertheless, hearing, smell, taste, and somatosensation also play important roles in sensing stimuli we are capable of detecting. From the perspective of the teaching-learning process, it is important to be familiar with the characteristics of the different sensory modalities. Involving multiple sensory modalities in the learning process may increase the efficiency of learning (e.g., in audiovisual learning). From the perspective of learning styles, it may be noted that some learners prefer visual stimuli, while others rely mainly on auditive stimuli in learning.

Knowledge of the biology and operation of sense organs is essential to understanding the physiological processes underlying the sensory modalities. As we can only review such questions briefly here, students are advised to revise their knowledge of these biological aspects of sensation.

Vision

Vision is one of our most important sensory modalities. We sense most of the detectible stimuli in the external world with our eyes.

- Please, look up the link below to view the structure of the eye and follow the route of light.
  12_03_HH01:
  https://www.mozaweb.hu/Lecke-Biologia-Biologia_11-A_szem_felepitese-102530

The adequate type of stimulus for the eye is light, a form of electromagnetic radiation, which travels in the form of a wave. The human eye can detect only a small range of wavelengths of light, between 400 and 700 nm (nanometers). Beams of light of shorter wavelengths outside the range do not even reach the object, so they are not reflected from its surface, while light of longer wavelengths passes through objects, so it is not reflected either. Beams of light that we cannot see do not make objects in our environment visible, so they do not contribute to our adaptation to the environment. This means that there are not only physical but also evolutionary causes of why we are capable of sensing the range of wavelengths of light that we are.[29]

[29] CSÉPE, Valéria., KOVÁCS, Ildikó: *A látás alapvető folyamatai.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 93-123.

Color vision

Colors play a very important role in our lives. Just imagine a world in black and white, with no other colors at all, with everything around seen in different shades of grey. If the world suddenly turned black and white with different shades of grey, it would have a dramatic effect on our emotions, moods, and even on our blood pressure. A grey world would have physiological consequences and learning would also become much harder.

Understanding color vision began with Newton's famous experiment, in which he decomposed white light into its basic component colors (red, orange, yellow, green, blue, indigo, and violet) with a prism (Jakab, 2007).[30].

Several different theories exist about color vision. One of the best-known theories is **Young and Helmholtz's trichromatic theory.** (Young amended his original theory 50 years later.)[31] According to this theory, there are three different types of cones in the retina, which are sensitive to a broad range of wavelengths, but each is especially sensitive to a narrow range of wavelengths.

- Short cones: respond best to short wavelengths (blue).
- Medium cones: respond best to medium wavelengths (greens and yellows).
- Long cones: respond best to long wavelengths (reds).

Color vision is determined by the joint activity of the three types of cones. This means that a ray of light of a particular wavelength stimulates all three types of receptors in different degrees and the detection of a particular color is the result of a particular combination of the activity of different types of cones. So, according to this theory, color quality is coded in the activity of the three types of receptors, rather than each color being coded in a different type of receptor.

Color is the sensory counterpart of the wavelength of light. Therefore, the impression we have of the color of a particular object is determined by the wavelengths of light reflected from its surface. Colors have their own peculiar properties, which are the consequences of the wavelike nature of light. Different colors may be described in terms of **hue**,

[30] JAKAB, Zoltán: Színlátás. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 124-160.

[31] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

lightness, which is determined by the intensity of light, and **saturation**, which denotes the clarity of a particular color by expressing the amount of grey it contains.[32]

Hearing

An important function of hearing is to enable people to communicate with each other. Its signaling function is also important and it plays an important role in identifying and locating objects.

The adequate stimulus for hearing is the vibration of air molecules, which propagates as a wave in air. Sound waves reach the tympanic membrane (eardrum), located at the boundary between the outer and inner ear, which picks up the vibration and transmits it to the auditory ossicles (malleus, stapes, and incus) in the middle ear, which in turn transmit it into the inner ear, where our hearing receptor organ, called the organ of Corti, is to be found. Under the influence of the special liquid that surrounds them, the hair cells (receptors) on the basilar membrane of the organ of Corti are activated by the vibration and transduce it to electrical nerve impulses, which are sent through the auditory nerve and into the special part of the brain called the auditory cortex for further processing.

- Please follow the link below and observe the structure of the ear and follow the route of the sound wave.

  12_03_HH02:

  http://www.mozaweb.hu/Lecke-Biologia-Biologia_11-A_halloszerv_felepitese_es_mukodese_az_egyensuly_erzekelese-102531

The human ear can detect sounds within the frequency range of 20 to 20 thousand hertz. Sound below 20 Hz, called infrasound, and sound above 20000 Hz, called ultrasound, is inaudible to us, but not to certain species of animals. Elephants, for example, can hear infrasound and dogs, cats, and bats can cope pretty well with ultrasound.

Sound travels in waves. Its psychological perception is determined by three physical properties of sound waves:

[32] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum] [2014. február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

- Amplitude (the “swinging” of a sound wave) accounts for loudness, which is measured in decibels. The range of loudness that humans can bear without damage is between 60 and 100 decibels.
- Frequency (the vibration of sound waves) accounts for pitch, the “height” of sound, and is measured in hertz.
- Timbre: The fundamental frequency may be accompanied by its multiples, called harmonics or overtones, which allow us to distinguish between different “colors” of the same sound.[33]

Smell

The sense of smell, also known as olfaction, is a special sensory modality. Trace of odor suggests that olfactory sensations may endure even after the source of the stimulus is no longer present. Olfaction does not play such an important role in the life of humans as it does in other animals, although it does play a significant role, albeit tacitly, in sexual behavior and looking after offspring.[34] The adequate stimulus for olfaction are gaseous molecules dissolved in air. Olfactory receptors are hair cells in the olfactory epithelium.

- Please follow the link below and observe the structure of the nose by paying special attention to the location of the olfactory epithelium.

  12_03_HH03

  http://www.termeszetvilaga.hu/orvosi_nobeldijak/2004.html

Olfactory sensation may vary significantly across individuals. Also, there are differences in olfaction between the two genders. Women are better at discriminating between different odors than men.

Our olfactory organ has deteriorated over evolution, which explains why our noses can get tired of a smell so quickly and adapt to it.[35]

---

[33] DÚLL Andrea: *Az érzékelés és az észlelés pszichológiája*. In: OLÁH Attila, BUGÁN Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös, 2000. 36-37-

[34] BÁRDOS, György: *Kémiai érzékelés.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 448-465.

[35] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

Taste

We sense taste by the taste buds located in the tongue, the soft palate, the throat, and the pharynx. Humans have about 10 000 taste buds, whose responsiveness and number reduces with age. A taste bud contains about 25 to 50 receptors, which have a half-life between 10 and 14 days. The adequate stimuli for gustatory sensation are chemical compounds dissolved in saliva, which carries them to come into contact with the receptors in the taste buds.

- Please, follow the link below and observe the location of taste bulbs on the tongue.

  12_03_HH04

  http://tudasbazis.sulinet.hu/hu/termeszettudomanyok/biologia/biologia-11-evfolyam/a-szaglas-es-az-izerzekeles/az-izerzekeles

Gustatory sensations are generally categorized into five basic tastes: sweet, salty, bitter, sour, and umami. Umami is sometimes called savory or meaty taste.[36] Different tastes are sensed in different parts of the tongue most intensively. Sweetness is sensed on the tip of the tongue, sour on its sides, salty on its entire surface, and bitter at its root.[37] This view has been challenged lately on the grounds that every gustatory receptor responds to all the tastes and thus taste sensation may be a matter of pattern sensation mechanisms.[38]

A serious role is played by olfaction in gustatory sensation, as we would find foods less tasty if we could not sense their smell.

Somatosensation

We distinguish three types of somatosensation:

- Touch (aka mechanoreception)
- Temperature sensation (aka thermoception)
- Sensation of pain (aka nociception)

[36] BÁRDOS, György: *Kémiai érzékelés.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 448-465.

[37] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

[38] BÁRDOS, György: *Kémiai érzékelés.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 448-465

Touch

The adequate stimulus for the sense of touch is mechanical pressure of the skin. What we feel best is changes in pressure. Most of the receptors are located on the lips, face, and finger tips, so these body parts are the most responsive to pressure.

Sensing temperature

Temperature is sensed by heat detector and cold detector receptors on the skin. These receptors, which respond to changes in temperature, are not evenly distributed on the skin. Sternberg has shown that heat receptors can respond to a 0.4 Celsius rise in temperature, while cold receptors respond to a 0.15 Celsius fall.[39]

Nociception

Sanders defined **pain** as intensive sensory discomfort and emotional suffering associated with actual or potential tissue damage or irritation.[40] Pain perception is determined by subjective psychological factors. This sensory modality plays a very important role in survival, as it urges the organism to avoid conditions that involve the risk of causing pain or to seek quick remedy. Pain impacts our comfort and emotional state.

We distinguish two different types of pain:

- Phasic pain: intense pain, which increases rapidly and attenuates equally rapidly.
- Tonic pain: dull, prolonged, constant pain.

Self-efficacy is one of the most important factors in controlling pain. This is the kind of interaction on which one of the most fundamental explanatory theories of pain, Melzack and Wall's (1965) gate control theory, is based. According to the theory, there is a "neural gate" in the central nervous system which, when closed, will inhibit pain nerve impulses from being transmitted to the brain. The gate is closed by

[39] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

[40] DÚLL Andrea: *Az érzékelés és az észlelés pszichológiája.* In: OLÁH Attila, BUGÁN Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest: ELTE Eötvös, 2000. 36-37.

signals sent downwards from the brain, which suggests that the perceived intensity of pain is affected by mental states.[41]

The sensation of pain is significantly affected by the culture one lives in. For example, young men in several indigenous communities must endure such apparently unbearable pains, without blinking an eye, during their initiation, which we can barely imagine.

3.2.3 Perception

Localization

Besides object recognition, our perception plays an important role in determining the position of objects. **Localization** is the perception of the position of objects. This is composed of several different factors, which include the distinction between the figure and the ground, the grouping of objects, perceiving distance and depth, and the perception of motion.

Figure and ground

When a stimulus contains two or more distinct parts, one of them is generally perceived as the figure (foreground) while the rest is perceived as the (back)ground. The part that is perceived as the figure contains the object, which appears denser than its background and is perceived as standing before it. The figure is not always unambiguous. As the example of Rubin's vase shows, sometimes the figure and the ground may be reversed. The phenomenon of figure and ground structuring occurs not only in visual perception, but also in the perception of sounds, tastes, and other types of stimuli.[42]

For example, the sound of a teacher's shoes walking along the hallway stands out from the rest of the noise heard in the school.

You may want to follow the link below and observe Rubin's vase, which is a good example of how the figure and the ground may be reversed

12_03_HH05

http://www.ektf.hu/hefoppalyazat/pszielmal/az_szlels_fogalma_s_funkcii.html

[41] SUHAI-HODÁSZ Gábor, *Pszichológia.* Budapest, SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa, 1999.

[42] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

What the pictures below show is how what is essentially the same picture may be perceived as two different pictures of two different things.

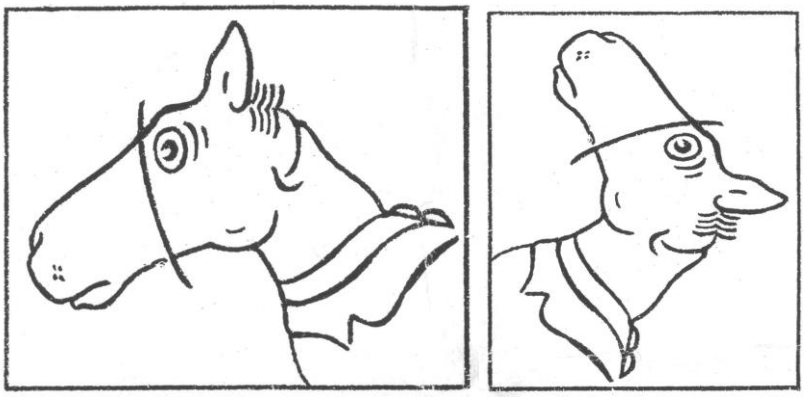

Figure 7. *A horse and its master*[43]

Parts of perceived stimuli are grouped in perception according to certain principles. The principles of perceptual organization were described by Gestalt psychologists:

- Law of similarity: objects that are similar to each other are perceived as a group.
- Law of proximity: objects that are close to each other are perceived as a group.
- Law of good Gestalt: expresses the tendency that we group elements of an object together if they form a regular, orderly pattern.
- Law of closure: we have a tendency to fill in missing parts (hiatuses) in an object and perceive the stimuli as constituting a complete whole.[44]

☐ You can find some examples of the laws of perceptual organization if you follow the link below.

12_03_HH06
http://hu.wikipedia.org/wiki/F%C3%A1jl:Gestaltalapelvek.JPG

[43] GRÄTZER József: *Sicc.* Budapest, Móra. 1977. 102.

[44] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

Perception of distance and depth

Both monocular and binocular cues contribute to the perception of distance and depth.

Monocular cues, as their name suggests, are stimuli that can be perceived even with one eye only. Painters and drawers often use such cues in two-dimensional pictures for the representation of distance and depth. Such perceptual cues and phenomena include:

- Relative size: larger objects are perceived as being closer.
- Interposition: an object that appears to be partially blocked by another is perceived as being farther away.
- Elevation: an object positioned lower and closer to the horizon is perceived as being farther away.
- Linear perspective: parallel lines (such as rails on a railway track) are perceived as converging "in the distance."
- Atmospheric perspective: we judge the distance of an object by the amount of particles of air between ourselves and the object. The thicker the amount of air, the more blueish-greyish in color and the farther away the object is perceived to be.
- Light and shade conditions: they change with distance, so we use them to infer distance.
- Motion parallax: objects that move faster are perceived as being closer than stationary objects or objects that move more slowly.[45]

Familiarity with monocular cues is essential in art, as painters, for example, use such cues to represent three-dimensional space in their two-dimensional paintings.

The fact that humans have two eyes, set apart at some distance from each other, plays a very important role in distance and depth perception. Cues so perceived are called binocular cues. They include the following:

- Accommodation: the curvature of the eye lenses can change depending on the distance of the object in the focus.
- Binocular parallax: due to the angular difference between the two lines of sight, our eyes view every object from two different angles.

[45] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

- Binocular disparity: due the difference in gaze angle between the two eyes, the images on the two retinas are slightly different. Our brain uses this difference to compute distance. The closer is an object, the larger the disparity.[46]

Perception of motion

From the perspective of motion perception, we distinguish between **apparent motion and real motion**. In perceiving apparent motion, a stationary image formed on the retina is perceived as moving. An excellent example of apparent motion is film (also called *motion picture*), in which stationary pictures are projected at a rate of 24 pictures per second, which we perceive as motion.

Induced motion is similar. The image on the retina does not move in induced motion either. What happens instead is that the larger background behind a smaller object in the foreground moves relative to the smaller object, which induces the illusion that the smaller object is moving. This is familiar from old movies, in which the illusion of a rapidly moving car, for instance, was (or wasn't) achieved by moving the background while the car was in fact stationary.

In real motion the image on the retina indeed moves, which creates the perception of a moving object.

We distinguish between two different kinds of real motion:

- Absolute motion: the object moves in front of a homogeneous background.
- Relative motion: the object moves in front of a patterned background.[47]

"It is particularly interesting that the proprioceptive receptors of eye muscles inform the visual system about eye movements; therefore movement of the retinal image due to mere eye movement does not produce motion perception. At the same time, our perceptual system is capable of perceiving motion even when we follow the moving object by moving our eyes, because it can compare information from eye movement with information from real image movement."[48]

---

[46] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

[47] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

[48] SUHAI-HODÁSZ Gábor, *Pszichológia.* Budapest, SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa. 1999. 68.

Perceptual constancies

Perceptual constancy may be defined as the perception of an object as constant despite changes in the retinal image of the object during perception.[49]

We distinguish several different kinds of constancy.

- Size constancy: the size of an object is perceived as constant despite changes in its image on the retina. (For example, a person sitting at a desk in the first row in a library reading room will be perceived as being of the same size even after she has moved to sit in the back row despite the fact that her image on the observer's retina will be smaller.)
- Shape constancy: the shape of an object is perceived as constant despite changes in its retinal image. (For example, a book is perceived as a book both from the anterior and from the lateral view despite the fact that its images on the retina will be different.)
- Lightness constancy: the lightness of an object is perceived as constant despite changes in the amount of light entering our eyes.[50]

Constancies are acquired through learning. Imagine seeing objects always as their images appear on the retina. You would see constantly changing objects in a constantly changing world, in which, therefore, it would be impossible to find reference points and recognize objects as selfsame.

It is clear from the foregoing that perception is as much a function of incoming stimuli as of prior experiences and expectations. Perceptual processes governed by incoming stimuli are called **bottom-up processes**. Perceptual mechanisms governed by our prior knowledge and expectations are called **top-down processes**.[51] The interaction between bottom-up and top-down perceptual processes is based on complex psychological principles.

---

[49] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

[50] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

[51] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

Research into the cognitive processes of sensation and perception still has many open questions to answer and is likely to return some interesting, perhaps unexpected results in future.

3.2.4 Attention

The cognitive process of attention is a frequent topic of conversations among teachers, in which recurrent complaints include “His attention is easily distracted;” “She is unable to concentrate;” “They cannot pay attention;” etc. Teachers often blame students’ academic failures on the insufficient operation of their attention. Good operation of attention is essential to successful learning. Therefore it is important for teachers to understand its characteristics, operation, and its general principles.

The concept of attention

It is very difficult to capture such a complex psychic function as attention in a single definition.

- **Attention is a process which enables an individual to select among stimuli and its operation provides a certain kind of orientation in the multitude of stimuli.**[52]

Types of attention

We distinguish different types of attention in terms of conscious directedness and effort.

- **Conscious (voluntary) attention**: Attention is conscious when it requires making a voluntary mental effort. For example, our conscious attention enables us to follow a boring lecture on what we need to take an examination in. In such cases, our conscious attention derives from our awareness of a duty. Planning, self-control, and interest help us control our attention.
- **Spontaneous (involuntary) attention**: Attention is spontaneous when it is involuntarily and suddenly directed toward a particular stimulus. Spontaneous attention is induced by unusually intensive stimuli (intensive light or loud noise), unusual stimuli (students from a masquerade party), or moving objects (think of seeing moving giant posters, which demonstrate advertising experts’

[52] CZIGLER, I.: *Figyelem, szelekció, téri figyelem*. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem*. Budapest, Osiris Kiadó, 2007. 483-510.

good understanding of how to attract people's attention). Pavlov called spontaneous attention people's "What is that?" reflex, as he regarded spontaneous attention an unconditioned reflex in humans.[53]

- **Automatic attention**: Automatic attention does not require conscious orientation or making an effort. It develops through practice. Our capability of automatic attention allows us to divide our attention between two or more activities and perform them simultaneously (multitasking).
- **Sustained attention** (vigilance): This is a type of attention that requires a large amount of mental effort for an extended period of time. This is the type of attention we need to explore and understand a set of problems. The worst enemy of sustained attention is time, because it fades as time passes. Sustained attention is affected by a person's motivation, expectations, interests, prior knowledge, and experiences.[54]

Features of attention

Scope of attention: It represents the number of different objects we can attend to at a particular point in time. Jevons conducted a very simple experiment as early as 1871 to study the scope of attention. He threw a handful of beans on a tray and then attempted to estimate the number of beans on the tray at a glance. He repeated the experiment several times, carefully recording his estimates of the number of beans and the real number of beans every time. When the number of beans exceeded 8 or 9, he began to make mistakes in his estimates. These experiments allow us to conclude that we can attend to 7 ± 2 objects at a time. This is identical to the capacity of short-term memory. However, our iconic (sensory) memory suggests that our scope of attention is larger than that but the amount of time is insufficient for the recognition and for reporting about the recognition of a larger number of objects, because our iconic memory stores information for only about 1 second.[55]

Attention span: It represents the length of time we can attend to an object. Attention span is affected by several different factors: how

[53] SUHAI-HODÁSZ Gábor, *Pszichológia.* Budapest, SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa.1999.

[54] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

[55] SÉRA László: *Általános pszichológia*. Pécs, Comenius Bt., 1998.

monotonous the stimulus we need to attend to is, our interest, our level of arousal (the state of being awake and reactive to stimuli), our awareness of a task, etc. This clearly shows that there is a great deal of variation across individuals in their span of attention.

Divided attention: Indicates the number of different things we can attend to simultaneously (aka simultaneous attention). Divided attention is nicely illustrated by Stroop's experiment, which you can conduct on yourself right below.[56] Try and name the color of the words below aloud.

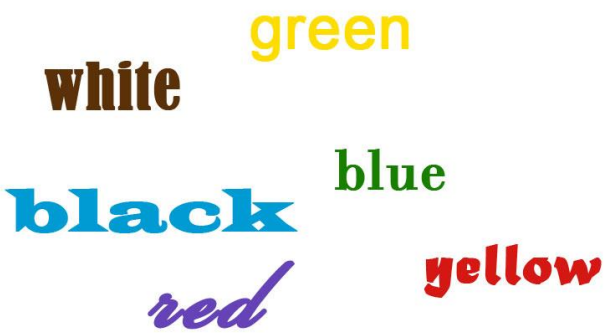

Figure 8. *Stroop's experiment*

If you find it difficult, it is because your attention is easily diverted by the meaning of the color words from the color in which they are printed.

Theories of attention

Several different theories attempt to model the operation of attention but none of them can account for all the phenomena and problems completely. Attention is most frequently studied in what have come to be called "cocktail party" situations. When you attend a cocktail party, you may talk with different people but you can always talk to only person at a time, and when you do, you ignore everything else happening, including all other conversations between other guests. This type of situation is sometimes modelled by what are called dichotic listening tests. In a typical dichotic listening test, two different auditory stimuli are played

[56] CZIGLER, István: *Figyelem: információfeldolgozás, teljesítmény*. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 511-552.

simultaneously to participants over headphones, directed into different ears. Subjects are asked to attend to the stimuli played into one ear, and then they are asked questions about what went into the other ear. Subjects do not generally remember the content of the piece of the unattended text, but they tend to remember its physical properties, such as whether it was a man or a women speaking or whether the speaker had a high or a deep voice. They also tend to recall nonverbal noises.

It was on the basis of such tests that **Broadbent** worked out his **filter model of attention**.[57] The theory assumes that the operation of attention involves a filter, which screens the information delivered by the sense organs allowing only information in the channel being attended to to pass on and get processed. The filter works on the basis of the "all or nothing" principle. The model fails to explain why subjects in a dichotic listening test are able to recall certain physical aspects of the unattended verbal stimulus. The model also fails to explain why most subjects can remember hearing their names in the unattended channel when they are included in the stimulus (own name effect).

The diagram below depicts Broadbent's model.

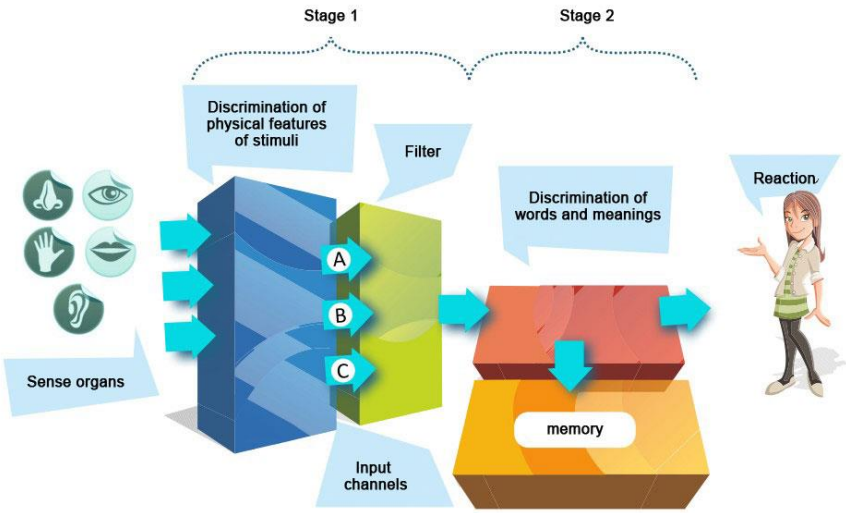

Figure 9. *Broadbent's filter model*[58]

[57] BERNÁTH, László, RÉVÉSZ György*: A pszichológia alapjai.* Budapest,Tertia,1994.

[58] PLÉH Csaba: *A tudomány jövője: A kognitív tudomány példája a tudományok tagoldásáról és diverzifikálódásáról.* Magyar Tudomány, 2007/09 1118. o. A jövőről a jelenben. http://www.matud.iif.hu/07sze/02.html letöltés dátuma: 2014. augusztus 18.

Treisman assumes an **attenuation system** in her theory, which attenuates signals coming in through the unattended channel with the result that the activity of attenuated signals does reach a critical threshold. Treisman's model accounts for why we can remember hearing our names in the unattended channel and why we can recall certain aspects of a verbal stimulus (heard in the unattended channel).[59] There is some experimental evidence that words coming in through the unattended channel also get processed and, although we may not be aware, such verbal stimuli affect our performance. "In one experiment, sentences coming in through the attended channel contained some ambiguous words (e.g., *The tank was empty*, in which the word *tank* may denote either an armored combat vehicle or a car's gasoline container), while in the unattended channel subjects were hearing words that were semantically related either to one or to the other meaning of the ambiguous word in the attended channel (e.g., *gasoline*). They were then asked to interpret the meaning of the sentences they had heard. Despite subjects' inability to recall a word they had heard in the unattended channel, when they were asked to interpret the sentence containing an ambiguous word, they chose the meaning for that word which was semantically related to the word in the unattended channel (e.g., 'The car stopped because it ran out of gasoline'). This shows that some processing of stimuli occurs prior to attentive selection and that the meaning of unattended stimuli can escape the selective filter."[60]

The latest theories of attention are capacity models. These theories are based on the assumption that the capacity of attention is limited and that this limited capacity is divided between different channels. The division of our attention capacity is affected by several factors, including our inclinations, needs, interests, arousal level, and the nature, significance, and familiarity of the stimuli.[61]

3.3 SUMMARY AND QUESTIONS

3.3.1 Summary

This chapter introduced you to the concepts of sensation and perception, which play very important roles in cognition. Now you should

[59] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

[60] SUHAI-HODÁSZ Gábor, *Pszichológia.* Budapest, SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa.1999. 98.

[61] SUHAI-HODÁSZ Gábor, *Pszichológia.* Budapest, SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa,1999.

be able to distinguish the two processes from each other and describe them. You learned about the concept of a threshold and the general psychological characteristics of the main sensory modalities (vision, hearing, olfaction, taste, and somatosensation). You gained some knowledge about localization within perceptual functions. The discussion of perceptual organization allows you to understand the principles that are involved in the organization of information we perceive. You also learned about how we perceive distance, depth, and motion and the types and effects of perceptual constancies. The discussion of attention allowed you to understand its general psychological features and its significance in cognition.

3.3.2 Self-test questions

- Which are the fundamental differences between sensation and perception?
- What biological processes underlie sensation?
- What does the concept of difference threshold mean?
- How would you describe the different sensory modalities?
- What is the essence of trichromatic theory and whose theory is it?
- What factors affect perception?
- Which are the principles of perceptual organization?
- What factors contribute to depth perception?
- What examples could you mention of apparent motion perception?
- How would you define the concept of perceptual constancy?
- What varieties of perceptual constancy do you know?
- What role does attention play in cognition?
- What is explained by the filter model of attention?
- How did Treisman modify Broadbent's filter model?
- What is the main idea in capacity models of attention?
- What features characterize attention?
- Can a person divide their attention?
- How would you characterize the different types of attention?

3.3.3 Practice tests

1 Which of these is the definition of absolute lowest threshold?

A. The lowest stimulus intensity we are capable of sensing.
B. The highest stimulus intensity we are capable of sensing.
C. The smallest change in the stimulus that causes change in sensation.
D. The highest stimulus intensity we are not capable of sensing.

2 What impedes conscious attention?

A. Task awareness
B. Absence of self-control
C. Interest
D. Planning

3 Which of these is not a feature of attention?

A. Scope
B. Span
C. Dividedness
D. Productivity

(Correct answers: 1-A; 2-B; 3-D)

4. MEMORY AND IMAGINATION

4.1 GOALS AND COMPETENCIES

The primary purpose of this unit is to present the general psychological features of memory and imagination. After completing the unit, students should be able to

- understand the main processes of memory and their features;
- understand how the multi-store model accounts for the operation of memory and understand its limits;
- understand the essence of working memory and how it accounts for the role short-term memory plays in information processing;
- understand what declarative memory is, its subsystems, semantic and episodic memory, and understand what procedural memory is;
- understand the role of memory and imagination in cognition and the interaction between these two processes;
- enumerate the features of reproductive and productive imagination.

It will take about two 90-minute sessions to acquire the content of the unit.

4.2 TOPICS

Topics will be discussed in the following structure:

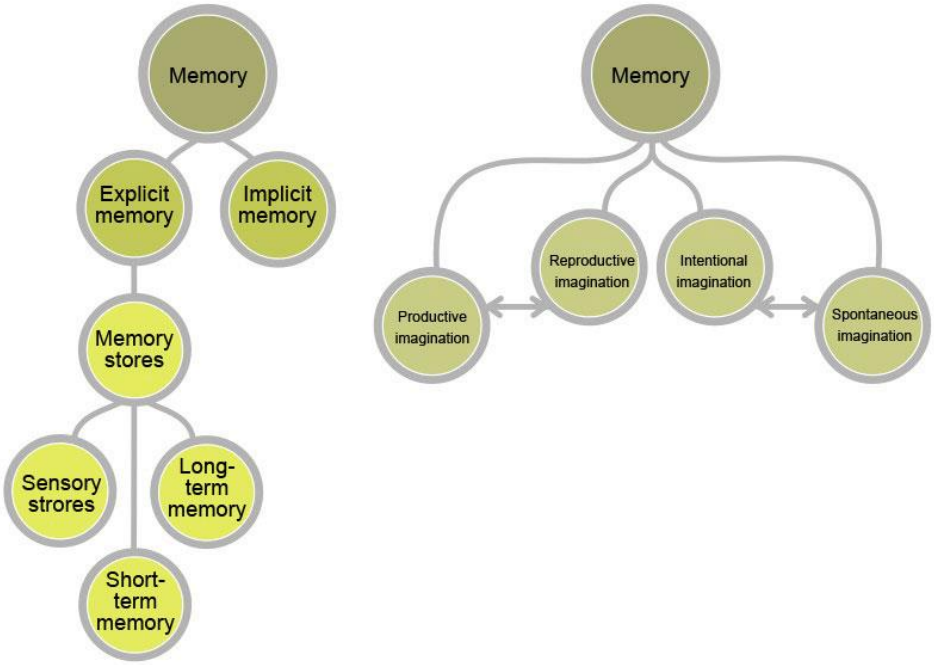

Figure 10.*Structure of topics*

4.2.1 Memory

Memory plays a very important role in learning and in our life in general. When we feel that we ought to remember something important we sometimes wish we could remember what we have just read without having to read it again and recall it whenever necessary. Some people wish they had eidetic memory, which is a kind of photographic memory that stores such a vivid picture of something we have seen that it becomes very easy to recall it, as if we were looking at a photograph when answering a question. Although there are universal principles that underlie memory, it is equally well known that people vary a great deal in their memory performances. Teachers may help their students a lot with increasing the efficiency of their memories by teaching them memory strategies or various mnemonic techniques.

Efficient memory presupposes forming memory representations of experienced states and events we may have been involved in.

Information is processed in different depths and on different levels during encoding experiences in memory.[62]

- **Memory is a complex process which involves several component processes. Encoding, storing, and retrieval are the fundamental processes of memory. Memory is a system composed of several subsystems, performing functions in storing and retrieving information.[63]**

4.2.2 Models of memory

A long-standing model of memory was the multi-store model, which assumed uniform memory stores. The model assumed that short-term memory was the vestibule to long-term memory and that repetition may move information from short-term memory into long-term memory.

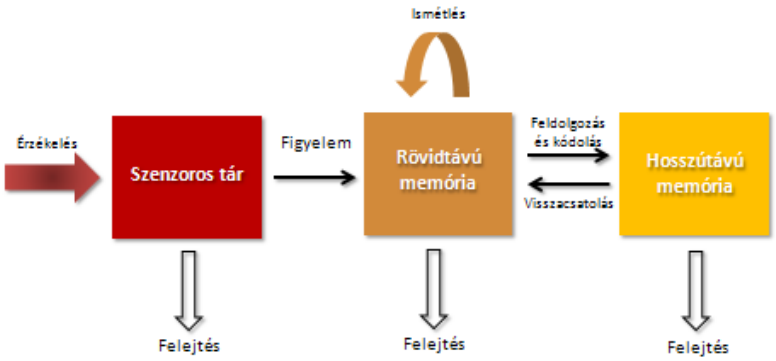

Figure 11. *Atkinson and Shiffrin's multi-store model*[64]

Memory stores

The multi-store theory of memory is a model of memory structure. The model assumes different memory stores where encoded information is stored. These memory stores interact with each other in specific ways.

---

[62] RACSMÁNY, Mihály: *Kódolás és előhívás az emberi emlékezetben* In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 159-176.

[63] BADDELEY, Alan: *Az emberi emlékezet.* Budapest, Osiris, 2003.

[64] http://serc.carleton.edu/NAGTWorkshops/careerprep/teaching/learning.html letöltés dátuma: 2014. augusztus 21.

Information transfer between the memory stores is affected by attention and rehearsal.[65]

Sensory stores

We are constantly bombarded by an enormous amount of information in virtually every minute of our lives. Our attention will select part of that information. The operation of attention processes is preceded by the activity of the sensory store, which assists us in the selection and processing of significant features. This was demonstrated in Sperling's classic experiment, in which subjects were shown 3 rows of letters, with 4 letters in each row, for a period of 50 ms and were asked to recall as many letters as they could. He found that subjects were able to recall 4 or 5 letters at most, but many of them reported that they had seen many more than they were able to recall. This was demonstrated by a modified experiment, in which one randomly chosen row was marked by a stimulus, which the subjects were asked to recall shortly after the letters were flashed on the screen. The subjects were able to recall any of the rows. The term "sensory store" suggests that these registers store sensory stimuli (image, sound, etc.). Sensory registers are modality-specific, which means that the manner in which information is stored in them corresponds to the type of sensory input of the sense organs. Accordingly, each sense organ has a corresponding register. We distinguish iconic, echoic, and haptic, etc. registers, which store visual, auditive, and tactile information, respectively. The capacity of sensory registers is large, but they store sensory information only for a few seconds. The length of storage time varies across registers. The iconic register can store information for 1 second and the echoic register for 2 to 4 seconds.[66] Forgetting in the latter occurs as fading. If attention is directed toward information stored in the sensory registers, it is retrievable and is transferred into the short-term memory under the effect of recognition processes.

[65] EYSENCK Michael W. – KEANE Mark T., *Kognitív pszichológia.* Budapest, Nemzeti Tankönyvkiadó.1997.

[66] SUHAI-HODÁSZ Gábor: *Pszichológia.* Budapest: SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa.1999.

Short-term memory (STM)

Short-term memory (STM) corresponds roughly to what William James called primary memory, which refers to information that is retained in consciousness after sensation and becomes part of it.[67]

STM is presupposed, for example, in keying a telephone number in when calling someone on the telephone.

Information is encoded in SMT acoustically and visually. As the name "short-term memory" suggests, memory traces are stored in STM for a short period of time, at most 30 seconds. One of its characteristic features is that its capacity is limited. Miller demonstrated that the storage capacity of STM is 7 ± 2 units, which is identical in everybody in the world. (Individual variation in memory primarily involves people's long-term memory.) Perhaps the term "chunk" is more appropriate than "unit" in the description of STM and the pieces of information stored in it, since we are capable of organizing bits of information into chunks, on the basis of prior experience and knowledge. For example, we can store many more numbers in STM if they are organized into meaningful chunks, such as historical dates, birthdays of family members, etc. Knowledge required for such organization is stored in long-term memory.

You can test the capacity of your short-term memory with a simple game. Just follow the link below.

12_04_HH01 http://egyszervolt.hu/jatek/jatek-majomparade.html

Another important feature of STM is its vulnerability. Two causes of why we forget things in STM deserve special mention: decay and interference. When information stored in STM is no longer necessary it begins to decay. Interference occurs when new information competes with old information and displaces it, as a consequence of the capacity of STM being limited, as already mentioned.

Baddeley and Hitch termed STM **working memory**, which will be discussed in more detail later in the unit.[68]

Information stored in STM may be transferred into long-term memory by rehearsal and practice.[69]

---

[67] EYSENCK Michael W. – KEANE Mark T., *Kognitív pszichológia*. Budapest, Nemzeti Tankönyvkiadó.1997.

[68] RACSMÁNY, Mihály: *Az „elsődleges emlékezet" – a rövid távú emlékezés és a munkamemória elméletei.* In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 177-208.

[69] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

Long-term memory (LTM)

While James's primary memory corresponds to the psychological present, his secondary memory, otherwise called long-term memory, corresponds to the psychological past, as it stores information that is no longer part of a person's consciousness.

As regards the capacity of LTM, it is capable of storing an unlimited amount of information for an indefinite period of time. Information in LTM is typically encoded semantically, i.e., on the basis of is meaning. Certainly, acoustic (e.g. a person's voice or the sound of an object) and visual (e.g. the cover of a book) information can also be encoded in LTM.

It is important for information in LTM to be consolidated. Consolidation takes time, the amount of which varies between a few minutes and as much as a year. If anything disturbs the consolidation of memory traces (e.g. concussion or electroshock), then information is lost. Brain areas that account for consolidation are the hippocampus and the almond-shaped amygdala. If these brain areas are damaged, consolidation of information in LTM is impaired and we can store information only for limited periods of time. Old information is still retrievable but it is impossible to store new information for a long time without the proper functioning of the hippocampus. Impaired LTM is a typical symptom of chronic alcoholics suffering from Korsakov syndrome, which prevents them from storing new information for an extended period of time. This is often due to damage to these two parts of the brain.[70]

Memory stores differ not only in how they encode information, how long they can retain information, and how much of it they can store, but also in how they forget information. Forgetting in LTM typically does not mean loss of memory traces, but, instead, impaired access to them. According to this assumption, sometimes called the permanent memory hypothesis, forgetting in LTM is not a problem of storage, as in STM, but a problem of retrieval. It is justified by what is called the "tip of the tongue" phenomenon and by the fact that in hypnosis patients can recall such old memories from childhood which have otherwise long been (believed to be) forgotten. Tulving distinguished two different types of forgetting:

- **Trace-dependent forgetting**: the memory trace is lost, in contrast to the permanent memory hypothesis.

[70] KÓNYA, Anikó: *A tapasztalat tartós fennmaradása – emlékezeti konszolidáció.* In.: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 209-235.

- **Cue-dependent forgetting**: the memory trace is still present but the cues for its retrieval have been forgotten.[71]

The latter suggests that cues play an important role in retrieval, having a considerable effect on its efficiency. This was demonstrated in an experiment in which subjects in one group were asked to recall a word list without cues and subjects in another were asked to do the same, but with cues (such as plant, animal, inanimate object). Retrieval in the latter group was much more efficient than in the former. And when members of the former group were also given such cues a second time, their performance in retrieval was just as good as that of the other group.

Interference plays an important role in forgetting in LTM. According to the interference hypothesis, forgetting occurs because memory traces compete with each other, therefore disturb each other. The degree of interference is a function of how similar two competing memory traces are to each other. We distinguish between proactive and retroactive interference.

- **Proactive interference (inhibition) occurs when some information already learnt impedes the acquisition and storage of new information. Retroactive interference (inhibition) occurs when the acquisition of new information impedes retaining old information.[72]**

Emotions also play an important role in forgetting. It is safe to say in general that we tend to remember events, experiences, and objects better when they are connected to positive emotions than when they are connected to unpleasant feelings. That is what Freud's theory of repression explains. Freud's repression theory assumes that memories and experiences that are associated with too much stress and trauma for consciousness to bear are repressed and relegated into the unconscious. Freud accounts for childhood amnesia (aka infantile amnesia, which means that we do not have memories from the first three years of our life) by assuming that it was such a traumatic experience that we completely repress it. Thus, on Freud's hypothesis, forgetting is not a retrieval error but the repression of active access to memories.[73]

---

[71] EYSENCK Michael W. – KEANE Mark T., *Kognitív pszichológia.* Budapest, Nemzeti Tankönyvkiadó.1997.

[72] HEBB, Donald O., *A pszichológia alapkérdései.* Budapest: Gondolat.1978.

[73] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

Strong emotions have a great impact on retrieval from memory. It is not very difficult to find examples which, in contradiction to Freud's repression theory, show that an unpleasant feeling may impede forgetting.

For example, the anxiety about an upcoming examination may be hard to forget.

4.2.3 Short-term memory and working memory

Alan Baddeley and Graham Hitch (1974) conducted a series of experiments in which they demonstrated that short-term memory was indeed uniform and limited in its capacity, as Atkinson and Shiffrin had claimed. They showed that processing and storage constituted two separate components within short-term memory. "Baddeley and Hitch proposed that short-term memory must be regarded as working memory, which sustains and manipulates information in tasks that involve drawing inferences, understanding, and learning."[74]

They highlight three main features of working memory:

- it performs temporary storage in a number of problem-solving tasks;
- it brings independent sources of information to interact with each other;
- it has limited capacity.[75]

[74] RACSMÁNY, Mihály: *Az „elsődleges emlékezet" – a rövid távú emlékezés és a munkamemória elméletei.* In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007. 177-208.

[75] BADDELEY, Alan: *Az emberi emlékezet.* Budapest, Osiris, 2003.

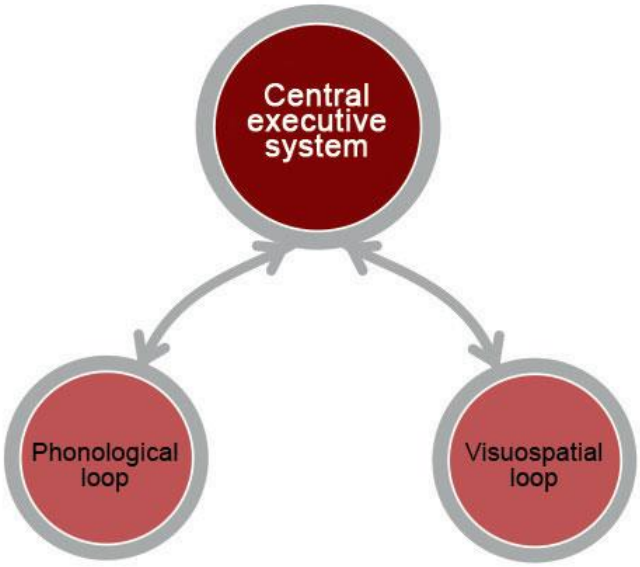

Figure 12. *Baddeley Hitch's (1974) three-component model of working memory*

As the diagram shows, this working memory model is composed of three subsystems: two modality-specific loops, the phonological and the visuospatial, and the modality-independent central executive system. The central executive system is responsible for the division of limited capacity between the two subsystems and for their interaction with each other. Significant results have already been produced in understanding the phonological loop but we are still far from clearly understanding the way the visuospatial loop works.

Several alternative working-memory models have appeared over the past few decades in experimental psychology but research in neuroscience is still based on Baddeley and Hitch's model of working memory.[76]

[76] RACSMÁNY, Mihály: *Az „elsődleges emlékezet" – a rövid távú emlékezés és a munkamemória elméletei.* In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 177-208.

4.2.4 Memory consolidation

Memory consolidation is the sustained storage of experience, the stabilization and storage of memory traces. Consolidation is not a unitary process but it occurs along different time scales.[77]

4.2.5 Explicit and implicit memory (declarative and procedural memory)

The most important results in the research on human memory come from comparisons of findings about amnesic patients with those about non-amnesic subjects. Interestingly, is has been observed that in certain types of learning tasks amnesic patients performed just as well as non-amnesic subjects. This suggests that some memory functions are not affected by amnesia.

Retrieval tests conducted on subjects with and without amnesia revealed that human memory is not uniform but, instead, it is composed of different subsystems which specialize for the performance of particular tasks and operate in different ways. One of these subsystems is explicit memory, which involves conscious recollection of information, and the other is implicit memory, which is not accessible consciously. Explicit memory stores knowledge and information acquired in the past, such as facts, data, and life experiences. This kind of knowledge may refer either to ourselves or to the world external to us. Tulving (1987) divided explicit, or declarative, memory, which represents information of the "knowing that" type, into two components:

- episodic memory: this is where we store our personal experiences, data, and the circumstances of knowledge, which assists us greatly in organizing our memories (e.g. experiences we have had with particular teachers);
- semantic memory: it is the storage place of our general knowledge of the world (e.g., this is where we store all the knowledge and facts we were taught in school).

Tulving (1985) used the following method to separate the two subsystems of memory. He conducted experiments in which he asked subjects to learn some words and then he asked them to recall those words (not necessarily in the original order but as they came to their minds) sometimes freely and sometimes with the help of some

[77] KÓNYA, Anikó: *A tapasztalat tartós fennmaradása – emlékezeti konszolidáció.* In.: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007.209-235.

meaningful keywords. In addition, subjects were also asked to decide during recall whether they indeed *remembered* the words or just *knew* them anyway. The subjects found it easy to decide. They *remembered* most of the words they recalled freely, while they *knew* most of the words they retrieved with the help of keywords. When we remember things, we can not only recall the content of information but we also remember the context in which we acquired it, i.e. the source it comes from. Thus, episodic memory is an "I remember" type of memory, while semantic memory is an "I know" type of memory. Both memory systems are accessible to consciousness. Some people distinguish between noetic knowledge, which is about the object of knowledge, as distinct from the person who has that knowledge, and autonoetic knowledge, which is directed toward the person who remembers, and its fundamental feature is self-awareness.[78]

So far, we have discussed the type of memory that is concerned with the conscious recall of prior experience or knowledge. A different type of memory is concerned with our skills. As experiments conducted with amnesic patients and non-amnesic subjects demonstrate, the explicit memory of amnesic patients may be damaged while their skills remain unaffected. For example, they do not forget how to ride a bicycle, even though most of their knowledge *about* riding a bicycle is lost. Experimental results suggest that there is a different type of memory which stores our skills.[79] The type of memory that is responsible for storing our skills is our implicit or procedural memory. What sorts of skills are stored in implicit memory? For example, motor skills, such as climbing stairs, playing tennis, etc., perceptual skills, such as perceiving distance, etc., and cognitive skills, such as writing, arithmetic, etc. Note, importantly, that knowledge *about* skills is stored in explicit memory.[80]

4.2.6 Imagination

When discussing mnemonic techniques above we have already noted that imagination may support memory performance. Imagination promotes not only memory but it is necessary for spatial orientation, creativity, and thinking, etc. too. Aristotle, the ancient Greek philosopher,

---

[78] KIRÁLY ILDIKÓ: *A deklaratív emlékezet – epizódikus és önéletrajzi emlékezet.* In.: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007. 236-267.

[79] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.

[80] SCHACHTER Daniel L.: *Emlékeink nyomában. Az agy, az elme és a múlt*. Budapest, Háttér Kiadó, 1998.

regarded imagination as the central medium of thought. Imagination is a complex process, which involves not only “internal images” but also feelings and person-related traits of objects and events in the world external to us. The following are examples of the manifestation of imagination:

- Imaginary image: conscious internal image that is not formed on the basis of external stimuli.
- Conceptual image: internal visual, acoustic or verbal image created without sensory stimuli as part of thinking.
- Visual aura: a point-like or web-like, colorful experience of a mostly moving image of retinal origin.
- Dream images: images that appear in sleep.
- Body image: the internal appearance of our body, a basic condition for the formation of the self.
- Phantom limb: body-sensing hallucination of the possession of a limb following its amputation, which is often accompanied by severe pain.
- Eidetic image: a short-lived, exceptionally bright, photographic memory image, which occurs rarely, more often in children than in adults.
- Cognitive map: an internal, mental map of the environment formed in, and assisting, spatial orientation.[81]

The concept of imagination

How can we define imagination after all? Lajos Kardos puts it as follows:

> **“We take memory images that occur to us simultaneously or one after another and, consciously or unconsciously, alter them, virtually manipulate them, and eventually combine them into a singular whole. This is imagination. Its product is an imaginary image.”[82]**

Thus, imagination combines familiar elements which already exist in new ways and creates something new, which never existed before.

Mythological creatures like centaurs or sirens, for example, are products of imagination.

[81] BERNÁTH, László, RÉVÉSZ György*: A pszichológia alapjai.* Budapest, Tertia,1994.
[82] KARDOS Lajos: *Általános pszichológia.* Budapest, Tankönyvkiadó, 1986. 165.

Figure 13.*I. Repin: Sadko in the underwater kingdom*[83]

[83] http://hu.wikipedia.org/wiki/F%C3%A1jl:Ilya_Repin_-_Sadko_-_Google_Art_Project_levels_adjustment_2.jpg accessed: September 28, 2014.

Figure 14.*S. Botticelli: Pallas and the Centaur*[84]

Productive and reproductive imagination

Reproductive imagination: In reproductive imagination, we mentally recreate something someone else has already imagined. For example, it would be impossible to enjoy reading fiction, poetry, etc. without

[84] http://www.kulturpont.hu/content.php?hle_id=17149
accessed: September 28, 2014.

reproductive imagination. When reading a book, we recreate a world already created by the writer once, with all its events, characters, and landscapes, on the basis of the words of the writer. The more we know about the world described in a book, the more successful the processes involved in imagination are going to be. So, our reproductive imagination enables us to present to ourselves other people's imaginations or explanations. Naturally, such reproduced images or ideas will differ in certain ways from the originals. Everyone is familiar with the disappointment they felt when the experience they had watching a movie, which was based on a novel, did not even come close to the experience they had had reading the novel. Imaginary images reproduced while reading the novel may differ greatly from the imaginary world recreated by the director of the movie.

One cannot overemphasize the importance of this type of imagination in the educational process, in which a teacher's explanations become accessible to students with the help of their imagination. Illustrations and demonstrations may help students form more accurate images in reproductive imagination.[85]

Productive imagination: In productive imagination an entirely new imaginary image is created, which remains within the boundaries of reality. The work of an artist, inventor, or scientist would be impossible without productive imagination. We construct images in productive imagination which may reveal aspects of reality never known before. Productive imagination may discover previously unknown relationships between phenomena and create stories with characters that never happened or existed.[86]

The link to an animated cartoon by Jan Svankmajer below is a good example of how an artist can create something entirely new from old elements by his productive imagination.

Intentional and spontaneous imagination: Conscious acts of imagination controlled by our intention are called intentional imagination. Most acts of productive imagination are intentional, although unconscious factors are also involved. In spontaneous imagination, we cannot help having imaginary images.

---

[85] ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [electronic document][February 1, 2014] http://www.ektf.hu/hefoppalyazat/pszielmal/

[86] SÉRA László, *Általános pszichológia.* Pécs: Comenius Bt.1998.

4.3 SUMMARY AND QUESTIONS

4.3.1 Summary

This chapter introduced you to the notion of memory, its basic component processes, and their features. The multi-store model of memory simplified thought about memory for a long time. Now we understand that memory is composed of different subsystems. The unit also clarified the roles different memory systems play in cognition and information processing (see the working memory model). The chapter explained the difference between declarative and procedural memory. We discussed the relationships between memory and imagination and the important role imagination plays in the teaching-learning process. General psychological features of productive and reproductive imagination have been clarified.

4.3.2 Self-test questions

- What fundamental processes are involved in memory mechanisms?
- What forms of retrieval do you know?
- What factors promote retrieval?
- What memory stores do you know? Describe them in terms of the form of encoding, length of storage, the capacity of storage, and forgetting.
- Distinguish between declarative and procedural memory.
- What subsystems is declarative memory composed of?
- What features characterize the consolidation process?
- Distinguish between retroactive and proactive interference.

4.3.3 Practice tests

1 Which of the following statements describes declarative memory?

A. This is where we store our skills.
B. Information stored here is not directly accessible to memory.
C. Its two subsystems are episodic and semantic memory.
D. This is where we store “knowing how” type memories.

2 Which of the concepts below is the odd one out?

A. Visuospatial loop.
B. Phonological loop.

C. **Semantic loop.**
D. Central executive system.

3 Which of these is an example of reproductive imagination?

A. **To imagine a house on the basis of its plan.**
B. To write a short story.
C. To write the lyrics of a song.
D. To invent a new device.

(Correct answers: 1-C, 2-C; 3-A)

5. FUNDAMENTAL FEATURES AND PRINCIPLES OF THINKING, LEARNING, INTELLIGENCE, AND CREATIVITY

5.1 GOALS AND COMPETENCIES

The purpose of this unit is for students to familiarize themselves with the basic concepts and general psychological foundations of thinking, learning, creativity, and intelligence. It is hoped that students will benefit from the knowledge of these concepts and principles in their pursuit of questions in educational psychology. Students will learn in this unit about the notion of thought and features of conceptual thinking and categorization. They will understand the similarities and differences between deductive and inductive thinking and understand the nature of problem solving. Students will learn about different types of learning and the similarities and differences between them. They will get acquainted with the notions of intelligence and creativity, their interrelationship, and ways in which they can be measured.

After completing the unit, students should be able to

- define what thinking is;
- define what a concept is;
- define prototypical features and the core of a concept and explain the difference between them;
- explain the essence of categorization and its significance;
- know the concepts of deductive and inductive thinking and the factors that affect their accuracy;
- know the steps in problem solving and factors that may be obstacles to the problem solving process;
- define the concept of learning;
- know the phenomena of habituation and sensitization and the differences between them;
- know the features of classical and operant conditioning and the concepts of generalization, discrimination, extinction and spontaneous recovery;
- know the characteristics of the two forms of complex learning;
- know the definition of intelligence;
- know different views of intelligence;
- interpret the notion of IQ;

- know views on the role of inheritance and the environment in shaping intelligence;
- know the relationship between intelligence and creativity;
- define creativity;
- enumerate the stages of creative thinking;
- enumerate the levels of creativity;
- enumerate and interpret creative abilities;
- know the possibilities for measuring creativity;
- discriminate between divergent and convergent thinking.

It will take about two 90-minute sessions to acquire the content of the unit.

5.1 TOPICS

Topics will be discussed in the following structure:

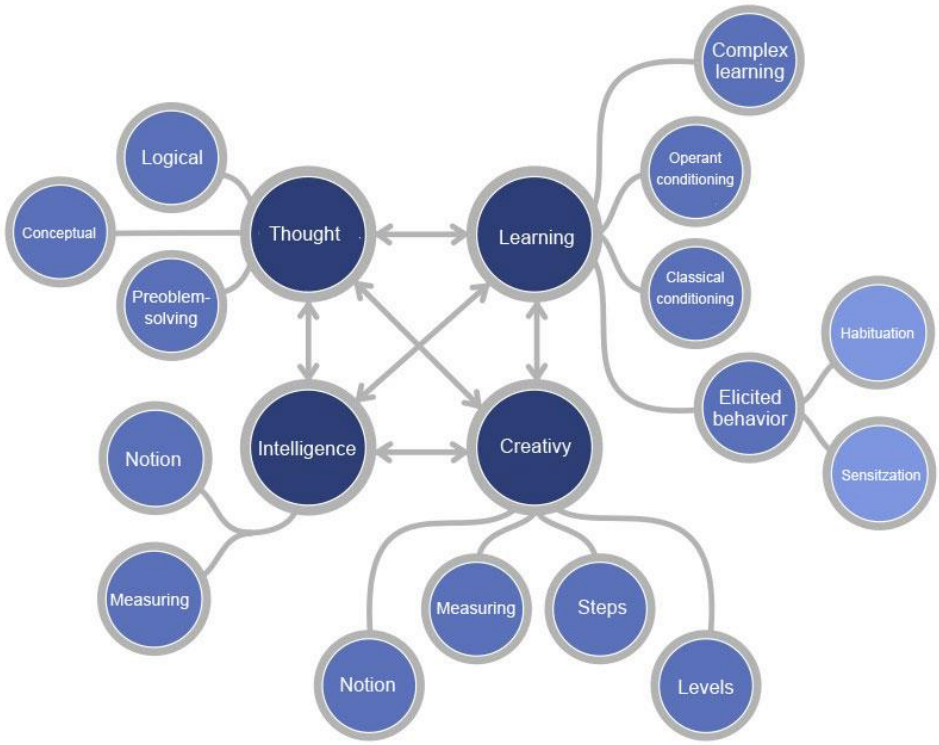

Figure 15.*Structure of topics*

5.1.1 The notion of thinking

- Thinking represents the highest level of cognition. It is hard to imagine life without thinking. If we did not think, we would be unable to plan or carry out such simple activities as baking a birthday cake. It is impossible to imagine human life without thought.

Thinking is defined in cognitive psychology as follows:

- **"Human thinking is characterized by the properties of information producing mental processes of making propositions, abstraction, drawing inferences, and problem-solving. This mental activity, which involves the processing, understanding, and communication of information, relies on images and concepts, which are representations of objects and events."**[87]

As the definition suggests, thinking is a symbolic activity in the sense that it involves the use of symbols and some other types of signs.

The most important symbolic system used in thought is language. It is hard to imagine thought without the use of language. The elementary units of language are words and the elementary units of thought are concepts.[88] We will discuss conceptual thinking in the following section.

5.1.2 Conceptual thinking

- The term *concept* is frequently used in ordinary conversations. What *is* a concept?

- **"A concept represents an entire class of things or the set of properties associated with such a class."**[89] **A concept contains our knowledge of things.**[90]

Our concepts may represent animate entities (e.g. dog, man, etc.), inanimate objects (e.g. table, pen, etc.), actions (e.g. eating, jumping,

---

[87] SÉRA, LÁSZLÓ: *Általános pszichológia*. Pécs, Comenius Bt., 1998. 136.

[88] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

[89] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997. 249.

[90] RAGÓ ANETT: *Kategorizáció és fogalmi reprezentáció*. In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 273-315.

etc.), states (e.g. exhaustion, oldness, etc.), or abstract entities (e.g. freedom, virtue, etc.).[91]

For example, the concept of a dog may be described with the following features: it has four legs, it is covered in hair, it barks, etc.

A concept may be described by a number of different properties or features. These features may be divided into two groups:

- *Prototypical features*: these are features of the best or most typical token of a concept, which are not necessarily shared by all instances of the concept.
- *The core of a concept*: this denotes features that are essential for concept membership.[92]

For example, 'hairy' is a prototypical feature of dogs, which is true of most but not all dogs, as some dogs are hairless. Core properties of dogness, on the other hand, such as certain genetic features, hold of all dogs.

Whenever we encounter things, we attempt to assign them to a concept.

When we see a dog, for example, we do not call it a 'hairy, four-legged, barking thing'; we call it a 'dog'.

The more prototypical a token of a concept is, the easier it is to decide whether it is an instance of that concept.[93]

5.1.3 Conceptual categorization

„Assigning objects to concepts is called categorization."[94] Categorization is simply the recognition of things and the act of distinguishing them from other things. Categories

[91] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

[92] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.

[93] RAGÓ ANETT: *Kategorizáció és fogalmi reprezentáció*. In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 273-315.

[94] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

are mental representations, which may change, e.g. grow broader or narrower, with experience.[95]

The significance of categorization is twofold:

- It is economical, as it divides the world into a manageable number of units.

Note that if we did not have concepts, we would have to use a different word for every single thing in the world, which would make both thought and verbal communication impossible.

- Second, categorization allows the prediction of properties that are not directly perceived.

For example, it is easy to infer about a sleeping dog that it is capable of barking, even though it is quietly asleep at the moment.

Conceptual categories may be arranged in a hierarchic system.[96]
The diagram below depicts such a hierarchic conceptual system.

[95] RAGÓ ANETT: *Kategorizáció és fogalmi reprezentáció*. In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007. 273-315.

[96] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.

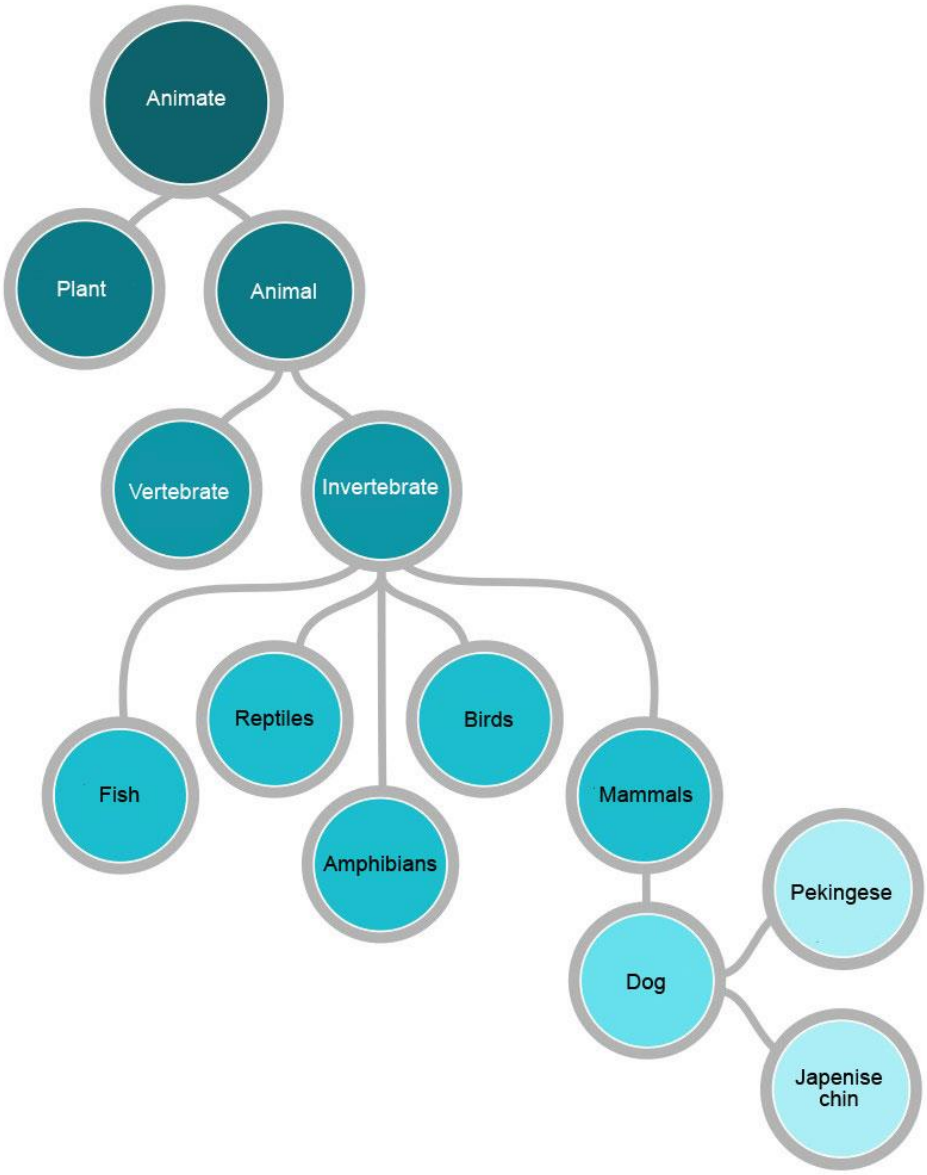

Figure 16.*An example of conceptual hierarchy*

As Rosch (1978) pointed out, categorization involves three levels: a superordinate level, a basic level, and a subordinate level. The basic level is cognitively the most economical level, as it expresses a sufficient number of distinctions for it to be informative. Therefore this is the level

that is most commonly used. The subordinate level expresses such fine distinctions that are of little use in practice and the superordinate level, on the other hand, "overlooks" some important distinctions.

Our conceptual systems are well organized and plastic. Some entities belong to more than one category. The way they are treated in a particular case is dictated by our goals.[97]

- *For example, a newspaper may belong either to the category of media or to the category insecticides, depending on whether we intend to read it or use it to kill a fly.*

5.1.4 Logical thought

In logical thought, we derive conclusions or inferences. There are two types of inference: deduction and induction. Let us consider their properties.

Deductive thinking

- **"In deductive inference, we infer from the general to the particular."[98]**

A classic case of deductive inference is a syllogism.

- **"A syllogism is a basic formula of Aristotelian logic, which contains two special statements (called premises) such that a third can be derived from them as their logical conclusion. So, its solution is based on deductive inference.[99]**

Consider the following examples:

- *All sparrows are feathered.*

  All feathered animals are birds.

  Therefore: all sparrows are birds.

The following syllogism illustrates an invalid (and false) inference:

---

[97] RAGÓ ANETT: *Kategorizáció és fogalmi reprezentáció*. In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 273-315

[98] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

[99] BARKÓCZI I: *A problémamegoldó gondolkodás.* In: Oláh, Bugán (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös, 2000. 118.

All birds fly.

All bats fly.

Therefore: all bats are birds.

Why do people draw invalid inferences sometimes?

Woodworth and Sells blame invalid inferences on what they call an atmosphere effect in syllogistic reasoning. This essentially means that the form of premises creates an atmosphere that invites us to accept a (false) conclusion in an invalid inference.

"The atmosphere effect contains two main principles:

- If at least one of the premises is particular, then we expect the conclusion also to be particular.
- If at least one of the premises involves negation, then we expect the conclusion also to be negative."[100]

Inductive thinking

In inductive reasoning we infer from particular cases to a general law.

A typical example is a task frequently assigned to students in mathematics classes, in which they are given a sequence of numbers and asked to infer the rule on which the sequence is based.

This, of course, also means that inductive thinking is based on probability, explained in probability theory.

We select two rules here:

- *Rule of frequency:* the more frequent something is, the more probable it is.
- *Rule of conjunction:* the probability of a statement cannot be less than the joint probability of the same statement combined with another statement.

However, people frequently violate these rules in practice.[101]

---

[100] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
BERNÁTH, LÁSZLÓ – RÉVÉSZ, GYÖRGY*: A pszichológia alapjai.* Budapest, Tertia,1994.

[101] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.

5.1.5 Problem solving

In everyday life, we typically use our capacity for thought to solve problems.

- **A problem is an unknown route to a specific goal; problem-solving is the discovery of this route.**

It also happens sometimes that the route is known but we are not sure of the destination.

A problem may be:

- *well defined*: all the data and factors necessary for the solution are identified accurately.
- *poorly defined:* there are many uncertainties, which may only be estimated.

Problem solving may be divided into the following stages:

- *Understanding the problem.* This often takes redefining the problem.
- *Planning, proposal for solution.* We short-list possible alternative solutions, weighing their adequacy, and work out the steps to take.
- Implementation, solving the problem.
- *Reviewing and checking results.* In case we fail, we start all over again from "square one."

Problem solving is often negatively affected by some personal factors. We will consider a few of these factors below.

- *Solution schemata:* solution schemata may be useful in solving problems of a familiar nature by leading to solutions more rapidly, but they may be a hindrance in trying to solve an entirely new kind of problem because they may introduce rigidity to the thinking process.
- *Disposition:* a state of readiness to react in a particular fashion, to act routinely, which may also hinder thinking.
- *Functional inflexibility:* insistence on the regular use of objects, which makes it hard to think of new possibilities of use.[102]

[102] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

5.1.6 The concept of learning

Learning has long been a phenomenon of interest for psychological research and it is perhaps the most important issue for teachers. What *is* learning? There are a number of apparently different phenomena we consider learning, including a child learning to walk to a physics major at college acquiring the law of relativity. How can learning be defined?

Learning is essential to survival and adaptation to the environment. The environment is constantly changing and we need to adapt to this permanently changing environment by learning.

This implies that learning is an experience-based change in behavior which yields a relatively stable new state. This may involve the acquisition of some new behavior or the weakening or cessation of an old behavior.[103]

An example of the latter is learning not to do something, for example, when a child learns not to shout out the correct answer in class unless he is asked to.

Csépe (2007) defines learning thus:

"Learning is a change in the mechanisms of behavior, including stimuli and/or responses, which is the result of experience gained in relation to those stimuli and responses."[104]

Obviously, man is not the only animal capable of learning. Nonhuman animals learn too. Psychologists often extrapolate results gained in experiments conducted on animals to human learning.

Learning can be intentional or unintended. The former requires intentionally making an effort, while the latter occurs of its own accord.[105]

---

[103] BERNÁTH, LÁSZLÓ – RÉVÉSZ, GYÖRGY*: A pszichológia alapjai.* Budapest, Tertia, 1994
CSÉPE, V.: *Alapvető tanulási formák*. In: CSÉPE, V. – GYŐRI, M. – RAGÓ, A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 24-85.

[104] CSÉPE, V.: *Alapvető tanulási formák*. In: CSÉPE, V. – GYŐRI, M. – RAGÓ, A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 26.

[105] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

- We will discuss four fundamental learning phenomena in this chapter:

- Elicited behavior, habituation and sensitization
- Classical conditioning
- Operant conditioning
- Complex learning

5.1.7 Elicited behavior: habituation and sensitization

Habituation is one of the simplest forms of learning. When an organism encounters an unusual stimulus, it elicits some response from it. If that stimulus occurs repeatedly, the response to it will weaken or desist completely. Obviously, it applies only to stimuli that do not have any significant effect on the individual.[106]

A classic example of habituation is the ticking of a clock. If, for instance, we stay in a friend's house and there is a pendulum-clock in the sitting room, the noise it makes may make it difficult to go to sleep the first night but we are unlikely to even hear it the following night.

Sensitization is the contrary process, in which response to a stimulus gets stronger. In sensitization, "the organism amplifies its response to a weak stimulus when it is followed by a painful or threatening stimulus. For example, we learn to respond to a noise made by an appliance if it repeatedly breaks down following that noise."[107]

5.1.8 Classical conditioning

I. Pavlov, the Russian physiologist, was the first to describe classical conditioning. What he used in his classic experiment was dogs' salivation reflex. It is an unconditioned innate reflex which makes a dog salivate at the sight of food. The sight of food was paired with a visual or acoustic stimulus in the experiment. After repeated pairings, the visual or acoustic stimulus alone caused the dog to salivate.

---

[106] CSÉPE, V.: *Alapvető tanulási formák*. In: CSÉPE, V. – GYŐRI, M. – RAGÓ, A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 24-85.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008
http://www.ektf.hu/hefoppalyazat/pszielmal/

[107] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997. 207-208.

You can view the experiment, with commentary in English, by following the link below:

12_05_HH01: http://www.youtube.com/watch?v=hhqumfpxuzI

In general, classical conditioning works as follows.

It is based on an unconditioned reflex, in which an unconditioned stimulus innately elicits an unconditioned response. The unconditioned stimulus is paired with a neutral stimulus, which is called the conditioned stimulus. As a consequence of the pairing, the unconditioned stimulus will be associated with the conditioned stimulus: the conditioned stimulus predicts the occurrence of the unconditioned stimulus, so to speak, so it alone elicits the response, which is then called the conditioned response.

The diagram below, modelled on Pavlov's experimental conditions, illustrates this.

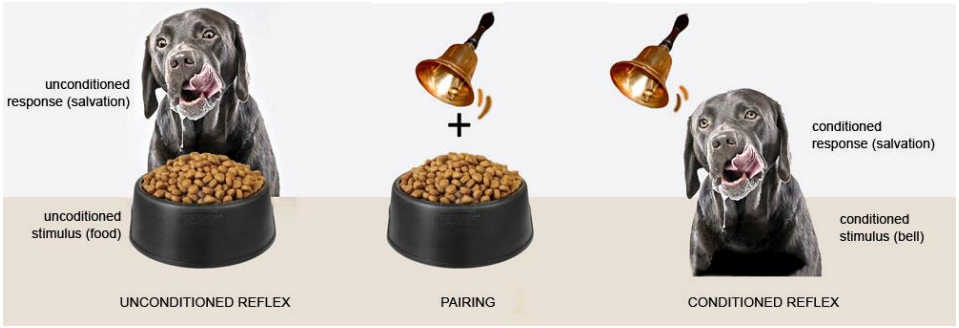

Figure 17. *Classical conditioning*

Pavlov believed that for learning to occur the two stimuli must be temporally juxtaposed, with less than 0.5 minutes between the two stimuli, when the effect is strongest. Subsequent research showed that it is not the juxtaposition of the two stimuli that matters but the strength with which the conditioned stimulus predicts the occurrence of the unconditioned stimulus.[108]

[108] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
CSÉPE, V.: *Alapvető tanulási formák*. In: CSÉPE, V. – GYŐRI, M. – RAGÓ, A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 24-85.

5.1.9 Operant conditioning

Operant conditioning, sometimes also called *instrumental conditioning* or *instrumental learning*, differs from all three types of learning (habituation, sensitization, and classical conditioning) discussed so far. While habituation, sensitization, and classical conditioning involve adaptation to environmental stimuli, without the organism having any effect on them, in operant conditioning the organism's behavior becomes the instrument of the consequence. Thus, as Skinner (1933, 1938) asserts, it is intentional rather than elicited.[109]

The most widely known experiments on operant conditioning were conducted by Thorndike and Skinner. The essence of Skinner's experiments can be summarized as follows. A rat or a pigeon was placed in what they called a Skinner-box, which contained a lever and a food dispenser. If the animal presses the lever, it is rewarded by food from the food dispenser. The animal will gradually "learn" that food "is delivered" after pressing the lever and so the rate of pressing the lever increases.[110]

You can view Thorndike's experiment, with English commentary, here: 12_05_HH02: http://www.youtube.com/watch?v=BDujDOLre-8

You can view Skinner's experiment, with English commentary, here: 12_05_HH03: http://www.youtube.com/watch?v=X6zS7v9nSpo

In operant conditioning, the animal will learn to associate a particular behavior with a particular consequence. The important point is reinforcement: "According to Thorndike's law of effect, behaviors that are followed by positive reinforcement (reward) are much more likely to be repeated than behaviors which are followed by negative reinforcement (punishment).[111] (Taskó)

[109] CSÉPE, V.: *Alapvető tanulási formák*. In: CSÉPE, V. – GYŐRI, M. – RAGÓ, A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 24-85.

[110] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.

[111] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

5.1.10 Features shared by classical and operant conditioning

Generalization, discrimination, extinction, and spontaneous recovery characterize the learning process both in classical and in operant conditioning.

- *Generalization:* It means that a response is elicited not only by the original stimulus but by any other stimulus that is similar to it. For example, in classical conditioning, any sound of a frequency similar to the original sound used as the conditioned stimulus in Pavlov's experiment elicits the conditioned response, or, if there are two levers in a Skinner-box, the rat will press both.
- *Discrimination:* is a process contrary to generalization. The animal will learn to discriminate between two similar stimuli, if only one of them is followed by reinforcement. For example, if only one of the sounds is followed by the delivery of food in classical conditioning, then salivation is elicited only by that sound; or, if food is delivered after pressing one specific lever in operant conditioning, then the animal will use that lever only.
- *Extinction:* If the occurrence of the unconditioned reflex is repeatedly not followed by the unconditioned stimulus in classical conditioning, then the conditioned response desists. If the behavior in operant conditioning is not followed by reinforcement, then the behavior desists.
- *Spontaneous recovery:* Extinction only means inhibition, since the extinguished response may recur in new situations spontaneously.

The strength of conditioning, both in operant conditioning and in classical conditioning, depends on temporal juxtaposition, so the shorter the period of time between the response and the reinforcement, the stronger the conditioning. While this is a matter of predictability in classical conditioning, in operant conditioning it is a matter of influence.[112]

[112] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T*.: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008
http://www.ektf.hu/hefoppalyazat/pszielmal/
CSÉPE, V.: *Alapvető tanulási formák*. In: CSÉPE, V. – GYŐRI, M. – RAGÓ, A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 24-85.

5.1.1 Complex learning

Learning is greatly affected by cognitive factors. Prior knowledge plays an important role, since that is what an organism's strategies and expectations are based on, which affect the acquisition of new knowledge. "On cognitive accounts of learning, animals construct mental representations of their environment and they subsequently perform mental operations (manipulation of symbols) on those representations. This enables an animal to mentally simulate an action without having to take chances with (often hostile) contingencies in the environment."[113]

Mind maps and learning by insight are commonly classified as complex learning, as both are based on the formation of internal mental representations.

Mind maps

A mind map is an animal's mental representation of the space around it. It is in general not obvious *that* learning happens or *when* the learning that produces such mental representations happens; therefore this kind of learning is sometimes called latent learning.

For example, think of what happens when you move to live in a new city. After a while, you will have constructed a map of the city in your head. So you will know where the library is, for example, although that knowledge will not materialize in your behavior until you need to borrow a book from that library.

The classic experiment that revealed mental maps in animals was conducted by Tolman on rats. The moral from that experiment was that rats that had had the opportunity to wander freely in a maze before the test were quicker at finding the way to the food than other rats which had not been given this opportunity.[114]

---

[113] JUHÁSZ, LEVENTE ZSOLT: *Komplex tanulás – kognitív tényezők a tanulásban*. In: CSÉPE V. – GYŐRI M. – RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007. 86.

[114] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008
http://www.ektf.hu/hefoppalyazat/pszielmal/
JUHÁSZ, LEVENTE ZSOLT: Komplex tanulás – kognitív tényezők a tanulásban. In: CSÉPE V. – GYŐRI M. – RAGÓ A. (szerk.): Általános pszichológia 2. Tanulás – emlékezés – tudás. Budapest, Osiris, 2007. 86-110.

Learning by insight

The first experiments in connection with learning by insight were conducted by Wolfgang Köhler.

Experiments were conducted under a variety of conditions which shared one central aspect: animals were put in problem situations which could not be solved easily. The solution always involved insight. Insight means that the means and the end are connected with each other in the animal's mind. Insight always occurs suddenly, without any behavioral antecedent, and is accompanied by an "aha" experience. It typically occurs after physical attempts. Thus, it is a sort of mental trial and error learning, where the solution is first created mentally and is carried out physically only afterwards. This naturally implies that a mental representation of the problem is constructed in the mind of the animal.[115]

For example, the chimpanzee was unable to reach the banana from its cage, but, all of a sudden, it realized that it could use a stick to pull the banana in.

You can view Köhler's experiments in a video here:
12-05_HH04 http://www.youtube.com/watch?v=FwDhYUlbxiQ

The results of learning are lasting both in mind maps and in learning by insight. They are not extinguished and can be reapplied later in similar situations.[116]

5.1.11 The notion of intelligence

Intelligence is the single most popular psychological concept people are most curious about. The amount of studies, research papers, books, and online publications on intelligence could fill many libraries. When teachers talk about their students, they often describe some of them as intelligent, which in their usage is a synonym of *smart* or *clever*.

---

[115] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008
http://www.ektf.hu/hefoppalyazat/pszielmal/
JUHÁSZ, LEVENTE ZSOLT*: Komplex tanulás – kognitív tényezők a tanulásban.* In: CSÉPE V. – GYŐRI M. – RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007. 86-110.

[116] JUHÁSZ, LEVENTE ZSOLT*: Komplex tanulás – kognitív tényezők a tanulásban.* In: CSÉPE V. – GYŐRI M. – RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007. 86-110.

? What *is* intelligence? What does this term mean to *you*? Try and explain it in a few sentences.

Intelligence has been defined by many people in many different ways. One of the best-know definition is Boring's:

"Intelligence is what is measured by intelligence tests."

Apparently, Boring's definition does not tell us very much about intelligence, but when you learn more about the nature of intelligence, you realize that it is not all that far from the truth.

Neisser (1996), cited by Zsuzsanna Vajda, offers a much more detailed description of intelligence.

"Individuals differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, to overcome obstacles by taking thought. Although these individual differences can be substantial, they are never entirely consistent: a given person's intellectual performance will vary on different occasions, in different domains, as judged by different criteria. Concepts of "intelligence" are attempts to clarify and organize this complex set of phenomena."[117]

As is apparent from Neisser's definition, intelligence is a complex phenomenon, which involves several factors.

5.1.12 General intelligence vs. domain-specific faculties

A central issue in the study of intelligence is whether it is a general capability or a complex system of specific faculties. Galton viewed intelligence as a general capability, which is involved in any cognitive behavior, affecting individual performance on different levels. In contradiction to Galton, Binet regarded intelligence as a complex system composed of specific faculties (including language, arithmetic, memory, etc.).[118]

The generally accepted view today is that there is a general factor of intelligence, the g factor, which is involved in every cognitive task, but it is equally widely accepted that there are some specific faculties in us too.

[117] VAJDA, ZSUZSANNA: *Az intelligencia természete.* Magyar Pszichológia Szemle, 2002. LVII. 1. 85-109.

[118] GYARMATHY, ÉVA: *IQ és tehetség*. Magyar Pszichológia Szemle, 2002. LVII. 1. 127-154.

Gardner's multiple intelligences theory deserves special mention in this regard, which assumes 7 different modalities of intelligence:

- verbal
- logical-mathematical
- bodily-kinesthetic
- musical
- spatial
- interpersonal
- intrapersonal

The hypothesis on multiple intelligences is often emphasized in discussions about individual variation among students, especially in alternative educational trends.[119]

5.1.13 Nature or nurture?

The nature vs. nurture debate, an important issue in connection with intelligence, has a long history. It was first addressed by Galton, who considered inheritance to be decisive about the development of intellectual capacities. Binet, in contrast, emphasized the role of environmental factors.[120]

Today, the general consensus of opinion is that genetic and environmental factors interact with each other in determining intelligence. People with higher IQs can exploit environmental conditions more efficiently, so they develop better. At the same time, some studies have shown that poverty of stimulus in the environment leads to deterioration.[121]

5.1.14 Measuring intelligence

Several different methods have been worked out for measuring intelligence. The first intelligence test was designed by Alfred Binet and Theodor Simon for children, at the request of the French minister of public education. Its first variant was presented by Binet in 1905.

---

[119] KOVÁCS, KRISTÓF: *Arthur Jensen és az IQ-vita 1969-től 2000-ig.* Magyar Pszichológiai Szemle, 2002. LVII. 1. 5-38.

[120] SZOKOLSZKY, ÁGNES: *Öröklés-környezet: mit is jelent az „is"?* Magyar Pszichológiai Szemle, 2002. LVII. 1. 51-84.

[121] GYARMATHY, ÉVA: *IQ és tehetség*. Magyar Pszichológiai Szemle, 2002. LVII. 1. 127-154.

Their purpose was to design a measuring device which could be used to separate children who were mentally healthy from those who were mentally retarded.

Binet's test was specifically motivated by considerations of scholastic performance and measured mainly reproductive abilities, it was heavily culture-dependent, and performance on the test was considerably influenced by the amount of formal education. The Hungarian version of the test was worked out by Mátyás Éltes.[122]

The concept of IQ was introduced by Stern in 1911: intelligence age divided by biological age times 100. Values between 90 and 100 are considered the normal intelligence range.

However, recent studies conducted with methods of measuring the speed of mental processing have shown that individual variation in higher cognitive functions is predictable with tasks requiring apparently low levels of cognitive processing.[123]

5.1.15 Intelligence and creativity

- **Intelligence requires the activation and application of knowledge already acquired; the problem-solving procedure that is necessary for this is called convergent thinking.**
- **Creativity is the activation of knowledge in different domains in divergent thinking, which, by abandoning well-trodden paths, leads to several different alternative answers and solutions.**

Intelligence allows us to employ knowledge already acquired in different situations; creativity, by contrast, allows us to explore the possibilities in a situation and solve it.

From the perspective of the relationship between intelligence and creativity, MacKinnon's (1978) "threshold concept" deserves to be mentioned. According to MacKinnon, there is moderate positive correlation between intelligence and creativity up to about 120 IQ, but beyond that, neither IQ nor academic achievements predict the degree of creativity. So, high IQ is no guarantee for creativity and low IQ does not give creativity a chance to appear.

---

[122] VAJDA, ZSUZSANNA: *Az intelligencia természete.* Magyar Pszichológia Szemle, 2002. LVII. 1. 85-109.

[123] ANDERSON, M.: *Intelligencia és fejlődés. Egy kognitív elmélet.* Budapest, Kulturtrade Kiadó, 1998.

A creative person is a problem-solver and a problem-finder.[124]

The difference between students who are both intelligent and creative and students who are merely intelligent lies in important personality traits and characteristics of motivation and habituation.

Intelligence is highly appreciated in education, but creativity is often considered a problem.

"Allowing creativity to gain more ground in everyday educational practice is the best we can do in the interest of future talents, because creative work may facilitate and enhance an individual's deep interest and desire to produce something original."[125]

5.1.16 The concept of creativity

- Creativity is a neglected aspect of education. Little attention is paid to developing students' creativity in the teaching-learning process, despite the fact that it is a faculty that makes flexible adaptation to changing conditions possible, among other things, innovation is impossible without it, and it is an important component of talent.

The term *creativity* derives from the Latin word *creare,* which means 'to make, bring forth, produce, beget'.[126]

Creativity has been defined in a number of different ways. It is not easy to capture such a complex and intangible phenomenon in a concise definition. Éva Gyarmathy (2011) offers the following definition of creativity:

- **"It denotes that elusive process in which elements in the mind are reorganized in an unprecedented manner and something new and original is produced, and the behavior in which an individual resists old habits and not only tolerates but actively seeks the ambiguous and the disorganized, from which a new order may emerge."[127]**

According to Guilford (1957), creativity manifests itself in divergent thinking. Divergent thinking allows us to approach a problem from different aspects and connect otherwise independent elements with each other, which might otherwise be considered mutually incompatible. Tasks

---

[124] GYARMATHY, ÉVA: *IQ ÉS tehetség.* Magyar Pszichológiai Szemle, 2002. LVII. 1. 127-154.

[125] GYARMATHY, ÉVA: *IQ ÉS tehetség.* Magyar Pszichológiai Szemle, 2002. LVII. 1. 127-154.

[126] LANDAU, ERICA: *A kreativitás pszichológiája.* Budapest, Tankönyvkiadó, 1974.

[127] GYARMATHY, ÉVA: *Kreativitás és beilleszkedési zavarok.* In: Münich, Ákos (szerk.): *A kreativitás többszempontú vizsgálata.* Debrecen, Didakt Kiadó, 2011. 9-47.

which are intended to develop divergent thinking may be solved in several different ways.

Below is a summary of ways in which divergent thinking manifests itself.

- Sensitivity to problems.
- Easy-flowing thinking (fluency), which quickly connects words and concepts with each other.
- Flexibility of thought, which allows the productive variation of different solutions.
- Originality of thought, which allows a person to come up with unusual solutions.[128]

5.1.17 Abilities presupposed by creativity

Guilford, and later **Torrance,** collected at least ten **creative abilities**, which they believe constitute creativity.

- **Sensitivity**: Sensitivity to problems. Creative individuals perceive problems that go unnoticed by others.
- **Fluency**: Associative "richness;" creative people generate many ideas.
- **Originality**: An important aspect of creativity is that it can produce new, unusual, and innovative solutions to problems by using novel and unusual ideas. (This ability is measured in Remote Association Tasks.)
- **Flexibility**: Creative people employ varying approaches and a variety of ideas.
- **Synthesis**: Creative people organize their thoughts into larger and more coherent wholes.
- **Elaboration**: Creative people can fill in missing detail. They construct a structure on the basis of available information. (Creativity in thought is required when an idea becomes a plan.)
- **Analysis**: Creative people dismantle symbolic constructs and build new ones.
- **Redefinition**: Creative people perceive the world in unconventional ways and can use objects for novel purposes.

[128] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

- **Complexity**: Creative people are able to work with a large number of mutually related thoughts.
- **Evaluation**: Creative people can easily assess the value of new ideas.[129]

5.1.18 Stages of creative thinking

Graham Wallas distinguished the following four stages in creative thinking:

- Preparation: During the preparation stage we discover that there is a problem, collect data and information in connection with it, we think the available information over, classify data, and draw inferences.
- Incubation: The incubation stage is characterized by tense expectation. In this stage we let the problem rest or masticate. Following the previous, preparatory, stage, we have come to a point at which it is not clear how we can move on, so we will let our thoughts rest or flow around freely for a while. For how long is a matter of the nature of the problem.
- Illumination: In this stage the solution suddenly reveals itself. This revelation is accompanied by an "aha" experience.
- Verification: The most important function of this stage is to verify or falsify the creative idea.[130]

Stages of the creative process are nicely illustrated in a well-known anecdote about Archimedes.

> *"King Hiero once asked Archimedes to determine whether an otherwise beautifully crafted crown was made of genuine gold, which he intended to place on the statue of Zeus, who could, obviously, only be crowned with something made of pure gold. Archimedes was in trouble because he had no idea how he could comply with the king's request. He tried comparing the color of the crown with the color of coins he knew were made of gold and he tried weighing a small amount of filings of the crown, which, obviously, had to be minimal, with filings of a gold coin, but neither strategy worked. Archimedes was in such agony that he couldn't even sleep. He chose to go the public bath rather than spend the*

[129] MEZŐ, Ferenc, MEZŐ, Katalin: *Kreatív és iskolába jár.* Debrecen, Tehetségvadász Stúdió – Kocka Kör Tehetséggondozó Kulturális Egyesület, 2003.
[130] TÓTH, LÁSZLÓ: *Pszichológia a tanításban.* Debrecen, Pedellus Kiadó, é. n.

night rolling about sleeplessly. The bath was empty. As he stepped into the pool, he saw the water rise level with the edge of a stair. When he saw this, he repeated the exercise several times and finally jumped out of the pool shouting, "Eureka! I have found it!"[131]

With the discovery of the law later named after him it was easy for Archimedes to determine the volume of an irregularly shaped object and comply with the king's request.

5.1.19 Levels of creativity

Taylor (1960) distinguished 5 levels of creativity from the perspective of its product:

- Expressive creativity: is characterized by independence of expression, without regard to the quality of the product (e.g. children's drawings)
- Productive creativity: its essence is the effort made in the interest of completion, for which the creator is ready to sacrifice part of their freedom.
- Inventive creativity: discovery of novel relationships, use of old tools in new ways for novel functions.
- Innovative creativity: its essence is the process of modification and perfection. (e.g. Jung)
- Emergent creativity: the creation of an entirely novel product; the highest level of creativity. (e.g. Freud, Einstein, Picasso, etc. reached this level of creativity)[132]

5.1.20 Measuring creativity

Measuring creativity is no easy matter. The difficulties stem from the very nature of creativity. It is difficult to say what is expected and when you have some results or products, it is not easy to decide whether to regard them as creative or not. While objectivity is a prerequisite for any test, an element of subjectivity is apparently ineliminable in measuring creativity. Several different methods are used to measure creativity. The best-known tests are the Torrance Tests of Creative Thinking, which include the Unusual uses test and the Circles test. Some other methods include:

---

[131] KÜRTI, JÁRMILLA: *Kreativitásfejlesztés kisiskoláskorban.* Budapest, Tankönyvkiadó, 1986.

[132] TÓTH, LÁSZLÓ: *Pszichológia a tanításban.* Debrecen, Pedellus Kiadó, é. n.

- Self-report
- Report by others
- Divergent thinking tests
- Biographical analysis
- Personality analysis

5.2 SUMMARY AND QUESTIONS

5.2.1 Summary

This unit introduced you to the basic concepts, issues, and psychological foundations of thought, learning, creativity, and intelligence.

5.2.2 Self-test questions

- How would you define thinking?
- What is meant by the prototypical features of a concept and its core?
- What does categorization mean and which are its levels?
- What are the characteristic features of deductive thinking?
- What are the characteristic features of inductive thinking?
- Enumerate the stages in problem solving.
- What factors may impede the problem-solving process?
- How do you define learning?
- What is meant by habituation and sensitization and how do they differ from each other?
- What are the characteristic features of classical conditioning?
- What are the characteristic features of operant conditioning?
- What are the characteristic features of mind maps and learning by insight?
- How would you define intelligence?
- Discuss views on intelligence.
- What does IQ mean?
- What is the role of inheritance and the environment in the development of intelligence?
- Who worked out the first intelligence test which has a Hungarian version?

- How do intelligence and creativity relate to each other?
- What do we mean by creativity?
- What are the stages of creative thinking?
- How can you measure creativity?
- What abilities are presupposed by creativity?

5.1.2 Practice tests

1, Which of these is not a factor that impedes problem solving?

A. Solution schemata
B. Functional inflexibility
C. Generalization
D. Disposition

2, Who is classical conditioning associated with?
A. Skinner
B. Pavlov
C. Thorndike
D. Köhler

4, Which of the following statements is true for intelligence?
A. Intelligence is solely determined by innate factors.
B. Intelligence is solely determined by environmental factors.
C. Intelligence is determined by inheritance and maturation.
D. Intelligence is determined by the interaction of inheritance and the environment.

(Correct answers: 1-C; 2- B; 3 –D)

6. PROCESSES THAT ENERGIZE BEHAVIOR: MOTIVATION AND EMOTIONS

6.1 GOALS AND COMPETENCIES

The purpose of this unit is to help students understand the processes which energize and direct our actions. The first part of the unit discusses motivation and the second part treats emotions.

Both the term *motivation* and the word *emotion* derive from Latin *movere,* which means 'move'. Indeed, the idea of 'moving someone to act' is part of the meaning of both concepts. A second property these concepts share is that the phenomena denoted by them are based on underlying physiological processes.

The first part of the unit is devoted to questions of motivation. First, we will clarify the basic concepts and biological bases of motivation and then we will discuss different theories of motivation and ways in which motives can be classified. This is followed by the presentation of human-specific motives and a discussion of Maslow's hierarchy of motives.

In the second part of the unit, first we discuss the concept of emotion, followed by a discussion of its components. Finally, we present some theories of emotion.

After completing the unit, students should be able to

- define the concept of motivation;
- be familiar with the biological bases of motivation;
- define the concepts of need, drive, habit, incentive, and homeostasis;
- briefly describe theories of motivation and explain the difference between the drive reduction theory and the arousal theory;
- explain the Yerkes-Dodson law;
- classify motives;
- understand the difference between extrinsic and intrinsic motivation;
- understand the relationship between achievement motivation and demand level;
- describe Maslow's hierarchy of needs;
- define emotion;
- understand the difference between mood and emotion;
- briefly summarize the components of emotions;

- briefly summarize the peripheral, central, and two-factor theories of emotion, and know who they were constructed by.

It will take about two 90-minute sessions to acquire the content of the unit.

6.2 TOPICS

Topics will be discussed in the following structure:

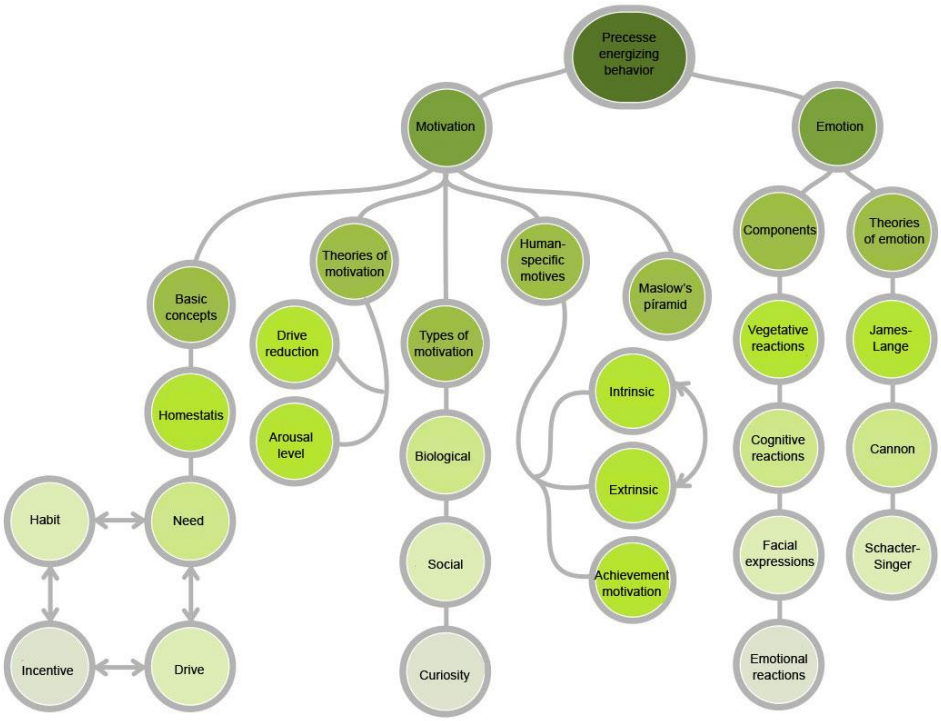

Figure 18. *Structure of topics*

6.2.1 Basic concepts of motivation

Motivation is one of the most important driving forces that moves people to act. In general, different motives may move people to do different things, though a particular action may be the consequence of several different motives and, conversely, a particular motive may move one to do many different things.

- **By motivation we mean the internal factors which move an individual to act.**[133]

Motivation sustains behavior until it is satisfied, determining the degree of a person's activity, and the organization and efficacy of behavior.[134]

Motivation is not specific to humans. Non-human animals are also motivated primarily by biological motives having to with reproduction. Some motives, on the other hand, such as aesthetic needs, are specific to humans.

For these reasons, we will discuss the biological foundations of motivation first and then we will move on to discuss human-specific motives.

6.2.2 Biological foundations of motivation

Living organisms strive to maintain internal constancy in the context of continuously changing environmental conditions.

- **The complex set of mechanisms whose function is to maintain a state of internal balance is called homeostasis, following Cannon.**

Organisms sometimes fail to maintain their internal balance. When an organism's internal balance is upset and cannot be restored by the resources available to the organism, a need arises.

- **Need: physiological deviation from ideal values; some deficit in the organism, which, if continues to obtain for an extended period of time, is a threat to the health, or even the life, of the organism, for example, deficiency of oxygen or nutrients, etc.**

The psychological counterpart of need is drive.[135]

- **Drive: internal motivation to act, which arises from a need.**

---

[133] SÉRA, LÁSZLÓ: *Általános pszichológia*. Pécs, Comenius Bt., 1998.

[134] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
SZABÓ, Mónika: *Motiváció.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 169-191

[135] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997.

The function of drive is not to govern but to energize an organism. This means that drive only supplies the force for an organism to act in order to satisfy its needs but it does tell the organism anything about how to do that.[136]

Not every need manifests itself in a corresponding drive. For example, vitamin D deficiency does not urge an organism to compensate for it.

- **A habit is the aggregate of learning experience about what kind of behavior can successfully satisfy a need.**
- **An incentive is the attractive, action-inducing power of a stimulus.**
- *In the motive of hunger, for example, different foods may be associated with different incentives, i.e., vary in attractiveness, based on prior experience.*

A stimulus will acquire the force of an incentive based on experience in how successfully it has contributed to the satisfaction of a need. An incentive may substitute a drive — you do not need to be hungry to consume a bar of chocolate.

Naturally, more than one motive may move a person to act in a particular way, as we may have more than one need at a time. The question of which of these needs will eventually determine a behavior is affected by its urgency, although humans are capable of consciously deferring the satisfaction of a need.[137]

- *For example, students in class are (ideally) capable of deferring the satisfaction of their hunger or thirst.*

The diagram below represents the pattern of motivated behavior.

---

[136] URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.

[137] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997.
URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
SZABÓ, Mónika: *Motiváció.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 169-191

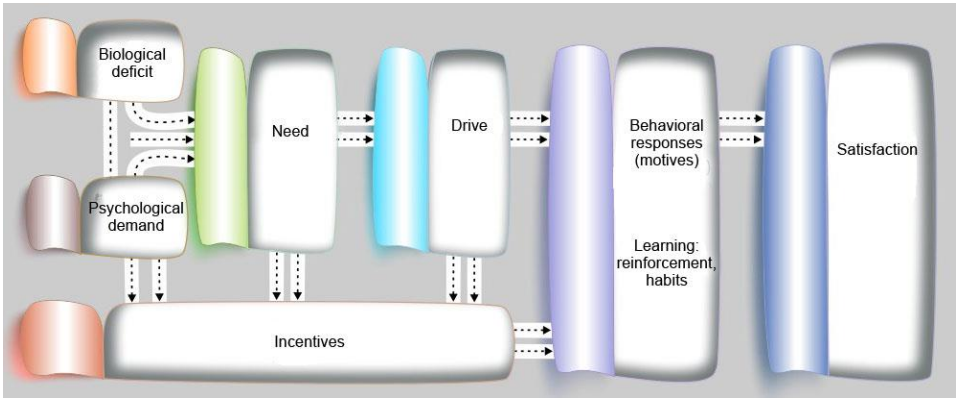

Figure 19. *Pattern of motivated behavior*[138]

6.2.3 Theories of motivation

Drive-reduction theory

Drive-reduction theory was popular in the 40s and 50s. Its central concept is the idea that a drive, which arises from a need, causes a discomfort in the organism. A reduction of the strength of a drive leads to the reduction of discomfort and causes satisfaction.

The theory accounts successfully for such motives as hunger and thirst. We all know the discomfort we feel when we are hungry, and the happiness we feel when our hunger is satisfied.

There are, however, motives, such as curiosity, which cannot be explained in terms of drive reduction, as many people intentionally seek out extremely exciting situations and experiences, such as those in extreme sports.[139]

Arousal theory

Arousal theory is preferred today over drive-reduction theory. To understand what it is, first we need to clarify the concept of arousal.

- **Arousal is visceral physiological activity.**

---

[138] SZABÓ, Mónika: *Motiváció.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 169-191 171.

[139] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008
http://www.ektf.hu/hefoppalyazat/pszielmal/

Three different types of arousal are generally distinguished.

- Visceral arousal, for example, changes in heart rhythm or respiratory rate, etc.
- Activation of the central nervous system, the cortex.
- Behavioral arousal denotes the behavioral activation of the organism.

The three usually go together, at least to some extent.[140]

An optimal level of cortical arousal is a condition for proper body functions. When our arousal falls, we get sleepy; when it rises, we get too excited. In either case, behavior becomes increasingly disorganized. This relationship is expressed by the Yerkes-Dodson law, depicted in the following diagram.

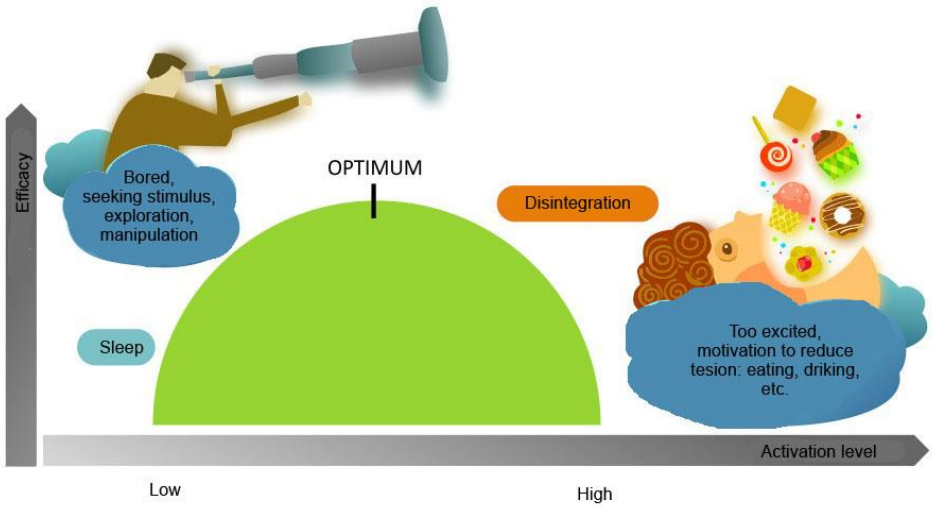

Figure 20. *Motivation and efficacy: the inverted U relationship (Yerkes–Dodson law)*[141]

Organisms attempt to maintain an optimal arousal level. Basic biological motives, such as hunger and thirst, raise arousal above an optimal level, thus trigger behaviors whose goal is to reduce it.

[140] URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.

[141] SZABÓ, Mónika: *Motiváció.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 169-191 173.

If however, an organism perceives an insufficient amount of stimulus, it will begin to seek stimulus, which will raise the level of arousal until an optimal level is reached.[142]

6.2.4 Classification of drives and motives

We distinguish between primary and secondary drives.

Primary drives are connected with the preservation of oneself and the species:

- Thermoregulation
- Hunger
- Thirst
- Sexual
- Sleep
- Defecation
- Defense
- General activity need (it arises when an organism is deprived of movement for a while)
- Explorative drive (curiosity)

Secondary drives build on primary drives through learning.

Money is an example, because we learn that we can use money to buy the commodities that satisfy our primary drives. [143]

Secondary drives may be developed in nonhuman animals as well.

In one experiment, "apes learned how to use a coin-operated vending machine; the insertion of a coin rewarded them with their favorite food. Once they learned this, the coins themselves assumed the value of reward. This was demonstrated by their

---

[142] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997.
URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
SZABÓ, Mónika: *Motiváció.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 169-191

[143] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

willingness to do some work (complete various tasks) for the coins as reward, which they collected enthusiastically, in the absence of the vending machine."[144]

Motives are subdivided into the following subcategories by nature:

- Biological motives: these are connected to self-sustenance and arise from physiological needs.
- Social (sexual and preservation of the species): these are sexual motives and the motive of looking after offspring.
- Curiosity motives: these are typical of both humans and nonhuman animals.[145]

6.2.5 Human-specific motivation

Extrinsic and intrinsic motivation

Human-specific motivation may be:

- Extrinsic motivation: behavior is motivated by the attainment of some goal or some external factor.
- Intrinsic (self-rewarding) motivation: behavior is motivated by the rewarding experience of carrying out the behavior itself, which is a source of pleasure.

Studies of the relationship between extrinsic and intrinsic motivation found that when some behavior is externally rewarded, it reduces intrinsic motivation.

Vallerand distinguishes between three different types of intrinsic motivation:

- In knowledge-directed motivation, the motive is the understanding and the activity itself.

---

[144] BARKÓCZI, Ilona, PUTNOKI, Jenő: *Tanulás és motiváció.* Budapest, Tankönyvkiadó, 1984. 223.

[145] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997.
URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008
http://www.ektf.hu/hefoppalyazat/pszielmal/
SZABÓ, Mónika: *Motiváció.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 169-191

- In development- and creation-directed intrinsic motivation, pleasure is derived from the creative activity and surpassing ourselves.
- In intrinsic motivation directed at being stimulated and having pleasurable experiences we seek pleasurable experiences and feelings, generally of a sensual or aesthetic nature.[146]

Achievement motivation

Achievement motivation is the motivation or impetus in people to accomplish greater achievements. It is closely connected with people's demand level and expectations of themselves.

"In regard to the relationship between demand level and achievement, it was found that satisfying the demand level or overachieving it leads to a sense of achievement, while underperformance relative to the demand level leads to frustration. Successive experiences of a sense of achievement push the demand level up, while a series of frustrations will push it down."[147]

Two conflicting factors determine demand level: the urge to achieve success and the desire to avoid frustration. Their relative strength and the way they are interrelated determines the strength of the drive to achieve. "The success motive is based on the drive to achieve self-actualization and efficacy; avoidance of frustration is caused by a fear of punishment and the projection of the consequences of failure."[148]

6.2.6 Hierarchy of motives

Motives are hierarchically organized in humans. In Maslow's motivation system, which is very well known in this context, human needs are organized into a hierarchic, pyramid-shaped structure, presented in the diagram below.

---

[146] URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

[147] SÉRA, LÁSZLÓ: *Általános pszichológia*. Pécs, Coménius Bt., 1998. 195

[148] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

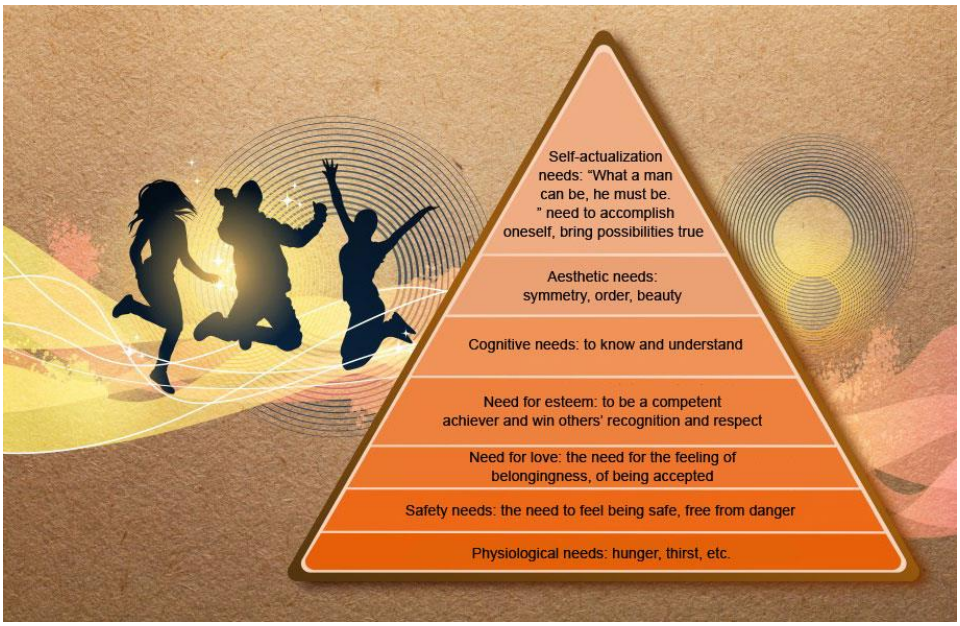

Figure 21. *Maslow's hierarchy of needs*

Biological needs are at the bottom of the pyramid, while self-actualization is at the top. According to Maslow, needs toward the top of the pyramid arise only after at least some of the needs below them have already been satisfied.

This implies that the need for knowledge and understanding arises only after some of the needs below it have more or less been satisfied. In some exceptional cases, higher-level needs may arise even if lower-level needs are not satisfied, in contradiction to Maslow's pyramid.[149]

For example, think of starving scientists or artists, or people on hunger strike.

6.2.7 The concept of emotion

Emotions are just as important energizers of human behavior as motivation is. Think of the number of things people do driven by their emotions.

[149] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

It is very difficult to define emotion. This is testified by the number of alternative definitions in the technical literature, which exceeds 100.

Kleinginna and Kleinginna (1981) defined emotion thus: "Emotion is a complex set of interactions among subjective and objective factors, mediated by neural/hormonal systems"[150]

This interaction may give rise to emotional experiences (e.g. arousal) and various cognitive processes (as it may have an effect on perception, memory, and the assessment of results); it activates physiological adaptation to the emotion-inducing environment and leads to behaviors which are expressive and goal-oriented and contribute to adaptation to the environment.

The technical literature makes a distinction between mood and emotion. Gendolla (1980) defined mood as a fuzzy and prolonged emotional state. Mood is not necessarily connected with an individual or an event. Its causes sometimes remain unconscious, such as when a scent puts a person into a certain mood. Gendolla assumes that the main difference between mood and emotion is that emotion does, but mood does not have a motivating force.[151]

For example, think of the experience of walking along a street, past an open window which exudes the smell of home-made muffins, the kind your grandmother used to make when you were a child, which puts you in a nostalgic mood. It may stay with you for a long time without growing more intensive or moving you to perform any specific act.

6.2.6 Components of emotion

Emotions are complex, composed of several different components, which include the following:

- Internal bodily responses, primarily reactions of the autonomic system, such as, for example, rising blood pressure.

---

[150] URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157.

[151] URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.
URBÁN, Róbert: *Érzelmek.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 95-118

- Behavior based on cognitive evaluation, which determines whether a positive or a negative act is performed.
- Facial expression.
- Emotional reactions.[152]

Components of emotion: internal bodily responses

- You may have already had the experience that a strong emotion was accompanied by some bodily change.
- *For example, as you walk along a street, a huge dog jumps out right in front of you. You will be frightened, and, very likely, your heart will beat faster, your respiratory rate will be faster, your hands will sweat and tremble, etc.*

Emotions are accompanied by a rise in visceral, cortical, and behavioral arousal level.

- The importance of visceral arousal in the intensity of emotions is demonstrated by patients with spine injury (due to which the cortex is not given physiological feedback on the character of visceral excitation).
- "This is a kind of cold anger. I sometimes act out of anger when I see injustice. I yell, swear, and wreak havoc, because I have realized that if I do not do that occasionally, people will take advantage of me; but I do not need to get fired up so hard as I used to. This is a sort of mental anger."[153]

Components of emotion: cognitive evaluation

How intensive the experience of an emotion is is determined, among other things by the cognitive evaluation of the situation.

- *Think of a boy in love, for instance, who is expecting his girlfriend to arrive at a date, but she never comes. His emotions will differ as a function of his evaluation of the situation: he will be worried if he thinks she has had an accident, but he will be upset if he thinks that she is meeting with another boy, etc.*

[152] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997.

[153] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997. 311

Cognitive evaluation occurs along different dimensions. “Smith and Ellsworth propose 6 dimensions for the description of emotions:

- Pleasantness of the situation (pleasant or unpleasant)
- The amount of anticipated effort the situation requires
- Certainty about the situation
- The amount of attention a person is ready to pay to the situation
- The strength of control over the situation by self
- Strength of control attributed to non-human factors of the situation.”[154]

Components of emotion: facial expressions and emotional reactions

The expression of emotions is a complex process, with many different parts of the body contributing to it, such as facial expressions, gestures, posture, etc.

- Their expressive power is well demonstrated by silent movies, in which that was all for actors to use in expressing emotional states.

A silent film called “The Last Night” (1917) is a good example:
12_06_HH01: http://www.youtube.com/watch?v=vaNGDjm3Vxw

Intonation, speech rate, and tone express a lot about the emotional state of a speaker.

Darwin considered the expression of emotions to be determined by heritable factors. Even newborn babies can express certain emotions by facial expressions without any learning.

Some basic emotions, such as anger, fear, disgust, surprise, sadness, and happiness, are universal. They are part of every culture and they are expressed in similar ways in every culture.[155]

The expression of emotions is affected by personal, situational, and cultural factors.

The expression of emotions, in addition to its obvious role in communication, has an effect on their intensity: the expression of an

[154] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

[155] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

emotion strengthens the experience of that emotion, while the repression of its expression weakens it.[156]

This is what, in part, the hypothesis of facial feedback is about, which holds that the central nervous system receives feedback about our facial expressions, which, combined with other components of emotion, increases the intensity of the emotional experience.[157]

- Try it out for yourself. Force yourself to smile and keep smiling. After a while, you *will* feel better. And conversely, if you stare morosely at the world, after a while your temper will get worse.

6.2.8 Theories of emotion

- How do emotions come about? What factors are involved in an emotional experience?

We will present three different theories of emotion in this connection, theories by James and Lange, Cannon, and Schachter and Singer.

The peripheral theory of emotions

The theory originates from the end of the 19th century. It was worked out independently, nearly simultaneously, by W. James and C. Lange, therefore it is commonly referred to as the James–Lange theory.

Its central idea is that environmental stimuli, mediated by the central nervous system, induce behavioral and/or visceral responses. Emotional experiences in an individual are the consequences of the perception of such responses of their own.[158]

- *As in the classic joke about what people do when they encounter a bear. We run not because we are afraid of the bear, but we are afraid of the bear because we run. I.e., the sight of a bear elicits behavioral and visceral responses (we run, our blood pressure*

---

[156] URBÁN, Róbert: *Érzelmek.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 95-118

[157] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997.

[158] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.

rises, our heart rate gets faster, etc.). We perceive these responses, which we experience as fear.

This theory is called the peripheral theory of emotions, because its central idea is that an emotional experience arises from the perception of one's own responses to an external event or situation.

A corollary of the theory is that different emotions correspond to different visceral patterns. Although this is seriously debated today, the theory deserves credit for stimulating a lot of exciting research into the nature of emotion.[159]

The central theory of emotion

The theory was proposed by Cannon, in criticism of the James-Lange theory. Cannon's main arguments were as follows:

- The time span of visceral changes is long, while emotions arise instantly.
- Artificially induced visceral changes, such as stimulation of the stomach, for example, do not cause changes in emotions.
- There are very few sensory nerves in viscera anyway.
- Different emotions, such as happiness and anger, cause identical visceral changes.
- Interrupting the connection between viscera and the nervous system does not cause changes in emotional behavior or subjective experience.

Based on these considerations, Cannon concluded that emotions are characterized not by cortical but by subcortical activities, primarily in the thalamus. (The theory is called the central theory, because the thalamus is also part of the central nervous system.)

According to Cannon, an emotional experience does not *follow* a bodily change, as in the James-Lange theory, but the two co-occur simultaneously.[160]

---

[159] URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.

[160] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.

- *In the anecdote about the bear above, the main thing is the bodily change (run), in contrast to the emotional reaction (fear), which is of secondary importance from this perspective.*

The two-factor theory of emotion

This theory was proposed by Schachter and Singer. It is called the two-factor theory because it involves both the visceral response and its cognitive appraisal. They also assume that emotions co-occur with changes in visceral arousal but are not specific to them. The differentiation of emotions is the consequence of cognitive appraisal, a matter of how a visceral change is interpreted. This implies that emotions are presumed when there is no alternative explanation of a visceral change. The kind of emotion presumed often depends on external factors, our beliefs, and our knowledge relating to the situation.[161]

This is how it was demonstrated in a famous experiment they conducted:

Each subject was given an injection of adrenalin, which is known to cause visceral arousal: significant increase in heart rhythm and respiratory rate, tremor, and enhanced state of excitement. The experimenters varied the information they shared with the subjects on the effect of the substance injected. Some of the subjects were correctly informed about the effects of the substance, while others were misled into believing that it would cause numbness. Then subjects were left in a room with another person who they believed was another subject but who in fact was the experimenter's stooge. The stooge either behaved happily, looking pleased, or unhappily, looking angry, creating two different situations. After the experiment, the subjects were asked to report about their emotions.

The well-informed subjects had a good explanation of their excitement, so they did not report experiencing any particular emotions. The misinformed subjects, in contrast, who did not have a rational explanation of their excitement, either reported that they felt anger, when the stooge pretended to be angry, or that they felt happiness, when the

[161] URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.
URBÁN, Róbert: *Érzelmek.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 95-118

stooge played happy too. Thus, the emotions of the misinformed subjects were determined by their cognitive appraisal of the situation.[162]

6.3 SUMMARY AND QUESTIONS

6.3.1 Summary

This unit introduced you to the motives or energizing factors underlying behavior, motivation and emotions. These are important aspects of your knowledge, as they are foundational components of educational psychology.

As it was explained in this unit, both motivation and emotion have their biological bases. You learned about the basic concepts of motivation and emotion, their components, and their explanatory theories.

6.3.2 Self-test questions

- How would you define motivation?
- What are the biological bases of motivation?
- What is meant by homeostasis and who is it associated with?
- How would you define the concepts of need and drive and how would you describe the relationship between them?
- How would you define the concepts of habit and incentive and how would you describe the relationship between them?
- Explain the main points of the drive reduction theory briefly.
- Explain the main points of the arousal theory briefly.
- What is the Yerkes-Dodson law?
- How would you classify motives?
- What is the difference between extrinsic and intrinsic motivation?
- What is the relationship between achievement motivation and demand level?
- Describe Maslow's pyramid of needs.
- How would you define emotion?
- What is the difference between mood and emotion?
- What are the characteristics of visceral components of emotions?
- What does cognitive appraisal/evaluation mean?

[162] ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

- What do you know about the role of facial expressions and emotional reactions?
- Describe the peripheral theory of emotions briefly. Who is it associated with?
- Describe the central theory of emotions briefly. Who is it associated with?
- Describe the two-factor theory of emotions briefly. Who is it associated with?

6.2.7 Practice tests

1 Who is the central theory of emotions associated with?

A. Lange

B. Cannon

C. James

D. Schachter

2 Which of these is not part of Maslow's pyramid?

A. Physiological needs

B. Safety needs

C. Manipulation

D. Self-actualization

3 Which of the following is a human-specific motivation?

A. Achievement motivation

B. Curiosity

C. Looking after offspring

D. Exploration

(Correct answers: 1 – B, 2 – C, 3 – A)

7. MAJOR THEORIES OF PERSONALITY

7.1 GOALS AND COMPETENCIES

The purpose of this unit is to familiarize students with the concept of personality and its most influential theories. In this unit, students will learn about trait theories of personality, the basic concepts of the most influential personality theories, psychoanalysis, behaviorism, cognitive psychology, and humanistic psychology.

Once students have completed the unit, they will be familiar with the conceptual systems of major theories of personality and understand the basic differences between them.

After completing the unit, students should be able to

- define the concept of personality;
- understand how theories of personality types differ from trait theories;
- enumerate the components of the Big Five;
- know about Freud's views about the structure of personality;
- distinguish between the features of the conscious, the preconscious, and the unconscious;
- distinguish between the features of Id, ego, and super-ego;
- enumerate the types of anxiety disorders according to Freud's theory;
- enumerate some defense mechanisms and bring examples to illustrate them;
- describe classical behaviorism;
- describe neobehaviorism;
- understand the difference between classical behaviorism and neobehaviorism;
- summarize the concept of cognitive psychology briefly;
- know the concept of self-schema and describe it briefly;
- enumerate Mischel's cognitive variables;
- enumerate the basic principles of the Association for Humanistic Psychology;
- know basic concepts of Rogers' theory of self, know what self, ideal self, organism, congruence, and incongruence mean;

- know what the difference is between conditional and unconditional positive regard in Rogers' theory and how they affect personality development;
- know the three traits of successful teachers according to Rogers.

It will take about two 90-minute sessions to acquire the content of the unit.

7.2 TOPICS

Topics will be discussed in the following structure:

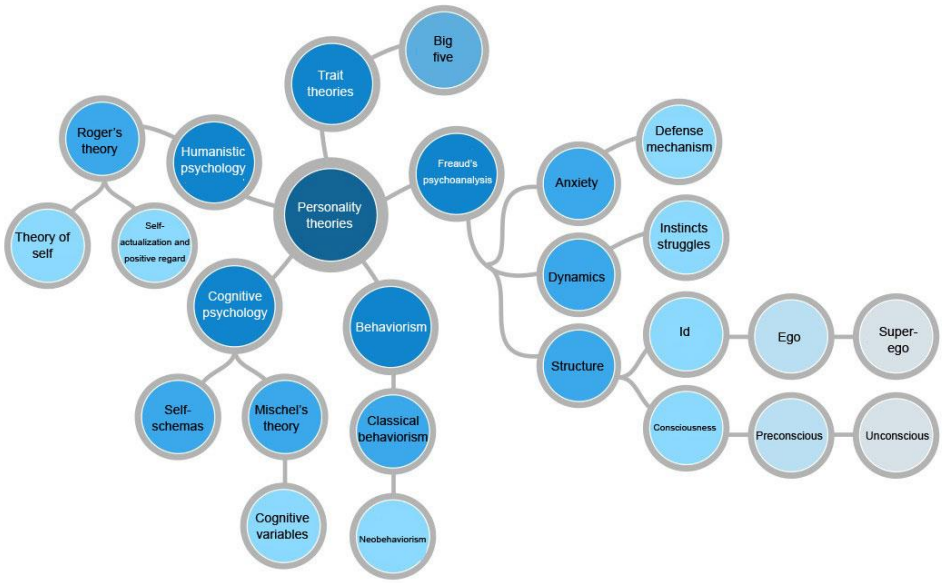

Figure 22. *Structure of topics*

7.2.1 Personality and its main features

How could we define personality? Several different definitions have been proposed in the history of psychology. Most of them agree about the following:

- **Personality is a dynamic and coherent system of bodily and mental characteristics which makes an individual**

unique, distinguishing him or her from everyone else, and determines his or her behavior and thinking.[163]

- The noun *personality* comes from the Latin word *persona,* meaning 'mask', which was used to denote masks worn by actors on the stage in antiquity to visibly represent various characters in order that everyone in the audience, even in the back rows, could see them. The term acquired its present meaning during the enlightenment.

Personality is in part based on heritable factors and in part is shaped during social development. It is affected by the immediate social environment, the family and micro-society, and also by social structure, the philosophy of the particular period, and historical heritage.[164]

- You will read more about the effects of inherited characteristics and the social environment on personality in Unit 8.

7.2.2 Personality typology

Personality typology has a long history. The first typology of personalities goes back to the ancient Greek physician Hippocrates. The problem with his typology is the same as the problem with any personality typology: wanting to squeeze the enormous variation in human personalities into a small number of mutually exclusive categories.

The most widely accepted theories today are trait theories, which assume that people can be characterized in terms of the same traits and because different traits characterize different people to different degrees, the number of variants is infinite.[165]

But what is a trait?

According to Allport, a trait is an "internal structure, a decisive tendency or inclination, which ensures the consistency of responses at all times in all situations."[166]

---

[163] KOMLÓSI Annamária: *A személyiség értelmezései*. In: / BUGÁN Antal, OLÁH Attila (szerk.): *Fejezetek a pszichológia alapterületeiről.* Budapest: ELTE Eötvös kiadó, 2000. 189.

[164] KOMLÓSI Annamária: A személyiség értelmezései. In: / BUGÁN Antal, OLÁH Attila (szerk.): *Fejezetek a pszichológia alapterületeiről*. Budapest: ELTE Eötvös kiadó, 2000. 189.

[165] TÓTH László:*Pszichológia a tanításban.* Debrecen Pedellus Tankönvvkiadó, é.n.

[166] TÓTH László:*Pszichológia a tanításban.* Debrecen Pedellus Tankönvvkiadó, é.n. 74

For example, orderliness is a trait that ensures that we keep things in order around ourselves consistently in every situation.

A great deal of research has been conducted since the second half of the 20th century on personality traits and the question of which personality traits are the most fundamental. Cattell, for example, distinguished 16 dimensions, while Eysenck only three. Consensus gradually emerged by the 80s that five higher-order factors provide the basic structure of personality. These factors have come to be called the Big Five.[167]

7.2.3 Big Five

The Big Five personality traits comprise the following five factors:

- *Extraversion–introversion*. This dimension includes such characteristics as confidence, free expression of impulses, sociability, and their opposites.
- *Agreeableness–disagreeableness*. It is sometimes called the pleasantness factor. It includes such characteristics as warmth, lovability, care, emotional support, obedience to social pressure, and their opposites.
- *Consciousness–irresponsibility*. It is also called the responsibility factor. It includes characteristics like stamina, fighting for a cause, prudence, seriousness, responsibility, diligence, and their opposites.
- *Emotionality*. It is sometimes called the emotional stability–instability factor. It includes such characteristics as neuroticism, anxiety, excitability, apprehension, irritability, and their opposites.
- *Intellect*. It includes such characteristics as imagination, sophistication, quick uptake, reason, curiosity, creativity, and their opposites.

Each factor represents a range between two extreme points. Anyone can be anywhere along each dimension. Thus, the five factors may be represented in a coordinate system with five axes, which provides an infinite number of variants.[168]

---

[167] CARVER, Charles S., SCHEIER, Michael: *Személyiségpszichológia*. Budapest, Osiris, 1998.

[168] CARVER, Charles S., SCHEIER, Michael: Személyiségpszichológia. Budapest, Osiris,1998.

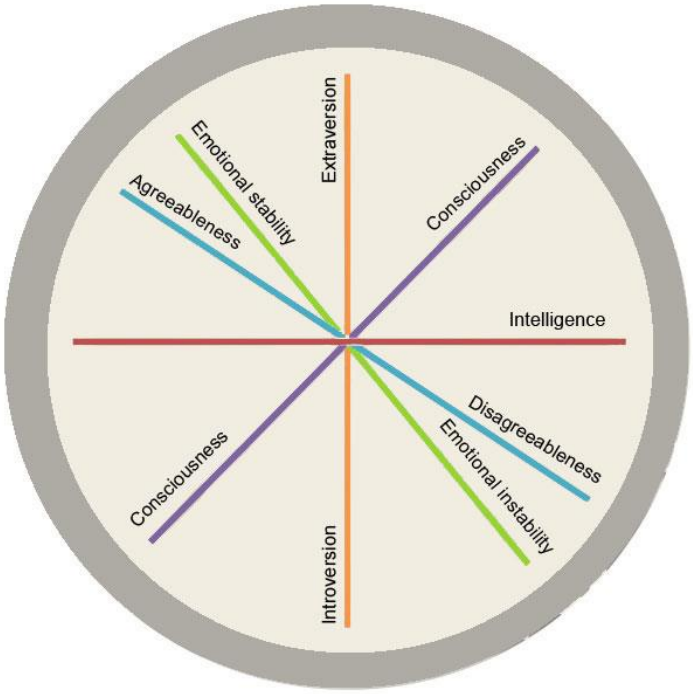

Figure 23. *Big Five*

7.2.4 Freudian psychoanalysis – the structure of personality I

- Next we will consider the most influential theories of personality which have determined the way we think about humans. Let us begin with psychoanalysis. As mentioned in chapter 2, psychoanalysis is associated with Sigmund Freud. Let us consider what Freud thought about the structure of personality. If you what to know what Freud thought about his own theory, follow the link below and listen. This is the only extant recording with Freud speaking.

  12_07_HH01

  http://hu.livroseafins.com/o-unico-registro-de-audio-de-sigmund-freud-1938/

On Freud's approach to personality, it is composed of several components. On the one hand, he makes a distinction between

conscious and subconscious systems (the latter being composed of the preconscious and the unconscious) and three structural constituents.

The concept of the unconscious is not Freud's innovation. Wundt, for example, had already used it. But Freud was the first to attribute great significance to it.

- **Conscious on Freud's interpretation meant what it means in common usage: that which we are aware of at the moment.**
- **The content of the preconscious is not accessible to consciousness right now, but can easily become part of consciousness through regular memory processes.**
- **The unconscious, in Freud's theory, is protected by various psychodynamic processes, which make it inaccessible and unknowable directly. Indirectly, in symbolic form, its content may manifest itself in dreams, or may become part of consciousness in psychoanalysis.[169]**

For example, you are probably aware that you are now using some ICT device and studying Freud's views. You are probably unaware of how to say thank you in a foreign language you studied first, though you could easily recall it from your preconscious. But you could say nothing about what happened to you before your first birthday, except on the basis of what you parents have told you about it, since such early memories are usually in the unconscious.

7.2.5 Freudian psychoanalysis – the structure of personality II

Freud suggested that our personality is composed of three constituents – our Id, ego, and super-ego.

Id

Id is formed first. This is the earliest constituent of our personality, containing our instincts.

It is governed by the pleasure principle, which requires the immediate satisfaction of needs. It uses two tools for this purpose:

---

[169] FREUD, Sigmund, *Az ősvalami és az én.* In. BUDA Béla szerk. *A pszichoanalízis és modern irányzatai.* Budapest: Gondolat, 1971. 139-164.
CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998.

- **Reflex activities are innate automatic reactions.**
- **Primary process is "the construction of the mental representation of an object or event that satisfies some need and the mental invasion of this representation."[170]**
- In simple terms, the primary process is dreaming about a desired object.

This implies that the id is very limited in its capability of adapting to the environment, so it could not survive in itself. That is why the ego is necessary.[171]

Ego

The ego develops from the id. Its function is self-sustenance. It is governed by the principle of reality, so, when planning behavior, it considers the external conditions in addition to its needs. The tool it uses for this purpose is the secondary process, which carries out the negotiation between the two (the image of the object that satisfies the drives dictated by the id and reality). Not surprisingly, it is constantly struggling with the id, delaying or refusing to satisfy its needs, on grounds of reality.[172]

Super-ego

This develops last, under parental influence. It contains two subsystems:

- The *ego ideal*, which contains the rules of proper behavior.
- *Conscience*, which contains constraints.

The purposes of the super-ego:

- To constrain the instinctive drives of the id in accordance with social restrictions.
- To have the ego subordinate adaptation to reality to the goals dictated by conscience.

---

[170] CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998.

[171] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001.

[172] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001.

– To achieve perfection.[173]

Questions arise about how these two systems relate to each other. On Freud's assumptions, the id operates unconsciously. Consciousness plays a larger role in the ego and the super-ego than it does in the id, although both contain both conscious and unconscious elements. Freud compared his model to an iceberg, as shown in the following diagram.

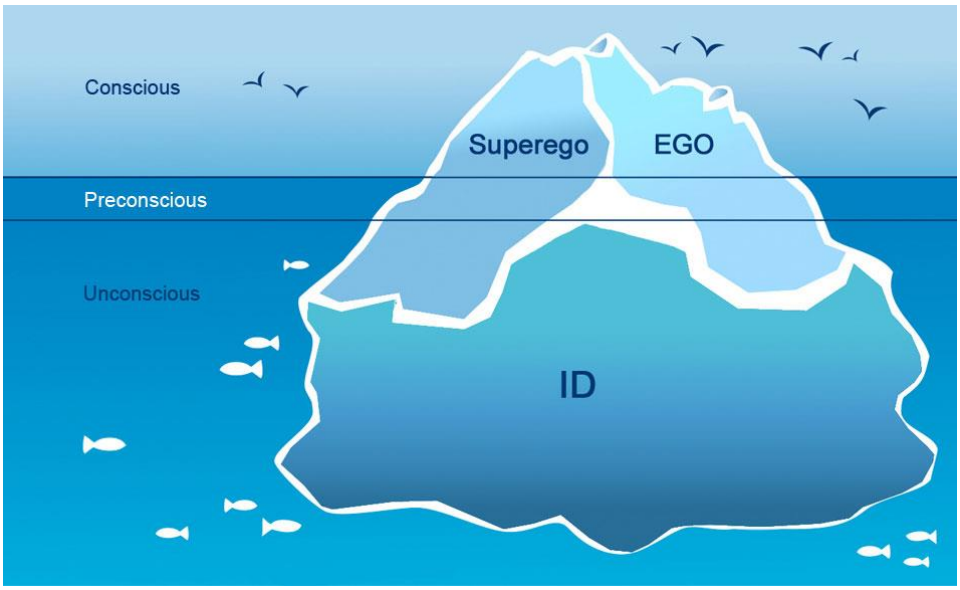

Figure 24. *The structure of personality*

7.2.6 Freudian psychoanalysis – the dynamics of personality

- In the foregoing, we were concerned with the structure of personality. Now we will consider the "engine that drives it" and its "energy supply."

Energy is supplied for personality by instincts.

"An instinct is the innate psychological manifestation of some internal somatic source of stimulus. Its basis is a somatic stimulus, a need. It manifests itself in the form of a desire."[174]

[173] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001.

When you feel hunger, for example, it is because there is a shortage of nutrients in bodily tissues, which is your need, which manifests itself in the form of a desire for food, which in turn makes you want to do something about it.[175]

All instincts originate in the id, which means that the other two psychic constituents are supplied with energy by the id. Given that energy supply is always limited at any particular moment, the three psychic constituents constantly struggle with one another, each wanting to use as much energy as possible for its own processes.[176]

The id is trying to satisfy its instinctive drives, which the super-ego is trying to constrain by imposing (sometimes too severe) moral constraints on it, and the ego keeps taking sides, sometimes with the former and at other times with the latter.[177]

Whichever constituent is the winner in this struggle at a particular moment, it will be able to use the largest amount of energy for its own purposes.

7.2.7 Freudian psychoanalysis – anxiety and defense mechanisms

As can be seen from the foregoing, on Freud's hypothesis, our mental existence is a constant struggle, which involves a lot of tension, with the consequence that our mental life is virtually constantly accompanied by anxiety.

Freud distinguishes between three different kinds of anxiety:

- *Real anxiety*. It includes fears induced by real threats of everyday life.
- *Neurotic anxiety.* This is the fear of the ego that it will not be able to control the id in trying to satisfy its drives.
- *Moral anxiety*. It includes our fears of (potentially) violating the constraints imposed by the super-ego.[178]

---

[174] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001. 25

[175] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001.25

[176] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001.

[177] PECK, David, WHITLOW, David, Személyiség elméletek. Budapest: Gondolat, 1983

[178] CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998.

A good example of real anxiety is a person's fear that they will be unable to acquire the amount of knowledge that is necessary to take a particular examination successfully. An example of neurotic anxiety is the fear that you will not be able to resist the temptation dictated by your id and will thoughtlessly engage in a sexual relationship with an attractive person of the opposite sex. An example of moral anxiety is the fear of committing crime.

There are two ways to protect yourself from anxiety:

- Make a rational effort to combat the threats that cause the anxiety. This helps with handling mainly real anxieties.
- Defense mechanisms.

Defense mechanisms are procedures or tactics developed by an individual to combat anxiety. If a mechanism works well, it can even prevent the appearance of anxiety. Defense mechanisms have two features in common: (1) they work unconsciously and (2) they distort, modify, or doctor reality one way or another.[179]

Defense mechanisms protect you against any kind of anxiety your rationality could not combat, thus, mainly against neurotic and moral anxiety.

There are a number of different defense mechanisms. We will discuss some of them in the following section.

7.2.8 Freudian psychoanalysis – some major defense mechanisms

Repression

Repression forces unacceptable contents from the conscious into the unconscious. This is a sort of forgetting, but not the sort that prevents forgotten contents from being lifted into consciousness.

Negation

Negation is the rejection of threating reality, refusing to recognize its existence.

[179] CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998. 224.

- *For example, when a person refuses to recognize a medical diagnosis as though they are healthy.*

Projection

Projection is the act of attributing one's own unacceptable desires to others.

- *For example, a student who hates a particular teacher may believe and experience this as the teacher picking on him.*

Rationalization

When a person rationalizes, they seek a rational explanation for their behavior which they think is unacceptable.

- *For example, a person may rationalize his regular visits with the attractive woman living next door, to whom he is sexually attracted, by finding some excuse, such asking her to lend him something, etc.*

Regression

Regression is returning to an earlier stage of development, because you are not expected to behave like a mature adult at that stage, which reduces tension.

- *For example, some children display behavior typical of an earlier age when their new brother or sister is born. That is the way they signal their need for more care and attention.*

Reaction formation

In reaction formation, a person acts the opposite way that the unacceptable impulse instructs them to behave. This may become permanent and be incorporated into personality.

- *For example, a child who has been humiliated because he has been playing in the trash may become an obsessive hand-washer later.*

Sublimation

In sublimation, an unacceptable impulse is converted into a socially acceptable drive.[180]

For example, doing combat sports allows the sublimated channeling of aggressive impulses.

7.2.9 Behaviorism

- Behaviorism is a major personality theory, along with psychoanalysis. We discussed elements of behaviorism in Unit 2.

Classical behaviorism

One of its early theoreticians, Watson, criticized previous psychological approaches for being subjective. His goal was to work out an objectivist psychology. In its early stage, called classical behaviorism, this approach was exclusively the study of an organism's responses to external stimuli because it was assumed that the only way to achieve objectivity was to study the only aspect of an organism that is directly observable, its behavior. Within the stimulus–organism–response framework, the organism was regarded as a black box, which, therefore, was not an appropriate topic of inquiry for science. The main research topic was learning, such as classical and operant conditioning, which we discussed in some detail in Unit 5. It was believed that results obtained from experiments conducted on animas could be carried over directly to humans. Behaviorists were optimistic that someday they would be able to predict an organism's responses to stimuli with 100% accuracy.

They of course failed, and began to gradually understand that taking an organism to be a black box leads to a standstill in science.[181]

Neobehaviorism

The failure of classical behaviorism lead to the formation of neobehaviorism in the 1950s. Neobehaviorists studied what they called intermediate variables.

---

[180] CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest, Osiris, 1998.
MÉREI Ferenc, *A pszichológiai labirintus. Fondorlatok és kerülő utak a lelki életben.* Budapest, Pszichoteam, 1989.

[181] HJELLE, L. A. ZIEGLER, D. J., A személyiség behaviorista tanuláselmélete: B. F. Skinner. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. *Személyiséglélektani szöveggyűjtemény*. Budapest: Tankönyvkiadó, 1985. Pp 451-493.
PLÉH Csaba, *Pszichológiatörténet.* Budapest: Gondolat, 1992. Pp 145-157.

- **An intermediate variable is a factor in the brain that mediates between stimuli and responses.**

The difference between classical behaviorism and neobehaviorism is depicted in the diagram below.

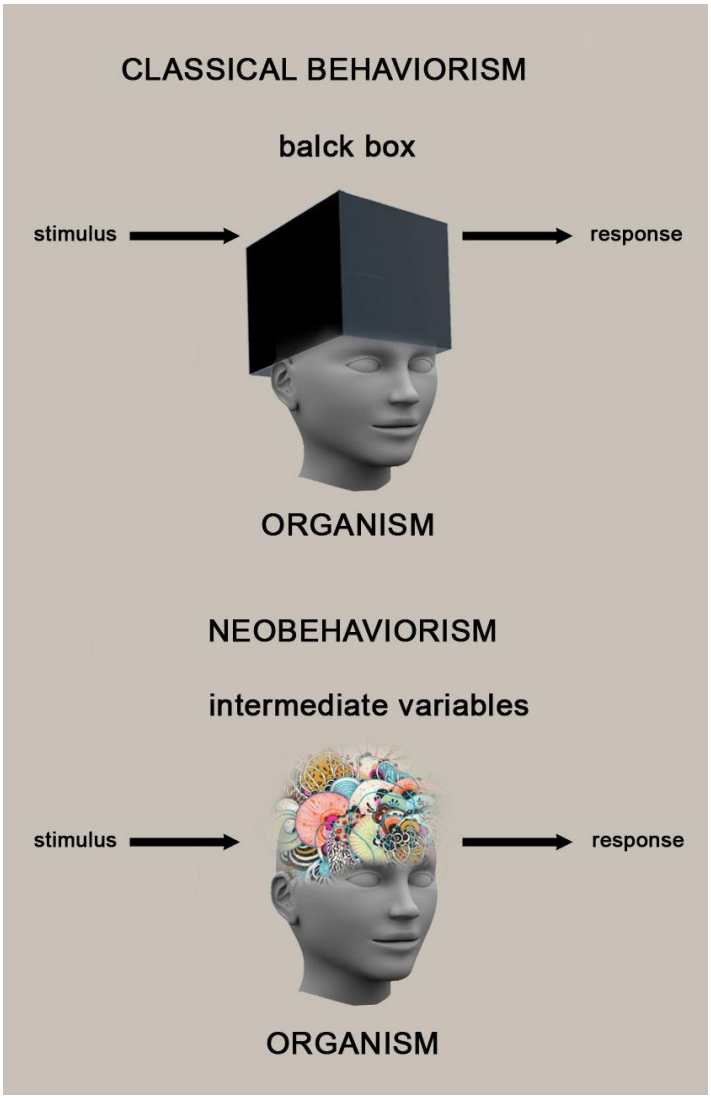

Figure 25. *Comparison of classical behaviorism and neobehaviorism*

- This period is sometimes called omnivorous behaviorism, as it attempted to adopt the results of previous approaches, such as psychoanalysis, and account for them in behavioristic terms. For example, repression was explained in terms of inhibition of responses that create the mediatory stimuli of thought and reasoning.[182]

For all the differences between them, both classical and neobehaviorism accounted for changes in personality in terms of learning experiences.[183]

7.2.10 Cognitive psychology

Cognitive psychology accounts for personality in terms of cognitive processes.

Their main questions concern ways in which an individual constructs representations of their experience, how their knowledge about the world is integrated and organized, how they think, and what schemas they employ.[184]

- You learned about schemas in Unit 5 already.

From the perspective of personality psychology self-schemas are of particular significance.

- **According to Markus (1977), a person's self-schema is their organized system of knowledge of themselves.[185]**

Self-schemas are like any other schema, except that they are probably more complex and contain more emotional elements than other schemas. The complexity self-schemas may vary individually.

Some researchers assume that a person entertains not one self-schema but an entire hierarchically structured system of self-schemas, such that different self-schemas get activated in different life situations.

---

[182] DOLLARD, J., MILLER, N. E.:A személyiség „ inger-válasz" elmélete. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. *Személyiséglélektani szöveggyűjtemény*. Budapest: Tankönyvkiadó, 1985. 425-450.

[183] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia*. Budapest: Osiris, 1997. 399.

CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998. 341-372.

[184] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001. 31.

[185] CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998. 442.

- *A person manifests different aspects of their personality, they behave completely differently at a party with their friends, for example, compared to their behavior at work the next day.*

According Markus et al. (1986), our self-schemas represent not just what we think we are but also what we desire to be or, conversely, what we are afraid of becoming. These are strong motivating factors: people activate large amounts of resources to attain such desires on the one hand and to avoid their feared potential selves on the other.[186]

In what follows, we shall present Mischel's personality theory, which accounts for personality in terms of cognitive person variables.

7.2.11 Mischel's cognitive personality theory

Mischel's theory assumes five classes of cognitive variables. These are components of personality, which derive from experiencing the external world (learning). Mischel assumes that these variables take over the role of personality traits in defining personality. Cognitive variables interact with particular situations in determining a particular behavior.[187]

These variables include the following:

- *A personality's competencies:* skills and problem-solving strategies we use in our interpretations of and making changes to the world.
- *Encoding strategies and personal constructions*: these are individual interpretations of the world.
- *Expectations*: a person's expectations about what event is likely to follow another.
- *Subjective value*: this is the goal a person intends to achieve with a particular behavior.
- *Self-regulatory systems and plans*. [188]

---

[186] CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998. 441-444.

[187] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001. 31.

[188] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001. 31.

CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998. 452-454.

7.2.12 Humanistic psychology

Humanistic psychology emerged during the 1960s. As its name suggests, it regards a human being as an autonomous, free personality, who is capable of making decisions freely, is capable of self-actualization and autonomous development.

Thus, humanistic psychology appears to have emerged in criticism of both behaviorism and psychoanalysis for viewing personality from too narrow perspectives. Humanistic psychology is critical of behaviorism for its view of people as creatures controlled entirely by environmental stimuli, and it is just as critical of psychoanalysis for its view that people are ultimately controlled completely by their instinctive drives.[189]

The Association for Humanistic Psychology was founded in 1962 and adopted the following basic principles:

- Interest should focus on the experiencing person with his or her subjective view of the world.
- Human beings are creative and capable of self-actualization.
- When looking for a problem for scientific research, its meaningfulness and relevance to humans is more important than the ease with which it can be objectively investigated.
- The dignity of personality is the highest value, which is to be respected by psychologists.[190]

The two best-known founding theoreticians of humanistic psychology were Carl Rogers and Abraham Maslow.

- You are already familiar with Maslow's pyramid of needs, a central component of his theory introduced in Unit 6, so here we will focus on Rogers' theory only.

[189] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001. 54.
ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia*. Budapest: Osiris, 1997. 400-406.

[190] HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiség-lélektani és szociálpszichológiai alapismeretek.* Távoktatási jegyzet. Eger, EKF, 2001. 54

7.2.13 Rogers' theory

Rogers' theory of self

A theory of self is based on three fundamental concepts:

- Self-concept, which is a structured representation of ourselves.
- Ideal self; it is what we desire to be.
- Organism; it stands for the entire individual.

Behavior is jointly determined by these three factors.

A person's self-concept is congruent when it is consistent with experience; if experience and the perceived self-concept are not mutually consistent with each other, self-concept is incongruent.

For example, if part of an individual's self-concept is the idea that he or she is a polite person, and that person surrenders their seat to an elderly woman on a train, then their self-concept and experience are congruent with each other. But if that same person continues to be sitting comfortably in the same situation, their self-concept and experience are incongruent with each other. Imagine how you would feel if you were that person in the second situation. If you indeed were a polite person, you would very likely feel some internal tension.

Incongruence increases tension in an individual, leading to adaptation problems, and compels the person to attempt to reduce tension.

- One way to achieve that is for a person to change their experience, their behavior.

For example, to eventually decide to surrender your seat in the second situation in the example above.

- A second way to achieve it is for a person to modify their self-concept.

For example, to remain comfortably seated in the situation above and modify your self-concept into believing that you are not a polite person after all.

- If, however, experiences jeopardize the self-concept too severely, experiences may be excluded from our consciousness in a process which Rogers likens to Freudian repression. In this case, the individual will be anxious, which triggers defense mechanisms marshalled in protection of the self-concept.

- These defense mechanisms roughly correspond to Freudian defense mechanisms.[191]

- *In the example we have used above, the person could rationalize their behavior by reasoning that standing up for a while is actually good for an elderly person because they do very little exercise anyway, which is unhealthful.*

The role of self-actualization and positive regard in Rogers' theory

The ultimate goal of an organism is self-actualization, which makes human activities meaningful and which induces people to bring their potential capacities true.

This, Rogers believes, requires social conditions that make it possible. It is essential that a person and their behavior be positively regarded by another significant person.

Positive regard may be of two kinds:

- Conditional. A person or their behavior is regarded positively only when a specific condition is met.

- *For example, when a parent as a significant other suggests to a child that "I love you if you work hard at school, keep your room tidy, etc."*

- Unconditional.

- *For example, when a parent as a significant other suggests to a child that "I love you the way you are."*

Since the individual *needs* to be regarded positively by some other significant people (such as a parent or anyone else), they may accept conditional positive regard and love, and modify their behavior in ways apparently required by the condition, which, however, makes self-actualization impossible.

Therefore, Rogers believes, self-actualization requires an atmosphere in which a person is accepted by the significant other or others the way they are, in which others relate to the person empathically and are

[191] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia*. Budapest: Osiris, 1997. 400-406.
PECK, David, WHITLOW, David, *Személyiség elméletek.* Budapest: Gondolat, 1983 43-67.
ROGERS, Carl. A személyiség és a viselkedés elmélete. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. *Személyiséglélektani szöveggyűjtemény*. Budapest: Tankönyvkiadó, 1985. 369-404.

congruent in the sense that what they say, think and feel are congruent with each other.[192]

- That explains why Rogers also believes that a successful teacher is also characterized by the three features just mentioned, as that is how they can facilitate their students' self-actualization.

  The link below is a video in which Rogers explains his own theory. 12_07_HH02

  http://www.youtube.com/watch?v=DjTpEL8acfo

7.3 SUMMARY AND QUESTIONS

7.3.1 Summary

This chapter introduced you to the concept of personality and the most influential personality theories. You learned about the basic concepts of those theories and may have realized that there was not much shared among them. Quite the contrary. Instead, there is little that they agree about, they appear to compete with each other, and are critical of each other. This allows you to see that there is no unified and universally accepted theory of personality in personality psychology. This, perhaps, makes studying personality and theories of personality all the more interesting and exciting.

7.3.2 Self-test questions

- How would you define the concept of personality?
- What characterizes the components of the Big Five?
- What constituents is personality composed of on Freud's account and how do they relate to one another?
- What types of anxiety are distinguished in Freud's theory and how can we combat them?
- What characterizes behaviorism and what is the difference between its two variants or periods?
- What characterizes self-schemas?
- What characterizes Mischel's cognitive personality theory?

[192] CARVER, Charles S., SCHEIER, Michael, *Személyiségpszichológia*. Budapest: Osiris, 1998. 378-379.

- What are some innovations in humanistic psychology as compared to behaviorism and psychoanalysis?
- Which are the basic concepts of Rogers' theory?

7.3.3 Practice tests

1, Which of these is not a characteristic feature of a successful teacher?

A. Congruence
B. Empathy
C. Unconditional positive regard
D. **Integrity**

2, Which approach does the concept of an intermediate variable belong to?

A. **Neobehaviorism**
B. Classical behaviorism
C. Cognitive psychology
D. Psychoanalysis

3, Which of these characterizes the id?

A. Strives for perfection
B. Works on the basis of the reality principle
C. **One of its means is the primary process**
D. All of its contents are conscious

(Correct answers: 1-D, 2-A, 3-C)

8. PERSONALITY DEVELOPMENT AND DEVELOPMENT THEORIES

8.1 GOALS AND COMPETENCIES

The purpose of this unit is offer students an overview of the concept of development, its factors and laws, before the in-depth discussion (in the 3rd module) of the developmental psychological characteristics of particular age groups. Students will acquaint themselves with the most influential theories of development in the 20th century.

The completion of this unit will allow students to put their knowledge of developmental psychology they will acquire later on into the context of a theoretical framework.

After completing the unit, students should be able to

- define the concept of development;
- enumerate the characteristic features of development according to Mönks and Knoers;
- enumerate the laws of development;
- describe the particular laws of development;
- recall theories about the effects of inheritance and social learning on development;
- understand the ways in which twins research and adaptation research help discriminate between the effects of heritable features and the effects of the social environment;
- enumerate the most likely heritable traits;
- recognize the characteristics of developmental stage theories according Flavell;
- understand Freud's and Erikson's views on personality development;
- understand how Erikson developed Freud's views further and how, therefore, his views differ from Freud's;
- enumerate and briefly describe developmental stages according to Freud;
- enumerate and briefly describe developmental stages according to Erikson;
- be familiar with the basic concepts of Piaget's theory; define the concepts of organization, adaptation, assimilation, accommodation, schema, and operation;

- enumerate and briefly describe developmental stages according to Piaget;
- know about some of the criticism of Freud's, Erikson's and Piaget's theories.

It will take about four 90-minute sessions to acquire the content of the unit.

8.2 TOPICS

Topics will be discussed in the following structure:

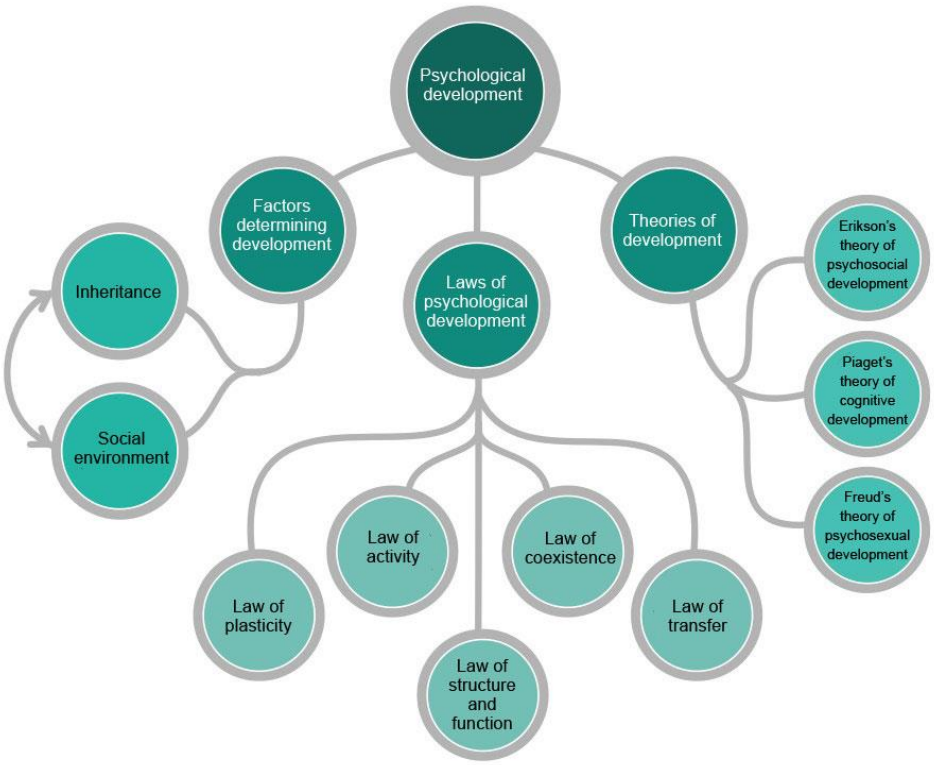

Figure 26. *Structure of topics*

8.2.1 The concept of development

The previous unit discussed basic concepts of personality; in this unit we will consider its development. First, we will define development.

Development denotes a series of bodily and psychological changes people go through as the get older – from conception to the end of their lives.[193]

Development involves changes in quantity and changes in quality. It involves changes in existing structures, which always increase complexity. Developmental changes are irreversible.[194]

Development raises the following questions:

- What laws govern development?
- Is development determined genetically or by environmental conditions? If both factors play some role, how does each contribute to development?
- What explains individual differences?
- Is development a continuous, unbroken process, or does it occur in clearly distinguishable stages?

We will return to these questions in the subsections below.

8.2.2 Fundamental laws of psychological development

Salamon describes five fundamental laws of personality development.

Law of plasticity

This means that the younger a person is the more plastic and malleable their nervous system is. This implies that if the nervous system is not stimulated by a sufficient amount of stimuli at a particular stage of development, it cannot be compensated for later.

Law of activity

Personality must itself take an active part in development for particular skills to emerge and develop.

For example, if a child is not given the opportunity to engage in various kinds of physical movement and exercise, they will not be skillful in physical movements.

---

[193] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001. 29.

[194] BERNÁTH László, SOLYMOSI Katalin: A fejlődés meghatározó tényezői és elméletei. In: BERNÁTH László, SOLYMOSI Katalin (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997.7-24
MÖNKS, F. j.,KNOERS A, M. P. : Fejlődéslélektan. Budapest, Urbis, 2004.

Unity of structure and function

Structure in this context refers to the body and its different organs. The law implies that the structure of the body is ultimately decisive about its functions, but the practicing of functions has an effect on the body too.

For example, our muscular structure fundamentally determines the kinds of movement we can carry out, but practicing those movements has a retroactive effect on muscular structure, such as strengthening.

Law of coexistence

This means that a person may be at different stages of development in different areas at a particular point in time.

For example, speech development in an eight-year-old child may be appropriate for their age and their development of thinking may be ahead, while their development of physical motion may lag behind their age.

Law of transfer

This means that knowledge and skills already formed have an effect on the acquisition of new knowledge and skills. That effect may be conducive, in which case we have positive transfer, or inhibitory, in which case transfer is negative.[195]

8.2.3 Inheritance, social environment, and personality

There are three different types of theories about the role of genetics and learning in personality development.

- According to the biogenetic theory, all of our fundamental traits are genetically determined.
- According to social determinism, all of our fundamental traits are the consequences of learning under the influence of environmental effects.
- W. Stern's two-factor convergence theory combines the two views above. Stern insists that personality development is jointly

[195] SALAMON Jenő: A megismerőtevékenység fejlődéslélektana. Budapest, Nemzeti Tankönyvkiadó,1996.

determined by genetic and environmental factors, in a ratio of 60% to 40%.[196]

There is consensus today that both genetic factors and learning contribute to personality development. Views differ only in what share each factor accounts for.

Questions arise about how you can decide which personality trait is a matter of genetics and which is learned.

The most commonly used methods are:

- Twin studies (twins research), in which researchers study identical and fraternal twins who are raised either together or separately and record similarities and differences.
- Adaptation research, in which researchers study similarities and differences between adopted children and their foster parents and their biological parents.

On the basis of research conducted in ways just described, Buss and Plomin consider the following traits to be genetically determined:

- Activity level, which gives personality its "general energy supply." Such traits belong here as the power, intensity, and tempo of behavior, etc.
- Sociability, which represents the degree to which a person enjoys being in the company of others.
- Emotionality, which represents the degree of physiological excitement, e.g. rise of blood pressure, increase of heart rate and respiratory rate in emotionally upsetting situations.

Others will add impulsiveness and intelligence to the list above.[197]

It is fairly obvious that these heritable traits, combined with environmental effects, can generate an infinite number of different variants of personality.

8.2.4 Development: continuous or discontinuous?

Researchers have long been interested to determine whether development is an unbroken, continuous process or it is segmented into identifiable stages by abrupt changes or leaps forward. Researchers disagree. Cole adopts Flavell's (1971) view that development is a

[196] KEMÉNYNÉ PÁLFFY Katalin: Bevezetés a pszichológiába. Tankönyvkiadó, Budapest, 1989. 7.

[197] CARVER, Charles S., SCHEIER, Michael: Személyiségpszichológia. Osiris, Budapest, 1998.

discontinuous stage-by-stage process, which is characterized by the following features:

- Developmental stages are marked not only by quantitative but also be qualitative changes.
- Transition from one stage to the next occurs simultaneously in many, sometimes all, aspects of a child's behavior.
- Transition from one stage to the next is rapid.
- Behavioral and bodily changes that are typical of a particular stage form a coherent pattern.

Cole believes that "development is a complex process involving both gradual and abrupt changes." [198]

In what follows, we shall present three developmental stage theories, which have had the greatest impact on our understanding of personality development: Freud's theory of psychosexual development, Erikson's theory of psychosocial development, and Piaget's theory of cognitive development.

8.2.5 Freud's theory of psychosexual development

☐ We discussed some fundamental aspects of Sigmund Freud's approach to the human psyche in the previous unit. Let us now consider what he thought about the development of personality.

Central to Freud's theory are his views about sexuality, which is reflected in his thoughts about development as well. For this reason, his theory of development is rightly called a theory of psychosexual development.

In childhood, "the function of the sexual instinct is for the person to experience pleasure in certain parts of their body and it will serve the function of reproduction only at a later stage of development. During this development, he identifies three erogenous zones of the body: the mouth, the anus, and the genitals."[199]

The particular developmental stages are named after these erogenous zones.

Freud's theory of development, just like his entire theory of the human psyche, is based on his psychotherapeutic experiences with psychotic patients.

That is exactly the basis of some counterarguments against Freud's developmental theory. His critics argue that it is a mistake to base a

[198] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001. 33.

[199] MÖNKS, F. j.,KNOERS A, M. P.: Fejlődéslélektan. Budapest, Urbis, 2004. 22

theory of development in healthy individuals on observations of mentally sick patients. His hypotheses are not very easy do verify empirically either. Still, his theory remains to date one of the most influential hypotheses.[200]

8.2.6 Developmental stages on Freud's hypothesis

Oral stage (0-1.5 years)

The mouth is the major source of pleasure, in part because the child feels the warmth of the mother's breasts and in part because the rhythmic movement of suckling itself gives the baby pleasure. A problem that may occur at this stage, possibly causing mental disorders later, is the weaning of the baby either too early or too late.

Anal stage (1.5-3 years)

The anal stage is named after the anal muscles, whose contraction and relaxation is a source of pleasure. A problem at this stage may be caused by trying to toilet-train a child to early or by too drastic methods.

Phallic stage (3-5 years)

The major source of pleasure are the child's own genitals. Masturbation appears at this stage. Later on at this stage, a growing interest in the other sex leads to a strong attraction toward the parent of the other sex and rivalry with the parent of the same sex. The phenomenon in boys is called Oedipus complex and the same in girls is called Electra complex.

- Oedipus was the mythical Greek king who, in a cruel twist of fate, killed his father and married his mother. Electra was a mythical Greek princess, who persuaded her brother to kill their mother, who they thought was responsible for their father's death.

Latency (from the age of 6 to puberty)

At this stage, the development of sexual instincts is overshadowed by a growing interest in other aspects of life.

---

[200] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
ÖNKS, F. j.,KNOERS A, M. P.: Fejlődéslélektan. Budapest, Urbis, 2004.
ARVER, Charles S., SCHEIER, Michael: Személyiségpszichológia. Osiris, Budapest, 1998.

Genital stage (Puberty)

In puberty, the genitals become the most important source of pleasure. By the end of the stage, the person will be ready for a satisfying adult sexual relationship.[201]

8.2.7 Erikson's theory of psychosocial development

Erik Erikson was a psychoanalyst, who developed Freud's theory of development further. He agreed with Freud about the significance of instinct development and adopts the assumption about the existence of the unconscious, but he laid greater emphasis on conscious processes.

According to Erikson, development is a life-long process, which is composed of eight stages. Each stage is characterized by a psychosocial crisis potential.

> **A psychosocial crisis potential is a developmental task or problem. If the crisis is resolved positively, the adaptation of the person is successful, while failing to resolve the crisis leads to the failure of adaptation.[202]**

Erikson describes psychosocial crisis potentials by contrastive pairs which represent the possible positive or negative outcomes at a particular stage.

Some criticize Erikson's theory for its subjective character. "We are not aware of any controlled studies that would corroborate Erikson's theory, so we remain skeptical about the validity of generalizations from personal experience."[203]

---

[201] CARVER, Charles S., SCHEIER, Michael, Személyiségpszichológia. Budapest: Osiris, 1998.
FREUD Sigmund, A pszichoanalízis rövid foglalata. In: FREUD Sigmund. Esszék. Budapest: Gondolat, 1982
MÖNKS, F. j.,KNOERS A, M. P. : Fejlődéslélektan. Budapest, Urbis, 2004.
PECK, David, WHITLOW, David, Személyiség elméletek. Budapest: Gondolat, 1983

[202] ERIKSON, Erik: Pszichoszociális személyiségelmélet. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. Személyiséglélektani szöveggyűjtemény. Budapest: Tankönyvkiadó, 1985.
ERIKSON, Erik, Az emberi életciklus. In: BERNÁTH László, SOLYMOSI Katalin szerk. Fejlődés lélektani olvasókönyv. Budapest: Tertia, 1997.

[203] TÓTH László:Pszichológia a tanításban. Debrecen Pedellus Tankönyvkiadó, é.n. 21

8.2.8 Stages in Erikson's theory

Infancy (learning essential trust vs. mistrust)

The infant's task in the first stage is to learn whether it can trust the world around it, primarily the mother. If, because of the mother's behavior, the infant learns not to trust her, then a feeling of being neglected and a feeling of anger will prevail in the infant. This may lead to the consequence that the person will not trust people in their immediate environment later either.

Toddlerhood (securing autonomy vs. shame and doubt)

The little child's task in the second stage is to become toilet-trained and to learn to walk independently. Both contribute to the child's autonomy. If parents impose too severe restrictions on the child, then they will feel that they have only limited control over themselves, which leads to the consequence of feeling shame and self-doubt.

Kindergarten age (learning to take initiatives vs. guilty conscience)

The task of the third stage is to acquire active, goal-oriented, intentional behavior. If parents suppress the child's initiatives, then the child will feel guilty about their efforts to become independent.

School age (successful performance vs. feeling of inferiority)

The task of the fourth stage is to meet educational expectations at school. If the child fails to perform as they are expected, they will be disappointed with themselves and will feel inferior.

Adolescence (finding identity vs. identity confusion)

The task of the fifth stage is to find self-identity.

- **Identity is the growing confidence that one's sameness and continuity one has reached over the years matches the sameness and continuity that the person means for others.[204]**

If one succeeds in finding one's identity, then they will be capable of fidelity and commit themselves to other people, groups, or ideas.

[204] ERIKSON, Erik, Az emberi életciklus. In: BERNÁTH László, SOLYMOSI Katalin szerk. Fejlődés lélektani olvasókönyv. Budapest: Tertia, 1997. 109-120 37

Young adulthood (forming the capacity for intimacy vs. isolation)

The task of the sixth stage is to develop a sense of solidarity and the capacity to commit oneself in a romantic relationship. In absence of this, a person will be lonely and isolated.

Mature adulthood (forming creativeness and generativity vs. stagnation)

The task of the seventh stage is to develop capacities for creation, which may be manifest in several different ways, including work, raising children, or pursuing hobbies. If a person is not successful in these activities, they feel that their life is stagnating.

Old age (preserving self-identity vs. despair)

The task of the eighth stage is to preserve accumulated experience and pass it on to the next generation. If a person fails to accomplish this, they may develop a fear of dying, which is caused by despair and the feeling that their life has been wasted and there is no time left to start it all over again.[205]

8.2.9 Piaget's theory of cognitive development

- While the stages in Freud's and Erikson's theories of development involve broad areas of personality development, Piaget's theory focuses on a narrower domain of personality. Piaget's theory is concerned with the development of cognitive functions, with a focus on thought.

Jean Piaget's theory is a hypothesis on how a child acquires their knowledge about the world, how they modify that knowledge and integrate it into the knowledge already acquired, and how their "new" knowledge modifies their "old" knowledge already acquired.

Cole, citing Piaget (1954), puts it as follows: "Knowledge is not a copy of reality. Rather, knowledge derives from changing and modifying the world. In actively attempting to gain control over the environment, children construct higher levels of knowledge from maturational and environmental elements." [206]

---

[205] ERIKSON, Erik: Pszichoszociális személyiségelmélet. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. Személyiséglélektani szöveggyűjtemény. Budapest: Tankönyvkiadó, 1985.
ERIKSON, Erik, Az emberi életciklus. In: BERNÁTH László, SOLYMOSI Katalin szerk. Fejlődés lélektani olvasókönyv. Budapest: Tertia, 1997.

[206] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001. 38

Humans are characterized by two genetic predispositions: organization and adaptation.

- **Organization means the intention to combine and organize processes into a coherent whole.**
- **Adaptation is the alteration of structure or habits in order that an individual becomes better able to function in their environment.**[207]

Adaptation is composed of two processes: assimilation and accommodation.

- **In assimilation, a person modifies their experience so that it is consistent with already existing schemas.**
- **In accommodation, a person modifies already existing schemas in the light of new experience.**[208]

To understand this, we need to clarify Piaget's notion of a schema.

- **A schema is the elementary unit of psychological function. As Cole, citing Piaget and Inhelder (1969), put it, "a schema is a mental structure which supplies the organism with a model of behavior in similar or analogous circumstances."**[209]

Schemas may be behavioral or cognitive in nature.

- *For example, a behavioral schema may represent instructions about how to get a push toy car moving, while a cognitive schema may represent its features.*

When a child has gained some experience that does not fit in with the already existing schemas, they need to find a way to adapt. The child will either assign an interpretation to the experience that allows it to be integrated with prior schemas or he will modify the schemas in order that they allow the integration of experience. The former process is called assimilation and the latter is called accommodation.[210]

- *Take, for example, a child, whose parents keep a German Shepherd, seeing a Chihuahua for the first time in his life. At first sight, the child may not realize that the Chihuahua belongs to the*

[207] TÓTH László:Pszichológia a tanításban. Debrecen Pedellus Tankönyvkiadó, é.n. 22
[208] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
[209] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001. 179
[210] TÓTH László:Pszichológia a tanításban. Debrecen Pedellus Tankönyvkiadó, é.n.

same DOG schema as the German Shepherd. When the child interprets its features (barks, gives paw, etc.), he will be able to integrate it into the schema (assimilation), and, in addition, he may slightly modify the schema too in order that it can accommodate the features of the Chihuahua (accommodation.).

Assimilation and accommodation are mutually complementary processes in a constant search for fit between a child's new experience and their existing schemas. Balance is regularly achieved and equally regularly upset by new experience, compelling the child to reestablish it on a more advanced level.[211]

Piaget divided the development of thinking into four stages:

- Sensorimotor stage
- Pre-operational stage
- Concrete operational stage
- Formal operational stage

Let us consider their properties.

8.2.10 Sensorimotor stage (0-2 years)

At the beginning of the stage the infant is equipped with innate unconditioned reflexes, represented in Piaget's theory as schemas. These reflexes serve as behavioral frameworks connecting the infant's motor responses to perceived stimuli. They undergo modifications later under the effect of experiences and become more differentiated and the initial primitive schemas are combined into more complex structures.

In the last quarter of the stage, between the ages of eighteen and twenty-four months, the development of the child's schemas reaches a stage which deserves to be regarded as the beginning of the emergence of symbolic representations. This means that the child begins to relate images and words to familiar objects, which sets the foundations for the use of new tools for problem solving. This makes it possible for the child to mentally represent the relationships between objects even when he is not actually using them. This also allows the child to represent objects not present in his immediate environment and events that are not happening at the moment of representation, which, in turn, enables the child to try and imitate such events, to engage in playing "as if" games, and to speak.[212]

---

[211] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
MÖNKS, F. j.,KNOERS A, M. P. : Fejlődéslélektan. Budapest, Urbis, 2004.

[212] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.

- An “as if” game is a type of game in which a child uses an object in place of another. For example, she is calling grandma on a bath sponge as though it is a telephone.

8.2.11 Pre-operational stage (2-7 years)

A characteristic feature of this stage is that the child is capable of using symbolic mental representations formed in the preceding stage, although he is not yet able to perform operations on them. Therefore, this stage is regarded as the transition between sensorimotor and operational thought.

- **An operation is “an act carried out mentally, which fits a logical system.”** [213]

Mental acts are already available, but they are not integrated into a logical system, which gives the kind of thinking at this stage its specific features:

- Pre-logical thought: thinking is characterized by transduction, rather than deduction or induction. A transduction is based on an immediate analogous relationship, inferring from a particular to a particular.

For example, the bone makes Fido (the dog) happy, so it is going to make Smokey (the cat) happy too.

- The ability to focus on one, typically the most conspicuous, aspect at a time. This implies the inability to classify objects by multiple criteria, or to accept the constancy of amounts.

This is illustrated in one of Piaget’s famous experiments, shown in the diagram below. Two identical glasses are filled with the same amount of water. Children understand that the amount of water in the two glasses is identical. Then, the liquid is poured from one of the glasses into a tall narrow glass. When a child under the age of 6 is asked which glass contains more water, they tend to pick the tall narrow one, even when they have seen that the amount of water is exactly the same, because they cannot consider more than one criterion at a time (i.e., both the height and width of the glass and the fact that one compensates for the other, and that the same amount of water appears taller in the narrow glass).

[213] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001. 465

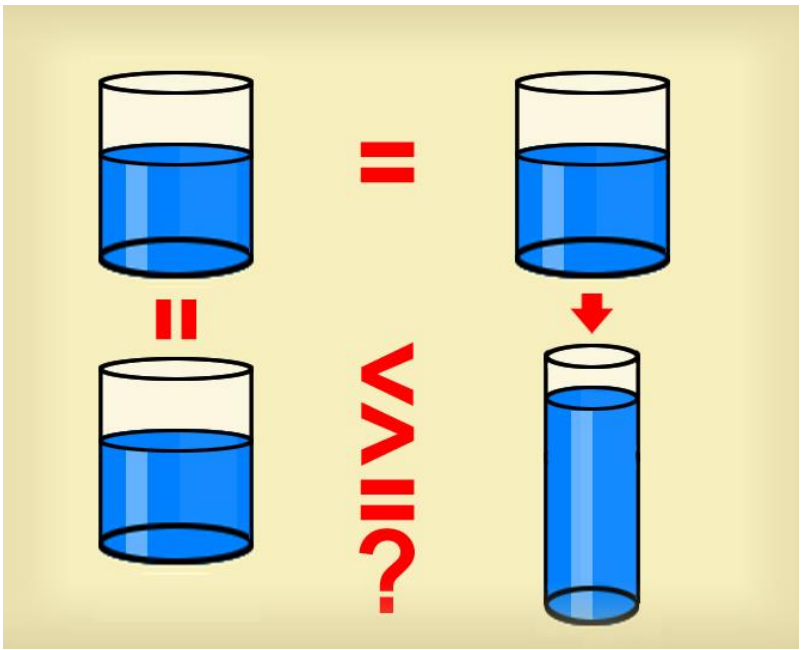

Figure 27.*Piaget's experiment*

- A number experiments conducted by Piaget may be viewed on youTube. The link below allows you to view a video with several different experimental conditions.12_08_HH01

http://www.youtube.com/watch?v=gnArvcWaH6I

- A consequence of the foregoing is the child's egocentric view of the world. Given that the child can consider a single perspective at a time, he will obviously take the most straightforward of all vantage points: himself.

This is not selfishness. An egocentrically thinking child may want to share his bar of chocolate with you. What he is egocentric about is that he cannot imagine that some people may not like chocolate, given that de does.

- As he considers one perspective at a time and focuses on the most obvious, because directly perceivable, properties of objects, appearances often deceive him.[214]

[214] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
VAJDA Zsuzsanna: A gyermek pszichológiai fejlődése. Budapest, Helikon,2001

For example, he believes that the straw in the glass of water, which appears to be broken, is really broken.

Figure 28.*A straw in a glass of water*

8.2.12 Concrete operational stage (7-11 years)

Children at this stage can perform mental operations and are capable of logical thought, but their thinking is still concrete: they can perform mental operations with thoughts about concrete objects, which are either present or they are familiar with them.

- They can consider more than one perspective at a time.

Thus, they can easily give the correct answer in the previous experiment with water in the glasses.

- They can decenter: can consider other people's perspectives.
- They are capable of arranging, classifying, connecting objects mentally by different logical criteria and can consider more than one criterion at a time.
- They understand that some features of objects remain unchanged as of logical necessity, even when appearances suggest otherwise.

For example, they know that the straw in the glass is not broken, although it seems as if it is broken.

- They discover that contrary processes cancel each other's effects.

- *For example, if a certain amount of things is subtracted from, and then added back to, a set of things, then the number of things in the set remains unchanged. Assuming we have six apples, if we first subtract three of them and then add three to them, then we will have the same amount of apples.*

Children at this stage are capable of rational thinking, but this ability is still limited: they cannot handle problems formulated in terms of unreal objects which they cannot imagine.[215]

- *If, for example, a 7 to 8-year-old child is told that a blue person lives in every red house and he is asked whether it is true that every blue person lives in a red house, they are confused by the (thought of) the fact that blue people do not exist.* [216]

8.2.13 Formal operational stage (12 years-)

In this stage, an adolescent is capable of performing operations with abstract concepts. Thus they are capable of abstract problem solving, including the ability to think over internal logical relationships. They can construct hypotheses and test them. They are capable of metacognition, i.e., thinking about their own thinking process and can reflect on their own mental activities. At this stage, adolescents are not only capable of abstract thought, but they explicitly enjoy engaging in abstract thinking and have a great interest in abstract views and ideas.[217]

Piaget's views have been criticized from various perspectives:

- Some believe that Piaget underestimated children's abilities, in part because he assumed too severe conditions on which to judge whether an ability is present or absent in a child, and in part because the experimental tasks he employed were too complicated and divorced from real life.
- It has turned out over the past few decades that children's abilities in the pre-operational stage are more developed that Piaget claimed they were.
- He overestimated the level of formal thinking in adolescents. Hypothetical thinking often appears to be hard even for college / university students.

---

[215] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
VAJDA Zsuzsanna: A gyermek pszichológiai fejlődése. Budapest, Helikon,2001

[216] VAJDA Zsuzsanna: A gyermek pszichológiai fejlődése. Budapest, Helikon,2001

[217] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.

- Recent research has suggested that the four stages are not separated from each other as sharply as Piaget suggested.
- Also, questions arise about whether all adults reach the level of formal thinking or some perhaps get stuck on the level of concrete thought.
- And even if a person does reach the level of formal thinking, are they going to use it in every aspect of life or, perhaps, sometimes they fall back on the level of concrete thought? [218]

Think of a professor of medicine, for example, who is obviously capable of thinking formally about various illnesses, finding himself in the kitchen, trying to fix a dripping faucet, where he is likely to step back onto the level of concrete thought.

8.3 SUMMARY AND QUESTIONS

8.3.1 Summary

In this chapter, you have learned about how personality development involves a series of psychological and bodily changes, which irreversibly alter the existing structures. You learned about the laws of development and about ways in which development is affected by genetic factors and the process of learning. You have been introduced to some methods to study the effects of genetics and social environmental factors.

You read, in some detail, about the three most influential theories of personality development, which had the greatest impact on 20th-century developmental psychology.

For ease of reference, the essential points in the three theories are summarized in the table below.

Age	Freud's theory of psychosexual development	Erikson's theory of psychosocial development	Piaget's theory of cognitive development
0-1 years	Oral stage	Trust vs. mistrust	Sensorimotor stage
1-2 years	Anal stage	Autonomy vs. shame and doubt	
2-3 years			Pre-operational stage
3-4 years	Phallic stage	Initiatives vs. guilty conscience	
4-5 years			
5-6 years	Latency		

[218] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
MÖNKS, F. j.,KNOERS A, M. P. : Fejlődéslélektan. Budapest, Urbis, 2004.
TÓTH László:Pszichológia a tanításban. Debrecen Pedellus Tankönvvkiadó, é.n.
VAJDA Zsuzsanna: A gyermek pszichológiai fejlődése. Budapest, Helikon,2001

Age	Freud's theory of psychosexual development	Erikson's theory of psychosocial development	Piaget's theory of cognitive development
6-7 years		Achievements vs. inferiority	
7-8 years			Concrete operational stage
8-9 years			
9-10 years			
10-11 years			
11-12 years			
12-13 years	Genital stage	Identity vs. identity confusion	Formal operational stage
14-15 years			
16-17 years			
17-18 years			
Young adulthood	-	Intimacy vs. isolation	
Mature adulthood	-	Creativeness vs. stagnation	
Old age	-	Preservation of self-identity vs. despair	

1. *Freud's, Erikson's, and Piaget's stages*

8.3.2 Self-test questions

- Define the concept of development and its features.
- Enumerate and describe the laws of development.
- What theories on the role of inheritance and environmental effects in personality development do you know of?
- What features characterize twin studies and adaptation research?
- What personality traits are heritable according to Buss and Plomin?
- What features characterize stage theories of development according to Flavell?
- How did Freud construct his psychosexual development theory?
- Enumerate and briefly describe Freud's stages.
- What features characterize Erikson's psychosocial development theory? How does it differ from Freud's theory?
- Enumerate and briefly describe Erikson's stages.
- Discuss the basic concepts of Piaget's theory.
- Enumerate and briefly describe Piaget's stages.
- Discuss some issues that arise in connection with Freud's, Erikson's, and Piaget's theories as pointed out by the critics.

8.3.3 Practice tests

1, Whose theory is the theory of psychosexual development?

A, Sigmund Freud
B, Erik Erikson
C, Jean Piaget

2, Genetics plays a decisive role in which of these traits, according to Buss and Plomin?

A, Suppleness
B, Sociability
C, Emotional intelligence
D, Conscientiousness

3,Which developmental stage is characterized by decentering in Piaget's theory?

A, Sensorimotor
B, Pre-operational stage
C, Concrete operational stage
D, Formal operational stage

(Correct answers: 1-A, 2-B, 3-C)

9. THE PROCESS OF PERSONALITY DEVELOPMENT: PSYCHOLOGICAL FEATURES SPECIFIC TO AGE 0-6 YEARS

9.1 GOALS AND COMPETENCIES

The first six years of our lives bring some very important changes. We learn a great deal about movement, speech, adapting to the environment, bonding with our parents, playing with our peers, etc., which have a major impact on our development in later stages of our lives. We rarely think about the decisive effects of changes during the first six years on how we cope with the challenges at school, how ready we are for learning and later for romantic relationships. These six years actually contain four significant developmental periods: newborn babyhood, infancy, toddlerhood, and kindergarten age.

The goal of this chapter is to introduce students to these four developmental periods and the bodily and psychological changes specific to them.

After completing the unit, students should be able to

- describe the major features of newborn babyhood;
- know the most important features of bodily development in infancy;
- know the development of cognitive processes in infancy;
- be familiar with the features of movement development in infancy;
- be familiar with the features of speech development in infancy;
- know the most important features of bodily development in toddlerhood;
- know how a child's self-awareness develops in toddlerhood;
- be familiar with the features of speech development in toddlerhood;
- briefly describe bodily development at kindergarten age;
- be familiar with the major features of movement development at kindergarten age;
- know the characteristic features of mental development and of cognitive processes at kindergarten age;
- familiar with the major stages in the development drawing at kindergarten age;

- enumerate the major features of the imagination of children of kindergarten age;
- understand the features of the emotional-intentional lives of kindergarten-age children.

It will take about two 90-minute sessions to acquire the content of the unit.

9.2 TOPICS

Topics will be discussed in the following structure:

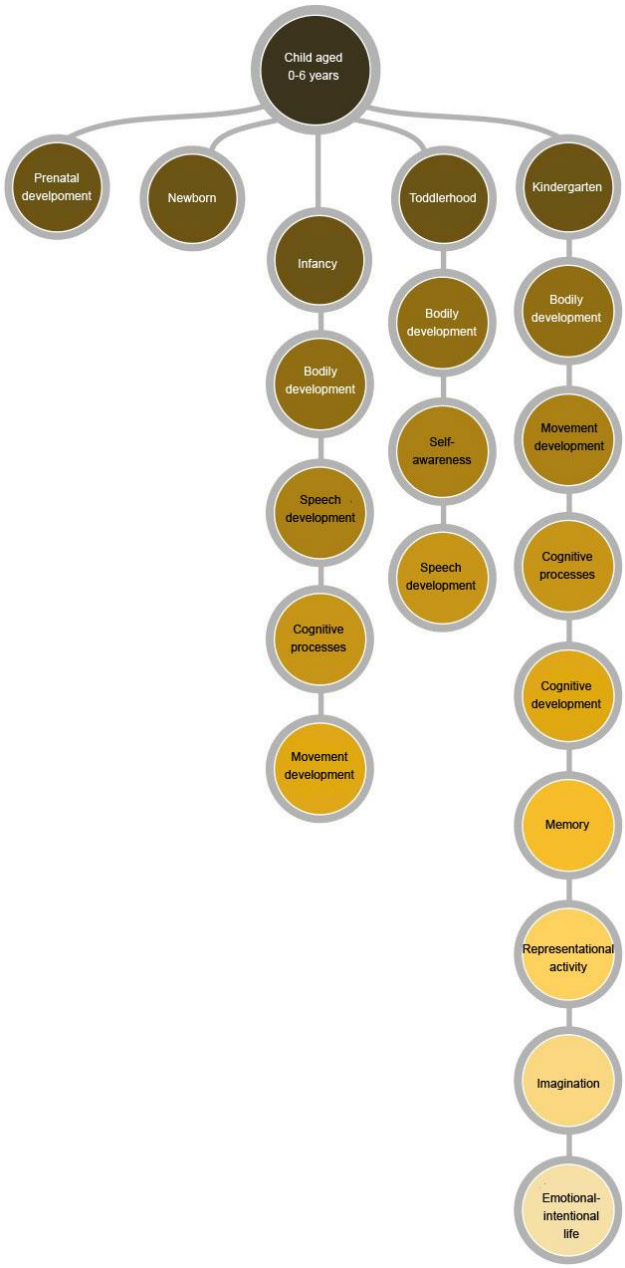

Figure 29. *Structure of topics*

9.2.1 The newborn baby

Newborn babyhood is the shortest of the developmental periods, which begins with birth and includes the first 6-8 weeks. The newborn baby's body is disproportional with its head accounting for ¼ of its body size. Its limbs are slim, and its muscles are toneless. Their weight is between 3 and 3.5 kg and their average length is around 50 cm. Thermoregulatory mechanisms do not function appropriately yet, so they are especially sensitive to cold temperature.[219] The primary task of the newborn baby is to adapt to the radically changed environment, which requires a considerable amount of support from people around them. Virginia Apgar, an American physician, developed a scale that came to be named after her, the Apgar scale, to determine the health of a newborn baby. The Apgar scale contains five criteria, pulse rate, respiration, muscle tone, reflexes, and complexion, and scores each function up to 2 points, so the total Apgar score is 10 points. Babies who score low on this scale, need medical assistance.[220]

Autonomic reflexes, such as swallowing, hiccups, etc. and movement reflexes, such as the grasping reflex and the Moro reflex, etc. assist the newborn baby in its adaptation to the environment.

We retain some of our reflexes to the end of our lives and we lose some others. A baby will begin to lose a reflex when it is capable of controlling the relevant function. Reflex tests are also used to diagnose the health of the baby's mind.

9.2.2 Infancy

Infancy immediately follows newborn babyhood and comprises the first year. The most spectacular changes may be observed in motion, and the first words also appear toward the end of the period, so significant changes occur in speech development as well. The large amount of stimuli has a great impact on the cognitive development of the infant too. Cognitive functions improve, enabling the child to better perceive and process external stimuli. A harmonious, warm mother-child relationship and the feeling of safety and attachment to the mother are essential for the child's personality development.

Bodily development in infancy

Bodily growth is fastest during the first six months and it gradually decreases until adolescence. By the end of the first year, a child triples

[219] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése.* Pécs, Helikon Kiadó, 1999.
[220] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.

its weight at birth. Their body length reaches 70-80 cm and their body weight reaches 8-10 kg by the end of infancy. Their head is 1/5 of their body and its perimeter is larger than that of their chest. The first teeth appear at the age of 6-7 months. Some newborns are born with teeth, which was once believed to be a sign of magic powers. Significant developmental changes occur in the nervous system during the first year, especially the myelination of nerve tracts, which will have a great impact on sensory transduction.[221]

Development of cognitive processes in infancy

Infants have poor eyesight; the vergence of the eyes has not developed yet, so they cannot see objects farther away very well. Vergence begins to appear at the age of 6 weeks, enabling infants to follow moving objects with their gaze. At 4-5 months they begin to distinguish colors and their sight in general is almost as good as in adults. At this age, their eye lenses adapt to distance and at 6-7 months eye-hand coordination improves radically.[222]

Hearing is rather well developed at birth, as it develops and functions in the prenatal period already. After birth, they will recognize the story, poem, or piece of music that their mother often listened to or recited during pregnancy. They can tell the voice of their mother from other female voices.[223] At 3-4 months infants begin to look for the source of sound with their eyes. At 6 months they produce more intensive responses to a sound stimulus if it is coupled with some interesting sight.

Their smell is also rather well developed. They respond to a pungent, unpleasant smell with a grimace. A ten-day-old newborn will smell the difference between its mother's milk and someone else's.[224]

They can tell certain tastes apart shortly after birth. They have a preference for sweet taste, which derives from evolutionary advantages. They respond to bitter taste by disgust, and grimace at sour taste too.

Movement development in infancy

The infant's movement develops rapidly, in conjunction with the maturation of its nervous system. At 2 months, if we lay them on their tummies, they begin to raise their head and intentionally reach for

[221] VAJDA, Zsuzsanna.: *A gyermek pszichológiai fejlődése.* Pécs, Helikon Kiadó, 1999.
[222] VAJDA, Zsuzsanna.: *A gyermek pszichológiai fejlődése.* Pécs, Helikon Kiadó, 1999.
[223] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997
[224] ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997

objects. When they get hold of an object, they will grab it, but will not turn their heads in that direction. At 3-4 months they hold their heads increasingly securely and their ability to intentionally grab and release objects improves significantly. They are able to follow moving objects with their gaze for about 10 seconds.

At 5 months they can turn their heads around and look at things and they learn to turn around from their tummy to their back. They also begin to turn in the direction of objects and crawl to get hold of them. At this age an infant is capable of more and more complex motions.

At 6-7 months they turn from their tummy to their back increasingly often and begin to practice movements necessary for sitting up, by turning on one side and resting their body on an arm. They begin to crawl, first only backwards. In the next month, they realize that they can get hold of objects be crawling toward them.

At 8-9 months they are able to sit up on their own, which is of enormous significance, since it increases their field of view dramatically, which means that they will perceive a lot more stimuli, and their hands are free, allowing the rapid development of manipulations by hand. They are better and better at crawling and begin to try to stand up.

At 10-12 months they can stand up and are able to make their first steps, holding on to pieces of furniture first, and later freely. Walking at this stage is wobbly and wide but it improves gradually by enthusiastic practicing.[225]

Speech development in infancy

Significant changes take place in speech development in the first year. Newborn babies produce some sounds already beyond crying, sometimes called sounds of complaint. At 3-4 months babbling begins. Infants discover that they can make sounds and begin to play with them, producing more and more varied sounds. That is the time the infant begins to acquire the sounds of their first language.[226] Another important aspect of speech development in the first year is that the infant begins to develop a routine of turn-taking, which is accompanied by mirroring emotions. As a matter of genetics and evolution, the child knows that you take turns at making sounds, i.e., they are aware of the social framework already. All they need to acquire is the tool to be used.[227] Babbling becomes more and more varied at 8-9 months and the first sound duplications begin to appear, which will give rise to the first words by the

[225] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése.* Pécs, Helikon Kiadó, 1999.
[226] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Coménius Bt., 1997.
[227] PLÉH, Csaba: *A lélek és a nyelv.* Budapest, Akadémia Kiadó, 2013.

end of the period, i.e., the end of the first year, which Kaplan called the preverbal stage of speech development. The infant's first words will represent people, events, and objects, thus they are the first signs of representational thought.[228]

9.2.3 Toddlerhood

The period between 1 and 3 years of age is called toddlerhood in developmental psychology. The most significant changes in this period include speech development, improving of movement, the formation of self-awareness, and cognitive development.

Bodily changes in toddlerhood

At the beginning of the period, around age 1, toddlers are about 80-90 cm tall and they will grow to 100 cm by the end of the period.[229] Their weight grows on average by 2 kg a year. By the age of 3 they weigh about 13-15 kg. Body proportions also change. A toddler's body is characterized by a relatively large head, short limbs, the trunk is cylinder shaped, the stomach protrudes forward, the back is straight the dorsal and lumbar curves of the spine are not formed yet.[230]

Formation of self-awareness

The formation of self-awareness begins in infancy, when early forms of the knowledge of "I am doing things" begin to appear. This knowledge is essential for the infant to be able to distinguish itself from everyone else and everything else in its environment. The basis for this is provided by the infant's body schema, which develops on the basis of perceptions, self-initiated movements, and feedback from the environment. Self-awareness is going to serve as the foundation for self-concept, the cognitive system of knowledge of ourselves. The formation of self-awareness is gradual, with three distinguishable stages:

- Early form of knowledge of "I do things and have an effect on the environment" (about 9-12 months)
- The little child begins to distinguish itself from other people and begins to understand that other people are independent acting agents (12-15 months).

[228] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001..
[229] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése.* Pécs, Helikon Kiadó, 1999.
[230] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Coménius Bt., 1997. 140.

- Then the child will recognize itself in the mirror, comparing what they can see in the mirror with their body schema (15-18 months).[231]

What they call the mark test or mirror test is generally used to test self-awareness. The child's face or forehead is accidentally marked by a lipstick. When the child sees himself in the mirror either of two things may happen: he will try and clean off the mark, or he won't. If he does, it suggests that he has recognized himself in the mirror and knows that the mark is not generally there on his face.

At 18-24 months the child's self-awareness is beginning to take the form of a conceptual representation. The child begins to call himself by his name. By the end of the period, the personal pronoun "I" will appear.

Features of toddler speech

The most conspicuous change in toddlerhood is the acquisition of language, a very complex process. The acquisition of speech perception skills is separated from the acquisition of speech production skills. The first words begin to appear at the beginning of toddlerhood. The child's first words express its desires. So these words are more like one-word sentences than just words, which express the child's desires or intentions.[232]

At 1-2 years of age speech becomes coordinated with gaze. The child will look at his mother to indicate that it is her turn to speak. In the second half of the second year an explosion in vocabulary occurs. The child uses more nouns than verbs or adjectives.

One-word sentences are gradually replaced by two-word sentences. This is sometimes called telegraphic speech. Grammatical words are not present yet. Syntax becomes more elaborate later.[233]

Other features of toddler speech include situation-boundedness, emotionality, and the tendency to coin words and assign meaning to everything.

For example, this is how 'draw' becomes "pick."

This is the age of the "What is that?" period, which gradually, by the end of the period is replaced by "Why?"

---

[231] KŐRÖSSY, JUDIT: *Az „én" fogalma, az énfejlődés elméletei.* In.: N. Kollár Katalin, Szabó Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris Kiadó, 2004. 51-73.

[232] PLÉH, Csaba: *A lélek és a nyelv.* Budapest, Akadémia Kiadó, 2013.

[233] PLÉH, Csaba: *A lélek és a nyelv*. Budapest, Akadémia Kiadó, 2013.

9.2.4 Kindergarten

Children begin to attend kindergarten at age 3 and finish at age 6-7. That is what kindergarten age comprises. This is a very eventful, exciting, and interesting period of development.

Bodily changes at kindergarten age

Bodily changes gradually slow down compared to the preceding periods. Dramatic changes take a little longer. The body of a child at kindergarten age is still characterized by features typical of children. The head accounts for 1/6 of body size and limbs are short relative to the size of the trunk. Height is around 100 cm at the beginning of the period and will reach about 120-130 cm by its end.[234]

Growth in height is about 4-5 cm a year and the annual growth in weight is 1.5-2 kg. Kindergarten-age children get tired quickly, but their muscles regenerate equally quickly, due to good circulation. Because they get tired quickly, frequent breaks must be taken when doing intensive physical work or exercise.[235]

Features of movement at kindergarten age

Children at kindergarten age become more and more skillful. A constant “drive to move” is typical of them. Gross motor skills and fine motor skills develop significantly. They can run and climb stairs alternating feet. They can stand on one foot and will be able to jump on one foot toward the end of the period, around age 5. They are very good at riding run bikes and tricycles, and a 5-year-old child is able to ride a regular bicycle.[236] “Senior” kindergarten children can walk 3-4 km and learn to swim, although swimming skills will still need to develop a lot.

Fine motor skills undergo remarkable changes. Children at kindergarten do a lot of drawing and clay work, play in the sand, etc., which contribute significantly to the development of fine motor skills. These fine motor skills will become essential at the time of learning writing at school. Their movement is a little clumsy at first, but by practice it becomes more and more refined and better coordinated. By the end of the period, children will be able to cut, sew, tear, tie up their shoes, and do up their coats, etc.[237]

---

[234] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése*. Pécs, Helikon Kiadó, 1999.
[235] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Coménius Bt., 1997.
[236] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése.* Pécs, Helikon Kiadó, 1999.
[237] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Coménius Bt., 1997.

Cognitive development at kindergarten age

Kindergarten-age children think egocentrically according to Piaget, which means that they interpret the world solely from their own perspective and are unable to consider other people's possible perspectives.[238] According to Piaget, kindergarten age is characterized by the pre-operational stage of development, which means that the child is unable to form operation-level representations. They classify objects from a single perspective. For example, they will assign all red pearls to the same class regardless of the material, wood or plastic, they are made of.[239] Thinking at this stage is in terms of images.

Piaget conducted clinical studies of children's explanations of ultra-phenomena.

- **A clinical method is a process in which the interviewer follows the child's flow of images, trying to guide it, but not toward a solution but toward the critical question.**
- **Ultra-phenomena are phenomena beyond experience and learning, of which the child has no direct experience at all.[240]**

Children's thought is characterized by animism. This means that the child attributes human properties to physical objects and natural phenomena. When they answer questions about such phenomena, their answers are based on animistic assumptions.

- *For example, if a child is asked about why there is night, they answer that the sun gets tired and goes to sleep.*

Their explanations are often finalist and teleological, meaning that they invite a purpose to account for the cause of a situation.

- *"Dad gets paid so he can buy Lego for me." "The sun is shining in order that we can go on an outing."*

Artificialism often characterizes children's explanations. This means that children think that natural objects and phenomena have been artificially created by somebody.[241]

---

[238] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.

[239] ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.

[240] MÉREI, Ferenc, BINÉT, Ágnes: *Gyermeklélektan*. Budapest, Gondolat kiadó, 1981.

[241] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése.* Pécs, Helikon Kiadó, 1999.

- *For example, the Moon is up there in the sky because somebody climbed a very tall ladder and put it there. Or, Lake Balaton was formed by somebody, who dug a huge hole in the ground and put water in it.*

The development of cognitive processes at kindergarten age

At kindergarten age sight takes priority over the manipulation of objects in the child's attempt to understand them. Kindergarten-age children's thought is characterized by syncretism:

- They are unable to decompose the whole into its parts and see how the parts connect to one another.
- They connect things that do not belong together.
- They sometimes regard insignificant detail as a whole.
- Points of detail may become autonomous wholes or, conversely, are overlooked.[242]

The absolute auditive threshold in kindergarten-age children is 14-16 decibel higher than in adults, so they need to be talked to at a somewhat louder voice.

A kindergarten-age child begins to understand spatial relations by observing their own body. So, a well-developed body schema is conducive to this process. They learn to distinguish their left and right hands and feet. Kindergarten-age children use visual clues for spatial orientation, primary clues they have had some experience with, which they remember.[243]

- *"We need to turn left at that shop over there, where Dad buys me biscuits."*

Kindergarten-age children have an underdeveloped sense of time. They find it hard to understand the meaning of "today," "tomorrow," and "yesterday." They understand "now" but they find "later" difficult. Their *personal experiences* play an important role in structuring time.

- *"I got this ball when Mom baked a cake for Dad."*

Memory at kindergarten age

At the beginning of the period, memory is determined by activities. 3-4-year-olds remember what they have done and what experiences they

[242] MÉREI, Ferenc, BINÉT, Ágnes: *Gyermeklélektan*. Budapest, Gondolat kiadó, 1981.
[243] MÉREI, Ferenc, BINÉT, Ágnes: *Gyermeklélektan*. Budapest, Gondolat kiadó, 1981

have had. At the beginning of kindergarten age, spontaneous memory dominates. They tend to remember what they have learned through playing better than simply words.

3-4-year-olds remember events that recur frequently, having a joint effect on them in time and space at the same time. Memory is more like recognition than retrieval.[244]

Development of representational skills at kindergarten age

Children's drawings go through the same stages of development in all cultures in the world. First they doodle, then their doodles become more differentiated, and eventually forms appear, along with the intention to represent something. They are far from perfect but display some special features.[245]

Children's drawings tell us a lot about how they see the world, what interests them, and at what stage of drawing development they are at the moment. Drawings by 3-4-year-olds are hardly recognizable. Their primary feature is juxtaposition.

- **Juxtaposition means disorganization; children's drawings are not representationally organized in ways in which adults see the world.**

Things in these drawings are not organized, they fall apart, and they do not represent the way things really are in the world. Children are unable to represent containment or contact.

- *When they draw a house, for example, sometimes they draw its roof and windows next to it.*

It is not easy to recognize these drawings. When children are asked about what they have drawn, their answers are often associative and tend to vary. The drawing below illustrates it well.

[244] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Coménius Bt., 1997.

[245] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan*. Budapest, Osiris Kiadó, 2001.

Figure 30. *Child's drawing 1.*

Drawing is one of many small children's favorite activities. Due to practice, they get more and more skillful, and their drawings become more and more recognizable and even charming. The age of intellectual realism begins at age 5. Children at that age wish to draw pictures of what they see, but their knowledge overrides and they add detail they know but cannot see. Drawings at this age are characterized by transparency.

- **Transparency of children's drawings denotes the property that they contain elements that cannot actually be seen, as if everything is transparent.**
- *For example, a child draws a picture of Dad standing behind a closed door, who is therefore not visible.*

Drawings are also disproportionate, meaning, for example, that a butterfly is a lot larger in size than a flower or a little girl's head.

Figure 31. *Child's drawing II.*

Drawings are sometimes characterized by emotional magnification, which means that children represent emotions by drawing oversized objects. Emotional saturation and the use of many different colors makes children's drawings at this stage very pleasant-looking and happy. Events are represented as if on a tape.

- *First we visited the castle, then had ice-cream, and then had a rest on the square. This is represented by a picture of the castle, then a picture of children having ice-creams, and then a picture of children having a rest on the square.*

Drawings are sometimes over-decorated and overcrowded. Over-decoration may represent solemnity or emotional involvement. Overcrowdedness may be a sign of an intention to be truthful or a fear of emptiness.

The role of stories and imagination at kindergarten age

Children's imagination is vivid and rhapsodic at this age, characterized by an unstoppable flow of images with high emotional content.

The little child chooses the world of imagination in which their dreams and desires may come true, as they often do not come true in the real world.

Imagination plays a very important role in playing. Rich imagination also plays a role in fantasy lies.

- **The main feature of a fantasy lie is that the child amends their representation of reality by false elements, driven by their emotions, desires, or impulses.**

Fantasy lies are not intended to mislead others or to distort reality, but are forced by intensive subjective emotions.

Imagination plays an important role in listening to stories. Stories can contribute to the development of internal image forming mechanisms. The child will learn to follow spoken words by internally constructed images, anticipating what is going to happen in the story and re-experiencing what they have already heard.

Children need to be told stories and they need the world stories offer:

- stories bring them pleasure and happiness;
- they experience the realization of their desires or dreams in stories, and they feel emotionally justified;
- the moral content of stories will become part of the child's personality, promoting the construction of a system of moral values, and contributes to socialization;
- they prepare thought and concept formation.

Stories play a very important role in speech development and they also contribute to the formation of a warm and intimate relationship between children and their parents. Children in this period prefer different kinds of stories at different ages. The hero in the first stories of a 3-year-old is himself or herself, or a little boy or girl of the same age. At age 4 children happily identify with characters in stories about animals. At age 5 they enjoy stories full of miraculous characters, events, and magic. At age 6 they prefer stories about unknown faraway places and adventures.[246]

Emotions and intentions at kindergarten age

Emotions change rapidly at this age and they are very intensive. A small child easily breaks out in tears and will laugh happily with the other

[246] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése*. Pécs, Helikon Kiadó, 1999.

kids a moment later. Emotions affect cognition, thinking, play, and listening to stories. Emotions at this age have the following features:

- at age 3-5 emotions are rapid, changeable, rapidly swing from one extreme to the opposite, from crying to laughter and from laughter to crying;
- they cannot conceal or control their emotions; they have intensive bursts of emotions;
- at age 5-6 emotions become more differentiated, more stable, and deeper;
- a 6-year-old can conceal some of their emotions. Ability to control emotions will be an important aspect of readiness for school. It is also connected with the maturation of the nervous system.

Emotions are present at this age in multiple forms. Basic emotions include anger, fear, happiness, and love, and higher emotions begin to appear, including aesthetic, intellectual, and moral development.

For example, a child is angry with malicious people, admires beautiful story books, and enjoys listening to stories and limericks.

The first period of defiance typically occurs around age 3. This is mainly motivated by a desire for independence. Children refuse to heed advice, instruction or prohibition on the part of the parent, educator or other adult. It is important that parents are patient and tolerant with defiant children trying to become more independent by giving them the chance to try themselves, even if it takes time, or there is a wide gap between the child's capacities and their efforts made to achieve independence, which will balance out with time.[247]

9.3 SUMMARY AND QUESTIONS

9.3.1 Summary

This unit introduced you to bodily and psychological traits and changes that characterize children between the ages of 0 and 6 years. You learnt about the developmental characteristics of the four stages within this age range, newborn (0 to 6-8 weeks), infancy (up to 1 year), toddlerhood (1-3 years), and kindergarten (3-6 years).

[247] VAJDA, Zsuzsanna.: *A gyermek pszichológiai fejlődése*. Pécs, Helikon Kiadó, 1999. 115

This should serve as a foundation for learning about school-age children, a special concern from the perspective of the teaching profession.

9.3.2 Self-test questions

- What are the main characteristics of newborn babies?
- What characterizes bodily development in infancy?
- How do cognitive processes change in infancy?
- What are the characteristic features of movement development in infancy?
- What are the characteristic features of speech development in infancy?
- What characterizes bodily development in toddlers?
- How does self-awareness form in toddlers?
- What are the characteristic features of speech development in toddlers?
- What characterizes bodily development in kindergarten-age children?
- What are the characteristic features of movement development in kindergarten-age children?
- What characterizes cognitive development in kindergarten-age children?
- Which are the major stages in drawing development at kindergarten age?
- What characterizes imagination at kindergarten age?
- What characterizes emotional-intentional processes at kindergarten age?

9.3.3 Practice tests

1 Who worked out a scale for testing the health of newborn babies?

A. Virginia Apgar
B. J. Piaget
C. S. Freud
D. Rogers

2 What characterizes juxtaposition?

A. Realistic representation
B. Accurate representation of contacting objects

C. Disorganized
D. Accurate representation of inclusion

3 Which of these is not a characteristic of syncretism?

A. Cannot decompose the whole into parts and see they are connected.
B. Parts that belong together are connected to each other.
C. Insignificant detail captured as a whole.
D. Details become autonomous or are ignored.

(Correct answers: 1-A; 2-C; 3-B)

10. THE PROCESS OF PERSONALITY DEVELOPMENT: PSYCHOLOGICAL FEATURES SPECIFIC TO SCHOOL AGE

10.1 GOALS AND COMPETENCIES

The purpose of this unit is to familiarize students with features specific to school age. School age is a much less turbulent period than the preceding stages. School-age children are capable of controlling their emotions. The period comprises the first four years of elementary school, so it ranges from age 6-7 to 10 years.[248] Important biological, psychological, and social changes occur in this period.

We begin by discussing school readiness, as children cannot be expected to cope with school requirements unless they meet some conditions of bodily, psychological, and social maturity. Then you will read about bodily and psychological changes characteristic of this period and the social relationships among school children

After completing the unit, students should be able to

- be familiar with the concept of school readiness and its significance;
- know about the bodily and psychological conditions that are required for school readiness;
- know the characteristics of the thinking and attention of school children and their general knowledge;
- enumerate the bodily changes characteristic of school age;
- know what the first major change in body shape means;
- discuss the features of thinking of school-age children;
- describe the attention of school-age children;
- know what characterizes the span and scope of attention of school children;
- describe memory functions in school children;
- describe the characteristics of the imagination of school children;
- describe the features of school children's interest and the role of collecting things;
- describe the emotional life of school children and their social relationships;

[248] TÓTH, Ibolya.: *A pszichológia alapjai*. Pécs, Comenius Bt. 1997.

- enumerate the main components of social competence at this age according to Goodnow and Burns (1987);
- enumerate the developmental functions of friendships according to Hartup;

It will take about two 90-minute sessions to acquire the content of the unit.

10.2 A TOPICS

Topics will be discussed in the following structure:

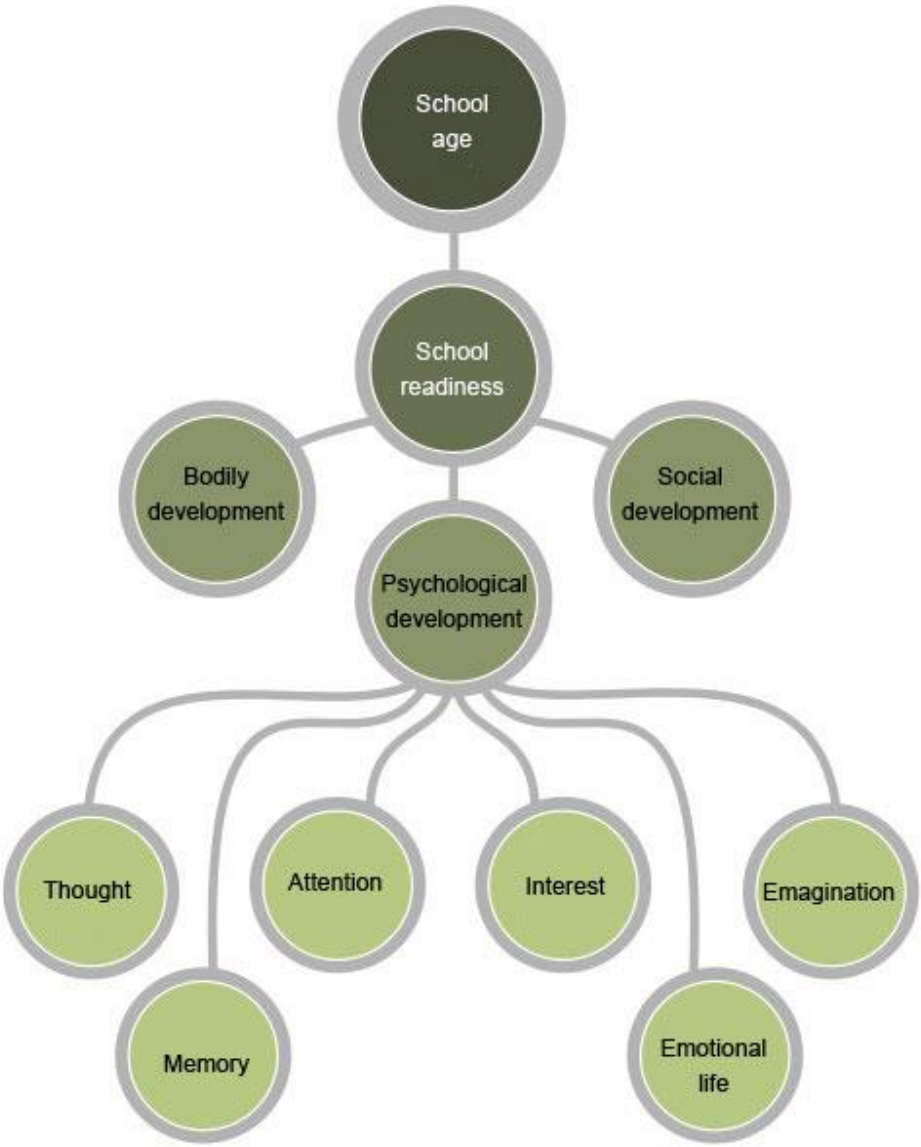

Figure 32. *Structure of topics*

10.2.1 School readiness

A condition of entering school is readiness in a physical, psychological, and social sense, which essentially means the child's

ability to adapt to the expectations imposed by the school.[249] School readiness is not always easy to determine, especially when a child falls short of some conditions or their performance is variable. In such cases expert opinion needs to be asked for. Experts can conduct school readiness assessment examinations, which contain individual and group tasks. On the basis of such examinations, an expert opinion will specify if the child has been found ready for school or, alternatively, if not, then what measures to take (e.g., take part in development trainings, etc.). School readiness assessment is carried out in kindergarten to make sure that small children are well prepared for school. Like any psychological examination, a school readiness examination is also subject to parental consent.

You can read more about school readiness assessment at the following link:

The physical and psychological strain the school environment involves requires a certain kind of bodily and psychological maturity. Entering school brings a lot of changes in a child's life. They will have duties to fulfil, rules to observe, they will need to be able to adapt to peers and become a member of a community. Play will be replaced by learning as their main activity, which requires task awareness, intentional attention and memory, appropriate language skills, problem-solving ability, causal and analogical thinking, etc.[250]

A child who is ready for school will have undergone the first major change in body shape, which is easily determined by the ear test. We ask the child to touch the ear on the other side of their head with their hand above their head. If they can do it, they are past the first major change in body shape; if they are not, they are unable to do it.

They are getting increasingly skillful in their movements, fine motor skills also develop, although they are a little clumsy at times, especially boys. A child who is ready for school can tell right from left, one of the hands is dominant, and they have stable body schemas. They can hold a pencil properly, which is essential for writing, as proper pencil grip is less of a strain on the hand, so they will not get tired quickly.

As regards cognitive functions, the attention of a child ready for school is characterized by the following features:

- capable of prolonged attention
- scope of attention can include 6-7 objects
- can perceive 5-6 differences

[249] GALAMBOS, Katalin: *A fejlődéslélektan és a szocializáció alapjai*. Budapest, Műszaki Kiadó, 2008.

[250] TÓTH, Ibolya.: *A pszichológia alapjai*. Pécs, Comenius Bt. 1997. p.195.

- can carry out an action based on a pattern offered
- can pair objects, can construct 5-6 pairs

The memory of a child ready for school is characterized by the following features:

- can memorize 6-8 drawings/diagrams in 1-2 minutes
- can recite some poems from memory
- can reconstruct most of the content of a passage read to them
- can compare two diagrams after memorization.

Their thought features:

- Can follow a series of events; can construct a series of events composed of a minimum of 9 pictures.
- Can recognize and explain differences between objects and phenomena.
- Can pick the odd one out of 4 objects and explain their choice.

Their concept of amount has the following features:

- Can count up to 10 with the help of sticks.
- Can distinguish larger amounts from smaller amounts.

Their verbal skills are characterized by the correct pronunciation of sounds and the ability to speak understandably. They can speak about a picture in sentences.[251]

An additional condition of readiness for school is a certain amount of general knowledge.

- Can say their first and last names.
- Can name the members of their family and where they live.
- Knows the names of basic occupations.
- Can say what people do in a profession.
- Can classify trees, fruits, vegetables, and domestic and wild animals.
- Knows the seasons and the times of day.
- Can name the days of the week and the months in a year.[252]

[251] BERGHAUER-OLASZ, Emőke: *Fejlődéslélektan I.(jegyzet)* Beregszász, II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola, 2013.

A certain amount of social maturity is also part of school readiness. A school child needs to be able to adapt to peers, establish relationships with them, and to be able to defer the satisfaction of their needs and wait for their turn. They need to understand and observe certain rules in order for them to become part of a class community. The educator plays a very important role at this stage. It is important that they can help students gain experiences of achievement and success and help them to cope with failure and frustration.[253]

10.2.2 Bodily changes at school age

By the end of the period, the first major change in body shape is complete. Children's bodies are more proportional, resembling adult body shape. The face of the child is more characteristic and the contour of the body is more differentiated. On average, they grow 6-8 cm in height and 2-5 kg in weight a year. The rate of physical growth is slower than in previous periods, with a great deal of individual variation.[254] The bearing capacity of the body increases, lung capacity also increases, and so does circulation. School children fall ill less frequently; their immune system is more resistant to common illnesses.

The development of the skeletal system of school children is not complete yet. Physical exercise is an essential part of a child's life at this stage, which contributes significantly to the development of their skeletal system. It is very important that children are given the opportunity to do some exercise in school as well as at home. In school, they need to be allowed to do some exercise in between classes, and it is a good idea to include tasks *in* classes which involve physical movement. The ossification of phalanges is not complete yet. This is expected around age 11 or 12.[255] Permanent dentition starts toward the end of kindergarten age and is completed around the age of 10.

The nervous system is greatly stimulated by learning, adapting to the school environment, and other experiences in school. Important maturational processes take place in the cerebellum at age 5-7 with the consequence that cooperation between different cerebral areas improves

---

[252] BERGHAUER-OLASZ, Emőke: *Fejlődéslélektan I.(jegyzet)* Beregszász, II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola, 2013.

[253] MÖNKS, Franz J.,KNOERS Alphons M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.

[254] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése.* Budapest, Helikon Kiadó, 1999.
MÖNKS, Franz J.,KNOERS Alphons M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.

[255] TÓTH, László: *Pszichológia a tanításban*. Debrecen, Pedellus Kiadó, én.

greatly. The frontal lobe, which is the center of thinking and planning, develops significantly at this age.[256]

10.2.3 Psychological changes in schoolchildren

Schoolchildren's thinking

Thinking undergoes significant changes at school age. The role of fantasy reduces, reality plays a much bigger role in thinking, and children are able to employ the rules of logic much more adequately. Thought processes become internalized and develop into operational systems. Egocentric thought is replaced by multi-centered thinking.[257]

Piaget's concrete operational stage of development falls into this period, spanning across ages 7 to 12, which means that it also includes the first few years of adolescence. Thought at this stage is concrete because it is not divorced completely from concrete experiences and the content of operations mostly refers to objects and relationships between them. It is operational because it involves the use of practical problem-solving activities and generalized models of action.[258]

The following thought processes develop at school age:

- **Classification** – it involves concrete objects or their images around age 6
- **Conservation** – it develops step by step between age 7 and age 12, in stages of 2 or 3 years in length, as follows:
  - They understand the conservation of matter around age 7 or 8. Two or three years later,
  - at 9 or 10 they understand the conservation of weight, and
  - at age 11 or 12 they understand the conservation of volume.
- **Stability –** understanding what is permanent and stable in things.
- **Reversibility** – the child's ability to follow a path from one operation to another forwards and backwards. There are two forms of this at school age:
  - reversibility based on inversion (e.g. in addition, subtraction, multiplication, division, combination and decomposition).

[256] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon Kiadó, 1999

[257] VAJDA, Zsuzsanna.: *A gyermek pszichológiai fejlődése.* Budapest, Helikon Kiadó, 1999

[258] COLE, Michael, COLE, Sheila. R.: *Fejlődéslélektan*. Budapest, Osiris Kiadó, 2001. p. 446.

- reversibility based or reciprocity (e.g., if A is B's sibling, then B is also A's sibling)

Toward the end of the concrete operational stage, operational structures are reorganized into a hierarchic system, which restructuring eventually yields

- **logical and mathematical coordinating operations** – these develop only around age 12, and apply to concrete operations, verifying their correctness.[259]

Attention in schoolchildren

Both forms of attention, involuntary and conscious attention, still operate in schoolchildren. The educator plays an important role in synchronizing the two processes of attention and in developing and sustaining attention operations. Varied and interesting activities in class help sustain attention. An essential condition of school readiness is the capacity for conscious attention, as learning without this ability becomes very difficult or impossible.

Regarding attention span and concentration, small schoolchildren can pay attention and concentrate only for a short period of time and their attention is easily disturbed. Children of 5 to 7 years of age can pay uninterrupted attention for about 15 minutes. This goes up to about 20 minutes by age 7-10, though considerable individual variation is common.[260] The right thing for the teacher to do is to consciously switch off students' conscious attention at regular intervals between tasks that require conscious attention in order that students can take a rest. The best time of day from the perspective of students' ability to pay attention and keep focused is the second and third classes in the morning. Students' performance deteriorates after the third class, due to fatigue. It is also true that the more interested students are in the class activities and the more appropriate the methods of the teacher are, the later students get tired.

Everyone finds it easier to focus on content that is coherent, especially children. Movement, changes, class dynamics all contribute to the sustainability of focused attention. Keeping children actively engaged is the best way to sustain their attention.

The ability to sustain focused attention changes in close correlation with the development of intention and thought.

---

[259] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.
MÖNKS, Franz J.,KNOERS Alphons M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.

[260] TÓTH, Ibolya: *A pszichológia alapjai*. Pécs, Comenius Bt. 1997.

Small schoolchildren can get so deeply immersed in what they are doing that they will not even realize the arrival of somebody significant they know. So they will not even say hello. It is therefore difficult for schoolchildren to shift their attention.

Attention span develops slowly in small schoolchildren. An adult can grasp 5 or 6 different things with their attention, whereas a small child can only cope with 2 or 3. Attention span, however, may be developed by consciously planned educational work.

Dividing their attention is difficult for schoolchildren initially.[261] This is most obvious when small schoolchildren, who have not yet acquired the technique of reading completely, are asked to read a text and they concentrate so hard on the reading that they cannot pay attention to the content of the passage they have read. The same applies to their writing. There, too, they tend to focus hard on the technique of writing and much less on what they actually write.

Schoolchildren's memory

Memory undergoes significant changes in school age. Memory in schoolchildren is determined primarily by their needs and interests. They tend to remember objects and situations that have some relevance to their interests and needs. Emotions play an important role in memory functions too. A child's emotions, desires, and vivid imagination often have a distorting effect on their memory. But it is important that they are capable of consciously remembering things, so their conscious memory plays an important role in learning. Learning is impossible without consciously controlling memory.

According to Siegler (1991), significant development may be observed in the increase in the scope of memory, development of memory strategies, increase in the amount of things that can be committed to memory, and the development of knowledge about students' own memory processes.[262]

9-10-year-olds are capable of recalling six-digit numbers and six-letter sequences, in contrast to 4-5-year-olds, who can cope with no more than four elements in such sequences. Word memory develops significantly at this age. Schoolchildren commit words to memory quickly and easily. For example, 12-year-olds can remember three times as many words as 8-year-olds.[263]

---

[261] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Comenius Bt. 1997.

[262] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.

[263] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Comenius Bt. 1997.

7-year-olds can retain information in their working memory for long enough to be able to carry out complex tasks composed of several steps. This is a very important ability for learning. Some researchers emphasize not the increase in memory capacity but the more efficient use of mental faculties.[264]

Schoolchildren's memory becomes increasingly logical. From the age of 8 years onwards, logical memory outperforms mechanical memory.

Memory strategies are formed gradually and slowly in schoolchildren. Slowly they come to be able to act consciously and do things purposefully in order that they achieve the goal of remembering something.

- **A strategy is a consciously selected human activity carried out with the intention of achieving a particular goal.[265]**

Educators may help their students develop their memory strategies, for example, by giving advice on what strategy to use with particular types of concepts, etc. Children begin to use simple memory strategies very early, but at this stage, they can acquire more complex memory strategies with a teacher's help. The most frequently employed memory strategies at this age are repetition and organization.[266]

- Read a list of words with 20 items and then try and recall the words you have read from memory. Observe the strategy you used in recalling the words. Try recalling the words grouped in basic categories (e.g. objects, plants, etc.). How many more words were you able to recall?

- **It is significant from the perspective of learning that schoolchildren are able to observe their own cognitive processes and thus possess some knowledge about their own memory and can control it in possession of that knowledge. This is called metacognition, and, when applied to memory, metamemory.[267]**

Rote learning is quite common in schoolchildren, as they are often expected to memorize things that they do not understand. Learning based on understanding and logic develops gradually from about the age

---

[264] VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon Kiadó, 1999.

[265] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.

[266] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.

[267] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése.* Budapest, Helikon Kiadó,1999

of 8.[268] Teachers can do a lot in order that students learn to learn based on understanding and that they acquire appropriate learning techniques, strategies, and methods.

Schoolchildren's memory, just like their perception, is dominated by concrete images. They most easily remember concrete objects, concrete content words, and events that are easy to visualize.

Schoolchildren's memory is characterized by reminiscence: they perform better at answering questions about what they have learned if they are asked later than if they are tested the following day.[269] This is particularly important for *teachers* to remember when they give their students memoriter assignments.

Schoolchildren's imagination

Children's imagination is exceptionally vivid and rhapsodic at this age, characterized by an unstoppable flow of images. The schoolchild often chooses the world of imagination in which their dreams and desires may come true, as they often do not come true in the real world. The general developmental tendency in schoolchildren's imagination is increasingly toward reality.

At early school age the child's imagination is rich and diversified, which often involves unusual, novel combinations. Most of these combinations are not real, in part because the child uncritically connects thoughts with each other and in part because the child's knowledge of the world is rather fragmentary, so there is little to stop their imagination flying freely.[270]

Realism-oriented educational efforts gradually displace fantastic and arbitrary imaginary combinations in children's minds. As a consequence, schoolchildren's imagination increasingly approximates laws that operate in the real world.

Schoolchildren's imagination is strongly connected with their emotions, needs, and interest. As a consequence, it is rich and original. Education raises schoolchildren's imagination to a higher level. But the school develops mainly the reproductive imagination of children, through observing, actively experiencing, and acquiring products of imagination created by other people.

Thus, school age is primarily the period of the development of children's reproductive imagination, although their creative imagination also comes into the picture in their drawings and other creations.

[268] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Comenius Bt. 1997.
[269] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Comenius Bt. 1997..
[270] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Comenius Bt. 1997..

Creative imagination can develop through reproductive imagination with proper educational guidance, since getting acquitted with works of art develops students' ability to represent and combine elements of accumulated experience in the form of images.

Reality is often replaced in schoolchildren's minds with images created with the help of words and their fantasy. It represents a particular stage in the ontogenetic development of imagination, in which imagination is no longer tied to concrete objects, as in kindergarten age, but it happens internally, with the use of words.

Schoolchildren's interest

According to László Nagy, schoolchildren's interest is objective. Children desire to understand reality. Between age 7 and age 10 practical goals appear. There is an intensive desire in children to know and understand everything about the world. In certain areas, the knowledge attained out of intensive personal interest may sometimes reach expert level.[271] With the development of voluntary action and the ability to organize things children's interest turns toward collectables. Small schoolchildren are great collectors of a variety of things (e.g., all sorts of cards, Lego figures, napkins, stamps, etc.).

- Ask children between 7 and 10 years of age about what they collect, why they enjoy collecting them, and what they do with their collections.
- Do you remember what you collected when you were a schoolchild?

Schoolchildren are capable of consciously directing their interest. It may be useful for a teacher to learn about the interests of their students because it may be used in motivating them.

At the beginning of the period, schoolchildren are mainly interested in reading stories for small children and later their interest gradually turns toward reading about reality. They will prefer to read real stories about real people. At this age, children are increasingly interested to know whether a story they have read or heard is true, whether it corresponds to reality. Another feature of children's reading interest, which is connected to their growing interest in truth, is that they like to identify with the protagonist of a story. In schoolchildren, this is more than putting themselves in the protagonist's shoes; they literally identify with him or

[271] GALAMBOS, Katalin: *A fejlődéslélektan és a szocializáció alapjai*. Budapest, Műszaki Kiadó, 2008.

her. They enjoy reading about open and transparent heroes with such properties as courage, power, skillfulness, and a sense of truth. Boys enjoy reading adventure stories, while girls prefer to read romantic stories.[272]

Schoolchildren's emotional development

An important characteristic feature of schoolchildren is that they are capable of concealing and controlling their impulses and emotions. Emotional processes occur less spectacularly and in a much more controlled manner than at kindergarten age.

Schoolchildren are characterized by happiness and constant physical activity. They take pleasure in doing things and laugh a lot. Those are general characteristics of the mood of this developmental period.

At the same time, the school may also be the source or cause of some negative emotions, such as fear, anxiety, frustration, feeling of injustice, or being bored. It is important that educators can detect and recognize these emotions in children and try to resolve them or, in more serious cases, ask for expert assistance. It is especially true for examination anxiety, which arises when students are tested orally or in writing.[273]

Higher-order emotions also appear, which include moral and community emotions, intellectual and aesthetic emotions. The primary domain of such emotions is the class or the school community.[274]

Empath is also part of a schoolchild's life, which serves as the basis for solidarity. A schoolchild can be empathetic toward others and, on this basis, may offer help, if needed. Altruism also appears at school age. Schoolchildren are capable of giving help in an unselfish manner.[275]

10.2.4 Social changes at school age

Intellectual, emotional development and changes in self have an effect on schoolchildren's social behavior and the development of their social competence. According to Goodnow and Burns (1987), social competence is composed of the following major elements:

---

[272] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Comenius Bt. 1997.

[273] URBÁN, Róbert: *Félelem és szorongás az iskolában*. In: N. KOLLÁR, Katalin, SZABÓ, Éva: *Pszichológia pedagógusoknak.* Budapest, Osiris kiadó, 2004. p. 111-114.

[274] TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Comenius Bt. 1997.

[275] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése.* Budapest, Helikon Kiadó,1999.

- The ability to take initiative.
- Learning expectations associated with the different stages of friendship.
- The ability to sense and identify the persons with whom friendship is hopeless to establish.
- The ability to deepen relationships with prospective friends.
- The ability to arrange things in a manner that is beneficial to both parties.
- The ability to ensure that both parties invest the same amount of effort into the relationship without constantly measuring it.
- Not to take unnecessary risks in putting too much trust in people who will most likely turn out be unfaithful.
- The ability to combat those who attempt to seduce our friends.
- The ability to not get stuck in friendships that have become empty.
- The ability to avoid acquiring a reputation for being unfaithful or selfish.
- The ability to avoid being left without friends.
- The ability to adapt flexibly if we have been abandoned. [276]

A sudden turn occurs in the development of social relationships at around age 6 or 7. Communicative skills undergo a rapid development at this stage. Children learn to use their facial expressions and verbal tone effectively and meaningfully. They are capable of listening to each other in conversations, and as their control functions are more developed, they can listen *well* to their partners.[277]

Children's judgments and opinions about others also change. Their larger vocabulary allows them to express such opinions in more sophisticated ways.

A child's perception of persons also changes significantly between age 7 and 8. When they describe their peers, children use more and more psychological features and their descriptions become increasingly differentiated. However, these descriptions are often still incoherent, self-contradictory, and contain lists of mutually unrelated features. Also, they tend to be categorical, without too much shading or sophistication. They

[276] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.

[277] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése.* Budapest, Helikon Kiadó,1999.

also acquire the ability to detect hidden features in others and the ability to explain other people's behaviors.[278]

Friendships are interpreted differently at school age, gaining more and more significance in children's lives, although they are still not the sort of friendships which will develop later in adolescence, which are based on deep understanding and intimacy. According to Hartup (1992), friendships perform 4 developmental functions:

- The child acquires and improves their communicative and cooperative skills and the basic social skills that allow them to enter already existing groups.
- Source of information about the individual, about others, and the world in general.
- Serve as emotional and cognitive resources for coping with the challenges of everyday life.
- Serve as models for important intimate relationships that will become important later.[279]

As these functions show, it is important for children to be able to form friendships, integrate into a group of people, and find their place in that group. Social isolation would make the acquisition and development of very important social skills very difficult.

Children of age 6 or 7 consider their playmates to be their friends, with whom they share activities and things. By the end of the developmental period, by age 9-10, they will describe a friend as a person they spend a lot of time with, sufficient to know them well, who have the same interests, similar abilities and personalities that match their own.[280]

10.3 SUMMARY AND QUESTIONS

10.3.1 Summary

In this unit you have been introduced to the characteristic features of children at school age. As you have seen, this is a rather balanced period, as compared to both the preceding period, kindergarten age, and to the following period, adolescence. The unit offered a detailed discussion of all the physical, psychological, and social changes that are typical of this period of development.

---

[278] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése.* Budapest, Helikon Kiadó,1999.

[279] COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.

[280] COLE, Michael, COLE, Sheila R.: Fejlődéslélektan. Budapest, Osiris Kiadó, 2001.

10.3.2 Self-test questions

- How do you define school readiness?
- What level of bodily development characterizes the child who is ready for school?
- What are the attentional, memory, and cognitive characteristic features of a child who is ready for school?
- What is meant by the first major change in body shape?
- What features characterize the physical development of a schoolchild?
- What features characterize the thinking of a schoolchild?
- What features characterize the attention of a schoolchild?
- What is the attention span of a schoolchild?
- What is the scope of a schoolchild's attention?
- What features characterize the memory operation of a schoolchild?
- What features characterize the operation of a schoolchild's imagination?
- What is the role of collecting things in a schoolchild's life?
- What features characterize the operation of a schoolchild's interests?
- What features characterize the emotional life of a schoolchild?
- What features characterize the social relationships of a schoolchild?
- What social competencies characterize this age group?
- What features characterize friendships among schoolchildren?

10.3.3 Practice tests

1 What features characterize schoolchildren's reading interests?

A. They prefer to read stories for children.
B. They are unable to identify with heroes of works of literature.
C. They prefer complex heroes with complex characters.
D. The prefer heroes with excellent characteristics.

2 What is the attention span of a student at age 7-10 years?

A. cc.5 minutes
B. cc. 10 minutes
C. cc. 20 minutes

D. cc. 45 minutes

3 Which of the following is not a developmental function of friendships among schoolchildren according to Hartup (1992)?

A. **Simplification of communication.**
B. Source of information about the individual, others, and the world.
C. Emotional and cognitive resources.
D. Models for intimate relationships to be become more important later.

(Correct answers: 1-D; 2-C; 3-A)

11. THE PROCESS OF PERSONALITY DEVELOPMENT: PSYCHOLOGICAL FEATURES SPECIFIC TO ADOLESCENCE

11.1 GOALS AND COMPETENCIES

The purpose of this unit is to familiarize students with the most important physical, psychological, and social changes in adolescence and the typical psychological characteristics of this developmental period. The unit will help students understand the most significant processes in adolescence, which they may find very useful later in their work.

Adolescence is a very exciting, dynamic, and eventful period. According to Anna Freud, quoted by Éva Kulcsár, changes in adolescents, even when some of those changes appear to involve extremities, are just normal, a natural part of this developmental period. Problems may arise only when an adolescent gets stuck in one of those extremities.[281] Of course, these changes may show considerable variation across individuals. Some adults report that they lived a very turbulent and rebellious life as adolescents, while others say that adolescence passed without any serious trouble. A lot depends on how accurately parents and educators know and recognize the characteristics of this period, how well they understand what is taking place in their children and students, and on what their attitude is to adolescents. This developmental period is trying not only for adolescents themselves, who experience its hardships, but also for parents and teachers in their immediate environment. This also implies that the environment needs to change too, which involves changes in the educational repertoire and teachers' roles. This unit will introduce students to typical features of this highly eventful and challenging developmental period.

- Please, think about your own adolescence. Try and remember what changes took place in your life in those years and how you and your immediate environment responded to those changes.
- Try and answer this question to the best of your knowledge: What is an adolescent like?
- Find a work of literature (a short story, a novel, etc.) which is connected to adolescence.

After completing the unit, students should be able to

[281] KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.

- know when adolescence begins and when it ends;
- enumerate the stages of adolescence;
- know the tasks of adolescents;
- know why adolescence is regarded as a critical period;
- know the symptoms of crisis in adolescence;
- briefly describe the features of puberty;
- know what biological changes adolescence involves;
- know what psychological changes adolescence involves;
- know the changes in self-image and identity in adolescence;
- know Erikson's and Marcia's thoughts about identity in adolescence;
- know changes in social relationships in adolescence;
- know what features characterize adolescents' relationships with peers;
- know what features characterize adolescents' relationships with peers of the opposite sex; the first love relationships;

It will take about two 90-minute sessions to acquire the content of the unit.

11.1. TOPICS

Topics will be discussed in the following structure:

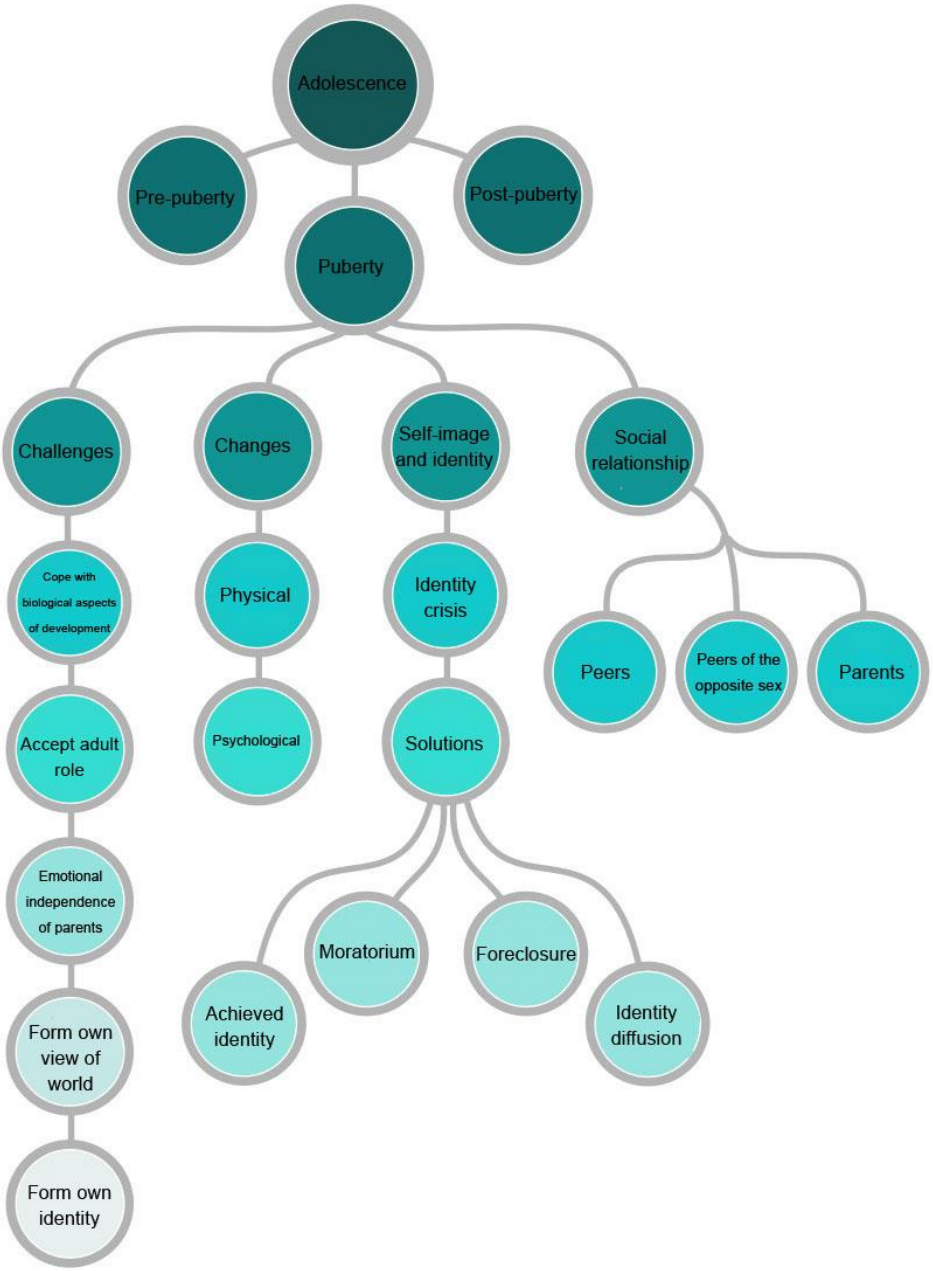

Figure 33. *Structure of topics*

11.1.1 Delineating adolescence

Adolescence comprises about 8 to 10 years. Both its beginning and its duration vary across individuals and sexes. Within adolescence it is common to distinguish between pre-puberty, which generally lasts from age 10 to age 12, puberty, which ranges from age 12 to age 16, 17, or 18, and post-puberty, which lasts from age 16 or 17 to 18. Some also include the period between 18 and 24, otherwise regarded as young adulthood.[282]

Adolescence is a transitional period: adolescents are neither children any more, nor adults yet. The structure, culture, and conventions of a particular society greatly determine the status and roles of adolescents. In premodern societies and indigenous communities adolescents go through a formal initiation process at a certain age or at a certain point in biological development, whereby they are formally accepted into the community of adults. In modern industrial societies adolescence begins earlier and lasts longer.

As a consequence of accelerated biological development, biological changes in adolescence begin earlier and the period tends to last longer. With the extension of the period of formal education, young people become true, materially independent adults later also.[283]

11.1.2 Challenges and crisis in adolescence

Havighurst (1976), quoted by Mönks and Knoers, defines challenges and tasks in adolescence as follows:

- cope with aspects of biological development
- accept adult roles
- emotional independence of parents and other adults
- form their own view of the world
- awareness of their own identity and integration into youth culture.[284]

It is not that simple. Éva Kulcsár goes so far as to call this the adolescent's crisis: childhood balance is upset but the new adult balance is not yet achieved. This crisis often manifests itself in the duality of the

[282] JÓZSEF István: *Fejlődéspszichológia*. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014.

[283] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

[284] MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.

adolescent soul: spiky and wants to be left alone on the one hand and wants safety and desires to be loved on the other; adolescents judge themselves in mutually inconsistent extremes, beautiful and ugly, smart and dumb; they are very critical of their environment but lenient toward themselves. They have secrets, which they want to keep safely away from their parents. This is part of the process of becoming independent and delineating their own borders.[285]

Adolescents and modern society

As noted above, the duration of adolescence is extended in today's society both in the younger and in the older generations. The younger generation is characterized not only by earlier biological maturation but by wearing adult-like clothes, by adult-like behaviors, and by particular entertainment habits.

- *Think, for example, of such simple things as the early use of various decorative cosmetics or the tendency that teenage parties start earlier and last longer among younger teenagers, sometimes even among teenagers at pre-puberty.*

The phenomenon is nicely illustrated in a popular song by LGT titled "She is only fourteen."

It is noteworthy that the song dates from 1973…

Also, adolescence lasts increasingly long under current economic and social conditions.

One can also observe that 50 or 100 years ago children desired to be adults, putting the short unpleasant episode of adolescence behind their back as quickly as possible, while today adolescence has become attractive for smaller children; they would rather be adolescents than adults. And adolescents do not want to grow up either. This is very likely due in part to the fact that adolescents enjoy a great deal of freedom with a minimal amount of constraints and responsibilities. Also, adult society does not seem very attractive to them anyway as they think it is based on fake values and the future does not seem to have too much to offer either to adolescents, who have an inclination to be critical of everything anyway. [286]

---

[285] KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.

[286] KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

Factors that deepen adolescents' crisis – symptoms of crisis

Circumstances can make matters worse for adolescents, if adolescence itself was not bad enough. Traumatic events in childhood, such as the divorce of parents, may make it harder for an adolescent to trust others. Family disturbances may also make it difficult for them to become independent.

Think, for instance, of a single mother raising a child alone, who may want to bind the child to herself too tightly, making it difficult for them to detach. [287]

According to György Vikár, adolescent crises may manifest in the following symptoms and complaints:

- Performance inhibition; the adolescent performs poorly, often in defiance of exaggerated parental expectations.
- Integration and socialization disorders, problems in establishing romantic relationships, loneliness.
- Psychoneurotic symptoms, anxiety.
- Authority crisis, rebelling against adults, which may manifest in the choice of clothes or sometimes in antisocial behavior.[288]

11.1.3 Puberty

As puberty is the transition between childhood and adolescence, let us summarize its characteristics.

According to Mönks and Knoers, puberty lasts about two years, which precedes the manifestation of sexual maturation, physiological processes that yield the secondary sex characteristics begin but do not culminate yet.[289]

Physical changes are not yet as dramatic as they will be later, their bodies are proportional and their movement is coordinated. Girls grow faster than boys.

Children at this age often enjoy drawing or painting pictures, playing music, watching movies, or keeping diaries. They are not interested in reading stories for children any more. They are much more interested in "real" stories. They enjoy collecting things and carefully organize and reorganize their collections.

---

[287] KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.

[288] VIKÁR György: Az ifjúkor válságai. Budapest, Animula, 1999.

[289] MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.

Children at this age will begin to break faith with adults and listen to the opinions of their peers rather than to the opinions of parents, teachers, or adults. The two sexes separate from each other in peer groups.[290]

11.1.4 Physical changes in adolescence

Regarding bodily changes in adolescence, the appearance of the secondary sex characteristics and sexual maturation deserve to be mentioned first. The latter means menarche in girls and the first ejaculation in boys. Biological maturation occurs between ages 11 and 16 in girls and between ages 13 and 18 in boys. It tends to occur at increasingly early ages in western societies. Today, it happens 2 or 3 years earlier than it did in the 1840s. It is generally believed that one of the main causes is the change in diet: a healthy diet is conducive to the formation of the appropriate proportion of fatty tissue necessary for fat-soluble sex hormones that trigger sexual maturation. A second reason is that adolescents are exposed to a considerable amount of sexual stimuli through the media. Menarche may be affected by stress, family conflicts or depression, which cause girls to menstruate earlier. It is suspected that stress affects the operation of the hormone system, although the mechanisms are not completely understood yet.

Adolescents' body shape undergoes significant changes. It gradually loses all features of the body of a child and assumes an adult appearance, including secondary sex characteristics. This period is sometimes called the second major change in body shape.

Biological changes begin with the acceleration of growth. Within 2 or 3 years, boys grow 23 cm and girls between 15 and 17 cm in height. Different body parts grow at different rates, which may make an adolescent's movement clumsy.

These changes in body shape are accompanied by important hormonal changes (sexual hormones, growth hormone, thyroid hormone, adrenal gland hormone, etc.), which have a significant effect on behavior. Rise in testosterone makes boys more adventurous and less afraid to take risks and it also accounts for their increasing interest in the opposite sex. Many outbursts of anger and aggressive behaviors, as well as problems of emotional control are due to such hormonal changes.

---

[290] JÓZSEF István: Fejlődéspszichológia. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014

A consequence of accelerated bodily growth is a specific type of physiological laziness, which manifests in adolescents' increased need of sleep and rest.[291]

11.1.5 Psychological changes in adolescence

Significant changes occur in cognitive development as well. Keating (1990) and Moshman (1999) highlight the following changes in adolescents' thought:

- thinking about alternative possibilities
- planning, foresight
- use of hypotheses in thinking
- thinking transgressing routine boundaries
- metacognition, monitoring and controlling cognitive processes
- the appearance of new topics in thought, such as politics, ethical questions, life's biggest issues, etc.[292]

In Piaget's theory, of which you already learned in some detail in chapter 8, this is the period in which cognitive development reaches its highest stage, formal operational thinking. Formal operational thinking is characterized by hypothesis construction, deductive reasoning, abstraction, and systematic and combinative thinking.[293]

Changes in cognitive processes contribute significantly to adolescents' ethical development. Adolescents understand, accept, and can observe moral principles. They understand that moral principles are not to be interpreted literally, that they may change, and that they are based on convention. They are able to consider the intention factor in judging violations of moral principles. According to Piaget, adolescence is the period of moral autonomy. Kohlberg divides moral development into three main stages – pre-conventional, conventional, and post-conventional. Adolescents' moral views are characterized by features of the conventional stage. They are guided by mutual interpersonal expectations, which means that an adolescent will define right vs. wrong

---

[291] COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.
KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

[292] COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.

[293] COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.
HATVANI Andrea, TASKÓ Tünde: *Személyiség fejlődés és pályafejlődés.* In: VARGÁNÉ DÁVID Mária (szerk.): *Pedagógiai tanácsadási módszerek a pályaválasztás segítésében.* Eger, EKF, 2003. 5-16
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

in terms of what others accept as right and reject as wrong. Later the orientation of law and order appears. They understand that in order to maintain order in society, rules must be laid down and observed. They will develop a sense of duty, but are not yet ready to assume responsibility.[294]

The operation of imagination comes to the foreground and creativity assumes an increasing role in this period of development. Many adolescents begin to do some art at this age. They write poems or novels, invent things, build models, compose music, etc. Adolescents spend a considerable amount of their time daydreaming and speculating, in which they engage in mental activities that prepare them for some significant events that await them in personality development (e.g. intimacy).

Their intellectual interests increase, they want to know more about the world and better understand what is going on around them in the environment. They do a lot of research on the internet, which teachers should note and offer their students guidance and help. It is not rare that adolescents become experts in certain areas.

An adolescent is charged with energy. It is important that teachers assist their students in channeling that energy to make sure it is used for good and worthy causes.[295]

11.1.6 Adolescence and identity

Assuming Erikson's theory of psychosocial development, which you learned about in unit 8, the most important psychosocial challenge or crisis in adolescence is to find one's identity. Before discussing this issue in detail, we must say a few words about changes in adolescents' self-image.

Adolescents' self-image

By adolescence, about the age of mid-teens, children will have developed an ability to view themselves from the outside, as though they are somebody else. The formation of a person's self-image is a long process. First, we have an image of our own body. The formation of a body-schema is followed by acquiring control over the motor system. It is

---

[294] COLE M,; COLE R. S.: Fejlődéslélektan. Budapest, Osiris. 2003.
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

[295] COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.
KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

only after this that the adolescent will have some idea of their own mental capacities. (As we saw in preceding sections, formal operational thought makes metacognition possible, which allows people to think about their own thinking. Finally, a person's self-image will contain all their psychological world.)

According to Ferenc Mérei (1976), adolescents are characterized by increased self-knowledge sensitivity. At age 11-13 it manifests itself in daydreaming and fantasizing about their future.

This is nicely captured in a well-known short story by Frigyes Karinthy titled "Hanging from the Apparatus."

You can learn a lot about the period if you read it:

Adolescents' understanding human nature is naïve, lacking a historical perspective, which means that they perceive their self-image to be unchanging, so they are unable to consider the effects of development. Their self-image and self-esteem is wobbly, swinging between very positive and very negative extremes.

The decisive factors of an adolescent's self-esteem are popularity with members of the opposite sex, stereotypical properties of their own sex (the extent to which a boy feels like a man and a girl like a woman), and perceived appearance (especially in girls). This remains so until adulthood, as illustrated in the diagram below.[296]

[296] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

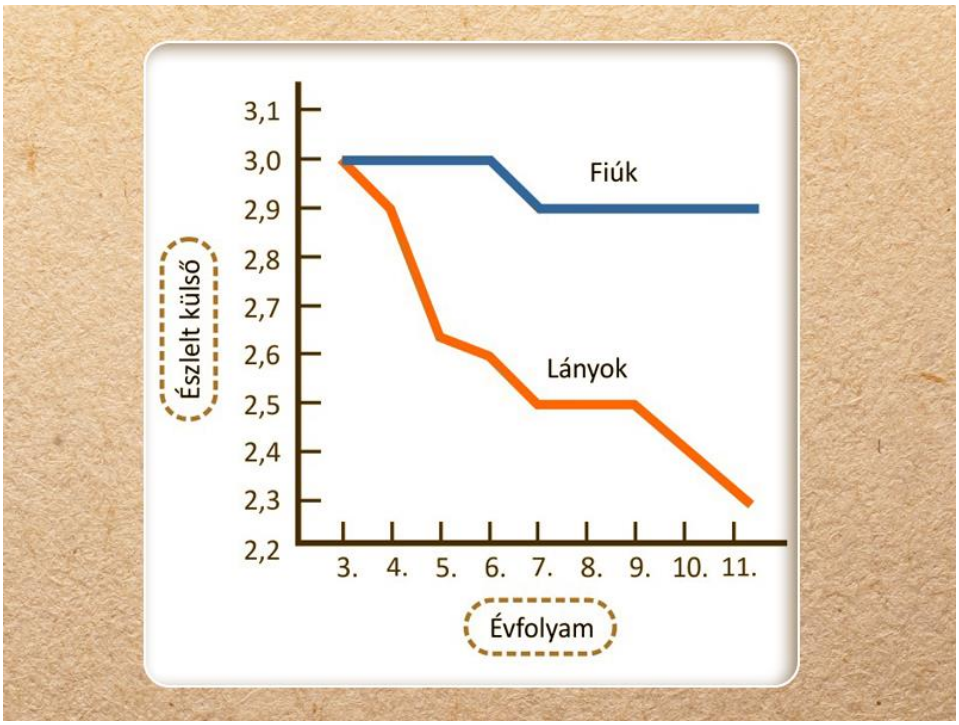

Figure 34. *Changes in puberty and body-image (after Brooks-Gunn and Petersen 1983)*[297]

Adolescents' identity

A person's identity or self-sameness means that the individual possesses an integrated image of themselves, i.e. they know who they are, they know what they want from life, they know what is and what is not important for them. Adolescents often ask themselves such questions. The social environment plays a very important role in shaping a person's identity. Finding oneself, finding one's identity represents a very important stage in the socialization process. As Erikson (1968) put it, "From a psychological perspective, the process of identity formation simultaneously involves observations and self-observations, which occur on all levels of mental operation and are used by the individual in evaluating himself or herself on the basis of how he or she is evaluated by others on the basis of *their* standards, while he or she evaluates

[297] COLE M,; COLE R. S.: ***Fejlődéslélektan.*** Budapest, Osiris. 2003. 613.

evaluations by others by considering how they compare with his or her view of himself or herself on the basis of some significant standard."[298]

Marcia developed Erikson's crisis model further and distinguished for ways of resolving identity crisis and identity diffusion. Each represents a particular identity status.

- Identity achievement. This means that a person is past the identity crisis, is able to commit themselves and take important decisions about their own life.
- Foreclosure. Individuals in this status have committed themselves in terms of career choice or ideology but show no signs of having experienced an identity crisis. Their personality has not in fact been reorganized but, instead, they have adopted identity patterns handed down to them primarily by their parents.
- Moratorium. Individuals in this status are experiencing an identity crisis. They have not committed themselves yet, they are still trying and exploring.
- Identity diffusion. Individuals in this status have already explored some identities but have been unable to commit themselves and form an integrated self-image. They are drifting.[299]

11.1.7 Social changes in adolescence

Important changes occur in social relationships too in this period. We will discuss three important domains of these social relationships: with peers, with the opposite sex, and with parents.

Peer relationships

One major change is that peers assume a more significant role. The first true friendships are formed in this period. Before pre-puberty, friendships are a matter of enjoying spending time together or being next-door neighbors or some similar external circumstance. In adolescence attractive personal traits become more important and such expectations from friends arise as solidarity, commitment, and emotional support. A friend in adolescence must almost always be a person of the same sex, as they are the ones whose opinions matter.[300] The significance of peer groups includes the following aspects:

---

[298] COLE M,; COLE R. S.: *Fejlődéslélektan.* Budapest, Osiris. 2003. 671-672.

[299] HATVANI Andrea, TASKÓ Tünde: *Személyiség fejlődés és pályafejlődés.* In: VARGÁNÉ DÁVID Mária (szerk.): *Pedagógiai tanácsadási módszerek a pályaválasztás segítésében.* Eger, EKF, 2003. 5-16

[300] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

- Acquisition of the rules of cooperation and competition.
- Getting acquainted with the culture of children and young people.
- Promoting the development of social competence.
- Support for the self.
- Emotional security, the sense of belonging to a community.
- Room to try autonomous intimacy.
- Offers company and social stimulation.
- Chance to try out social roles (e.g. leader).
- Conducive to detachment from parents and achieving independence.[301]

Adolescents often demonstrate their originality collectively: they distinguish themselves from adults in their appearance, the clothes they wear, etc., but they also make sure that they demonstrate that they belong together and that together they represent a different culture and lifestyle.

The fact that peer groups have a very strong influence on adolescents is natural, although it involves its own risks. It is crucial for an adolescent that they live up to the norms of the peer group, but if those norms deviate greatly from those of the family or school, an adolescent child may drift in deviant directions.[302]

Adolescent deviance

Adolescents are prone to taking risks. This may include having a go at deviant forms of behavior. A certain amount of deviant behavior is a natural component of being adolescent. Minor violations of norms, such as traffic rule violations, use of alcohol or drugs, imprudent sexual relationships, shoplifting, etc., are fairly common at this age, but such behaviors are mostly transient. According to József Rácz, most rebellious adolescents settle down by their twenties. The social status of an adolescent has a strong influence on the sort and gravity of deviant behavior they will engage in, as well as its consequences.

Adolescents' deviant behaviors are mostly self-tests, testing limits, and demonstrations of the courage and ability to take risks in front of the peer group. According to Lightfoot (1997), risk-taking is playing a kind of

[301] COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.
[302] MÖNKS, F. j.,KNOERS A, M. P.: *Fejlődéslélektan.* Budapest, Urbis, 2004.

game in which adolescents test themselves and the limits of the power of adults, and friendships are strengthened.[303]

Relationships with the opposite sex

According to Cottrell's (1996) model, girls and boys separate from each other and form cliques at the beginning of the period. In the second phase, members of girls' groups and boys' groups will try to attract the attention of members of the opposite sex in a stealthy fashion, pretending not to be interested at all. In the third phase, they will be looking for opportunities to meet up with members of the other group, and in this way mixed-sex subgroups are formed. In this phase, the presence of friends of the same sex is still necessary as a sort of defense strategy which protects them from entering into too intimate relationships with someone of the opposite sex, which is still considered scary. This is followed by the fourth phase, in which romantic relationships are formed within mixed-sex groups, still with some support from the presence of friends of the same sex in the early stage.

- *It is common in this period for girls to discuss every detail of their romantic relationships with boys, and for boys not only to be present but give advice when a friend is asking a girl out on a date over the telephone.*

In the final, fifth phase, the group splits up, with one-time members assuming adult roles.[304]

The first romantic relationships tend to last for a short period only, with nothing very serious happening; rather, it is practicing behavioral patterns of the same sex. What is important in these first love relationships is not so much the true nature of the other person but, instead, what an adolescent projects onto his or her partner, which is dictated largely by their own ideal self.[305]

The question of when adolescents start having sexual relationships is in large measure a matter of their culture. In industrialized countries, it is common for adolescents to start sexual relationships in their teens.

This is illustrated in the following diagram:

---

[303] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001
COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.

[304] COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.

[305] KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

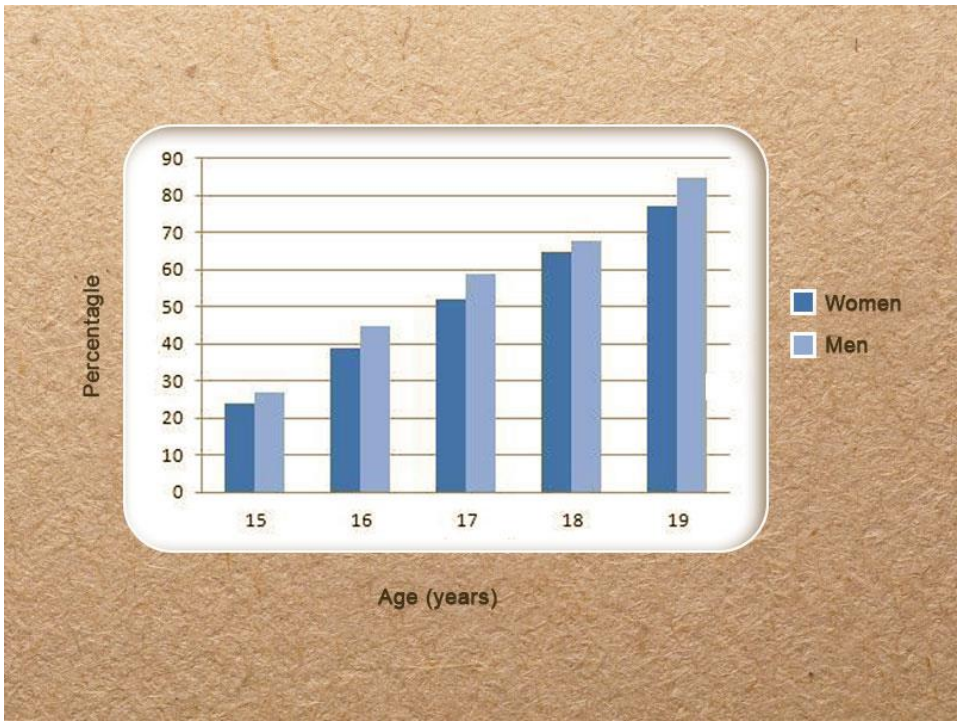

Figure 35. *Rate of teenagers who have had sexual relationships already, in different age groups (1995; source Alan Guttmacher Institute, 1999)*[306]

In single-parent families, sexual life tends to begin earlier, which is probably due to the greater extent of parental lenience.

Boys and girls may initiate sexual relationships for different reasons. Boys' main reason is curiosity and the other secondary reason is love for their partner. In the case of girls, it is the other way round.

Negative experiences in having sex for the first time are more common in girls than in boys, which is probably due to the fact that girls often enter into a sexual relationship with a boy for his sake, forcing themselves, rather than driven by their own desires, which they may or may not admit.[307]

[306] COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003. 628.

[307] COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

Relationship with parents

The third major change in social relationships is the altered relationship with parents. An important task in adolescence is to emotionally detach from parents and achieve independence. This is hard for many parents, which explains why some of them will try to delay or prevent it, often without being aware. These difficulties underlie many parent-child conflicts in adolescence.

According to Mönks, disagreements between parents and children generally arise about issues like appearance, friends, girlfriends, pocket money, and how long the child is allowed to stay out. But adolescents are ready to talk about their future plans, choice of career, and similar matters with their parents. Conflicts generally arise about concrete problems like partying, tattoos, etc., rather than politics, ethics, or religious matters.[308]

By the end of the period, conflicts may be resolved and transfer into a friendly relationship, or may lead to forced autonomy. Detachment may occur too early or too late, also.

As Steinberg, quoted by Vajda, points out, achieving independence happens more smoothly in harmonious families than in families full of tension and conflicts. If parents refuse or fail to adapt to the child's increased need of autonomy as a natural consequence of development and impose rigid rules instead, then open conflicts and rebellions will be more likely and frequent. If, on the other hand, parents are too lenient with their child, trying to solve all problems for him or her, it may make it difficult for the child to learn to take responsibility, a prerequisite of becoming an adult.[309]

11.2 SUMMARY AND QUESTIONS

11.2.1 Summary

This unit has treated adolescence, a relatively long period of development spanning 8 to 10 years. As we have seen, a particular society and culture in which an adolescent grows up has a great impact on the child's development. This rather eventful period is not free from tension and conflicts, as the adolescent child needs to be able to emotionally detach from their parents and create their own identity. This is a period of significant physical and psychological changes discussed in

[308] MÖNKS, F. j.,KNOERS A, M. P.: *Fejlődéslélektan.* Budapest, Urbis, 2004.

[309] VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

detail in this section. Finally, we considered the changes in the social relationships of adolescents.

11.2.2 Self-test questions

- At what age does adolescence begin and when does it end?
- Which are the stages in adolescence and when does each begin and end?
- What are the tasks or challenges of adolescence according to Havighurst?
- What factors may cause crisis in adolescence?
- What are the symptoms of adolescent crisis?
- What features characterize puberty?
- What biological changes are involved in puberty?
- What characterizes adolescents' thinking according to Piaget?
- What characterizes adolescents' moral development according to Kohlberg?
- What psychological changes are involved in puberty?
- What features characterize adolescents' self-image?
- What are the possible outcomes of adolescents' search for identity according to Marcia?
- What features characterize the relationship between adolescents and their peers?
- What features characterize the relationship between adolescents and members of the opposite sex?
- What features characterize the relationship between adolescents and their parents?

11.2.3 Practice tests

1, Which of these is not a possible resolution of an adolescent's identity crisis according to Marcia?

A. Achieving identity
B. Late closure
C. Moratorium
D. Identity diffusion

2, Which of these is a characteristic feature of adolescent thinking?

A. Metacognition
B. Egocentric thinking

C. Transduction
D. Dominance of sensorimotor schemas

3, Which major change in body shape occurs in adolescence?
A. First
B. Second
C. Third
D. Fourth

(Correct answers: 1-B; 2-A; 3-B)

12. THE PROCESS OF PERSONALITY DEVELOPMENT: PSYCHOLOGICAL FEATURES SPECIFIC TO ADULTHOOD

12.1 GOALS AND COMPETENCIES

This is the final unit in this book which offers new information. In this unit, we discuss a period of development which is hardly ever mentioned in books on developmental psychology, adulthood. Adulthood is much longer than all the preceding developmental periods combined, since it lasts from young adulthood to old age, so it deserves more attention than it generally receives. All the more so, since lifelong learning increases the chances that prospective teachers may teach classes with some adult students, so we will just do well to review their characteristic features briefly.

Owing in part to advances in modern medicine, life expectancy has extended, which means, among other things, that people who may have regarded themselves as elderly fifty years ago consider themselves to be in the prime of life today. Consider, for example, how far formal education has extended or the increase in age at which people start a family or at which women give birth to their first child in some social classes. It is interesting that according to a representative survey conducted by Harwood-Giles in 1993, 11% of 18-to-35-year-olds and 30% of people over 75 considered themselves to be middle-aged.[310] A second major change has to do with generational differences. While a mere one or two hundred years ago there did not use to be a big difference in lifestyle between successive generations, and changes were slow and gradual, today, we see marked differences between the lifestyles and ways of thinking of one generation and the next, primarily due to rapid advances in technology, especially information and communications technology, which have a great impact on people's everyday life, social relationships, and psychological traits.

Therefore we will focus on the following questions in this chapter:

- First of all, is there any development past adolescence?
- How can youth and adulthood be defined?
- How can adulthood be divided into periods?
- What are the characteristic features of generational differences?

[310] BERNÁTH L.: A felnőttkor néhány jellegzetes kérdése. in: BERNÁTH L., SOLYMOSI K. (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997. 120-135.

- What are the biological, psychological, and social characteristics of particular periods?

After completing the unit, students should be able to

- know what factors determine development in childhood and adulthood or old age;
- define adulthood;
- enumerate the periods of adulthood and identify their age limits;
- enumerate and briefly describe generations;
- know the main biological and psychological features of youth;
- know what social tasks and duties young people have;
- know the stages of emancipation according to Gould;
- enumerate the problems youth has to cope with according to Mollenhauer;
- enumerate the major biological and psychological characteristics of adulthood;
- understand the social characteristics and tasks of adulthood;
- define the concept of mid-life crisis;
- enumerate the major biological and psychological characteristics of old age;
- understand the social characteristics and tasks of old age;

It will take about two 90-minute sessions to acquire the content of the unit.

12.2 TOPICS

Topics will be discussed in the following structure:

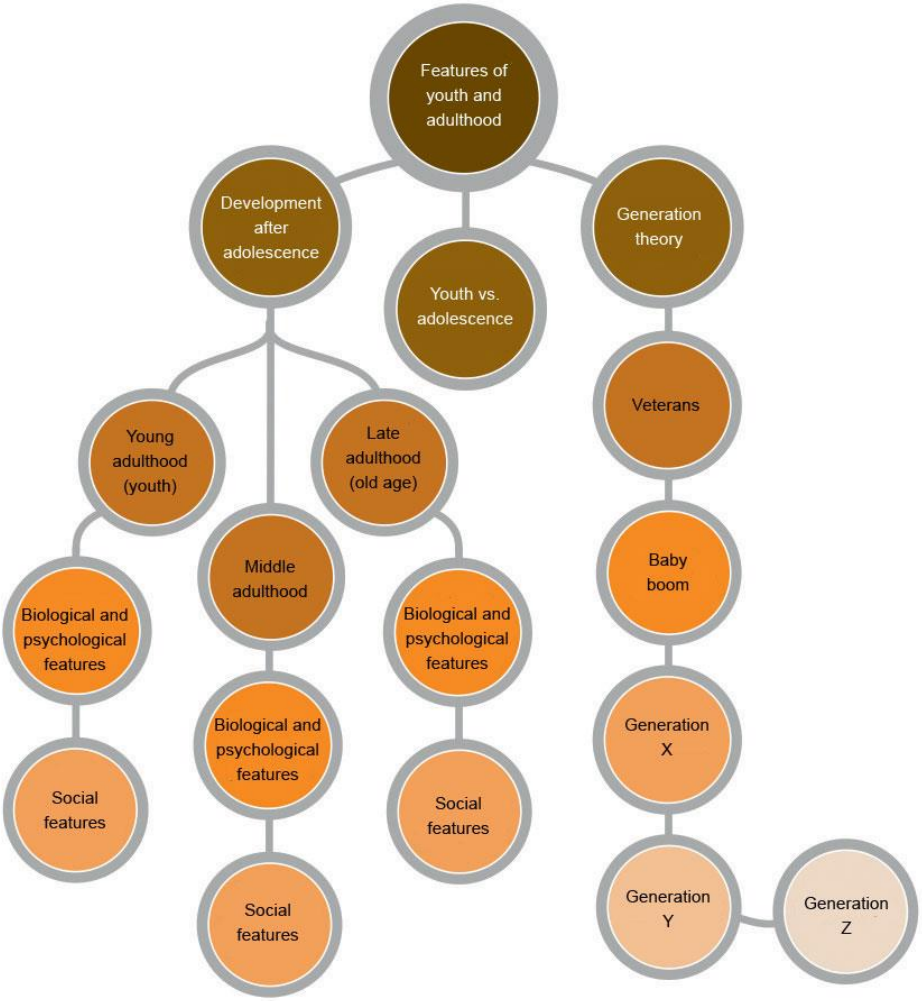

Figure 36. *Structure of topics*

12.2.1 Development after adolescence

- Development after adolescence has been an old debated issue in developmental psychology.

  Many standard books on developmental psychology end with the discussion of adolescence. Some well-known theories of development, such as Freud's and Piaget's theories, also discussed in this book, end with adolescence too.

Is that correct? Although physical and psychological changes are not as perspicuous as they were in adolescence, for example, people do change in youth, adulthood, and especially in old age.

This is Baltes' position too, who argues for lifelong development. He thinks that development is continuous adaptation, which spans our entire life.

It is also clear that development is determined by different factors in different periods. In life periods when individuals depend on others for help, which applies to both childhood and old age, the primary determining factors are biological. In adulthood, in contrast, the decisive factors are sociocultural.[311]

- Think, for instance, of the spectacular biological changes in infants and small children or the obvious decline in old age. For adults, in contrast, social changes are more significant: students become laborers and children become parents, etc.

12.2.2 Defining youth and adulthood

- As we saw in preceding chapters, drawing the limits of developmental periods is easier in the early stages of life than it is in later periods. Everyone appears to agree, for example, that infancy ends with year one. When does adulthood start? One choice of a starting point would be coming of age, perhaps arguing that that is the age at which people are allowed to vote and make their own decisions about important questions that have an effect on the society they live in. But coming of age is a matter of social and legal conventions, which vary across countries. For example, the age in Hungary is 18 years, whereas it is 21 in Anglo-Saxon countries.

We could take as a starting point the definition of adulthood. Most authors agree that adulthood involves taking responsibilities. Popper (2006) put it this way:

- **Adulthood rests on three pillars: a social pillar, meaning that a person can support themselves and their family, an intellectual pillar, meaning that they have an understanding**

[311] VAJDA Zs.: A gyermek pszichológiai fejlődése. Budapest, Helikon, 2001.

of the world they live in, and an emotional pillar, which means they can cope with stress and strain.[312]

In contemporary society it is difficult for young people to identify with adult roles and the ability and readiness to assume responsibility in Popper's sense is being pushed farther away in time. It is important therefore that youth be considered a transitional stage between adolescence and mid-adulthood.

As István József (2011) put it,

"Youth begins when biological development in adolescence is complete and the individual is past their psychological difficulties in adolescence, identity crisis has been resolved, and a stable self has been formed. The end of the period, on the other hand, cannot be determined uniformly, as its upper limit varies considerably by education and social environmental factors."[313]

12.2.3 Periods of adulthood

- As we saw above, it is difficult to say when adulthood begins and when its sub-periods begin.

Mönks and Knoers quote Levinson's (1978) division, which contains the following periods:

- Childhood and youth (0-22 years)
- Early adulthood (17-45 years)
- Middle adulthood (40-65 years)
- Late adulthood (60 years-)

It is apparent that the boundaries between periods are blurred, with overlaps between them. Thus, youth may belong either with late childhood or early adulthood.[314]

Bernáth (1997) divides adulthood into three periods:

- Young adulthood (20-40 years)
- Middle adulthood (40-60 years)

---

[312] POPPER P.: Nemzedékek sorsa és felelőssége. In: CSEPELI GY., KÍGYÓS É., POPPER P.: Magukra hagyott generációk. Fiatalok és öregek a XXI. században. Saxum, Budapest, 2006. 95-139.

[313] JÓZSEF I.: Fejlődéspszichológia. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014

[314] MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.

- Old age (above 60)[315]

Erikson (1991) uses similar terminology but different age boundaries:

- Young adulthood (20-35 years)
- Middle adulthood (35-65 years)
- Old age, or more recently, late adulthood (above 65 years)[316]

The fact that old age is now often called late adulthood instead is clearly due to the extension of life expectancy. As people can now expect to live several years or even decades after the age of 60-65 and because there are significant differences between the beginning and end of the period, its subdivision into further sub-periods is justified.

The World Health Organization (WHO) recommends the following division:

- Getting old (until 75 years of age)
- Elderly (above 75 years)
- Old age (above 90)[317]

12.2.4 Generation theory

As differences between generations did not use to be as big as they are now, we will discuss the characteristics of generations before a detailed discussion of sub-periods.

- Veterans. People born in the 1920's and 30's belong here. They have a general aversion to information society, which the often do not understand.
- Baby boom generation. They are people born between 1946 and 1964 in the United States. What is typical of this generation in Hungary is that their life covers the entire socialist era, they were socialized in Prussian-like employment hierarchies in an unchanging and stable world. They were in their 30s and 40s at the fall of communism, when they had to adapt to consumer society and an entirely new and unstable world.

---

[315] BERNÁTH L.: A felnőttkor néhány jellegzetes kérdése. in: BERNÁTH L., SOLYMOSI K. (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997. 120-135.

[316] VAJDA Zs.: A gyermek pszichológiai fejlődése. Budapest, Helikon, 2001.

[317] JÓZSEF I.: Fejlődéspszichológia. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014

- Generation X. This includes people born between 1965 and 1975. They were adolescents or young adults at the fall of communism. They either experienced the loss of safe stability or at least they saw their parents lose it. They had first-hand experience of the explosion in the development of information society and they perceive the importance of possessing up-to-date information. They witnessed the disappearance of old community structures, but personal communication and contacts with friends and acquaintances are still important for them.
- Generation Y. This includes people born between 1976 and 1995, although some experts include only people born after 1982 in this category. The use of computers and of the internet is part of their second nature. They know a lot, more than people of Generation X, about the digital world. They are children of consumer society, for whom money and a career are important values, but not loyalty to an employer, so they change jobs more flexibly than their parents. They want instant ways to channel their stress and anxiety. "Many long to experience comforting emotions in a world for the tough and the confident. So they have to find their own ways to generate the experience of belongingness and the community feeling. They find it on the internet on social networking sites, blogs or playing strategic games based on network formation."[318]
- Generation Z. This denotes people born between 1995 and 2010. Annamária Tari (2011) makes a distinction between the first wave and the second wave within Generation Z. Members of the first wave, born between 1995 and 2005, were internet users at the time when the use of the internet and social networking websites became common. They are flexible and they are expert users of ICT devices. Members of the second wave, born between 2005 and 2010, were simply born into this era.[319]

12.2.5 Biological and psychological features specific to youth

- Let us now consider the biological, psychological, and social features of the three periods within adulthood, youth (or young

[318] TARI A.: Y generáció. Klinikai pszichológiai jelenségek és társadalomlélektani összefüggések az információs korban. Budapest, Jaffa kiadó, 2010. 24.

[319] TARI A.: Y generáció. Klinikai pszichológiai jelenségek és társadalomlélektani összefüggések az információs korban. Budapest, Jaffa kiadó, 2010.
TARI A.: Z generáció. Klinikai pszichológiai jelenségek és társadalom-lélektani szempontok az Információs Korban. Budapest, Tercium, 2011.

adulthood), middle adulthood, and old age (or late adulthood). Let us begin with youth.

From a biological perspective, the beginning of this period is characterized by achieving adult body size and the third major change in body shape, which means the development of adult body proportions.

As a consequence, movement becomes harmonious. Physical strength and reaction capacity increases and physical performance reaches its peak. Physical regeneration is rapid.[320]

From a psychological perspective, cognitive functions operate effectively, formal thinking has developed. A broad interest, quick reactions to external stimuli, and a realistic understanding of the external world are among the typical features. Behavior is sometimes unthoughtful and fearless. People at this age are emotionally more balanced than at adolescence but outbursts of emotion and overexcitement still occur at times. Young people are characterized by long and stable friendships. Love and commitment in romantic relationships is also important. Entertainment habits and spare time activities typically involve the peer group and youth subculture.[321]

12.2.6 Social features specific to youth

As we have seen, psychological aspects of development are complete by young adulthood, and the tasks awaiting young people are more of a social character, chiefly centering around emancipation, achieving independence of parents, and assuming responsibilities. For example,

- Commitment to another person in or outside marriage and live together.
- Start a family and raise children.
- Assume social responsibilities.
- Be committed to a group and stand up for it.

---

[320] JÓZSEF I.: Fejlődéspszichológia. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014
COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.

[321] JÓZSEF I.: Fejlődéspszichológia. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014
COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
ERIKSON E. H.: A jelenkor kérdései: Az ifjúság. in: BERNÁTH L., SOLYMOSI K. (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997 109-119.

- Choose a career, etc.[322]

According to Gould, emancipation and achieving independence of parents occurs in phases:

- Phase one (16-22 years): detachment begins, but the young person still defines themselves as belonging with the parents, even when they already live separately.
- Phase two (22-28 years): The young adult feels they are no longer the child of their parents, but is still confident that in times of need they can rely on them.
- Phase three (28-34 years): They young adult is pursuing their own career and feels independent, is optimistic about the future, and is confident that they will do things better than older people.[323]

12.2.7 Conflicts and contradictions in becoming an adult

The processes described above involve a lot of anxiety and uncertainties, since an adolescent needs to cope with several issues in the process of becoming an adult.

According to Mollenhauer (1973), quoted by Mönks and Knoers, these difficulties include the following:

- The tension between integration and a critical attitude. The young adult needs to integrate into adult society, which is made difficult by the fact they are aware of the weaknesses and shortcomings of adult society, which may rightly be criticized, but young people cannot be overcritical about aspects of adult society because adults do not like to be criticized by young people, therefore an overly critical attitude on the part of the young adult makes it harder for them to integrate.

Think, for instance, of the reaction of older, more experienced employees to criticism by career entrants, who have just started practicing their profession.

[322] MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.
COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
TARI A.: Y generáció. Klinikai pszichológiai jelenségek és társadalomlélektani összefüggések az információs korban. Budapest, Jaffa kiadó, 2010.

[323] BERNÁTH L.: A felnőttkor néhány jellegzetes kérdése. in: BERNÁTH L., SOLYMOSI K. (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997. 120-135.

- The promise of a good life vs. dependence. As children, we were jealous of the apparent independence of adults, only to find in youth that that independence is just that: apparent.

As children, we were envious that our parents went to bed when they pleased, wore clothes they chose to wear, ate ice-cream in winter if they so wished, etc. In youth we realize that this is just apparent independence because adults depend on their jobs for a living, on the rest of society around them, and that there are things they can and many other things they cannot afford to do.

- Aspirations: efforts and desires vs. opportunities. A child may dream about getting rich and prosperous when they grow up and accomplish their ambitions, etc. but by the time they get to be young adults they realize that opportunities to rise are not equal at all.

Think, for instance, of how different opportunities are for young people in different social classes right from the beginning of their adult lives.

- Education: personal intellectual interests vs. economic needs and interest. As young adults we begin to realize that a career we perhaps dream about pursuing does not promise the amount of income that is sufficient to sustain ourselves and raise a family.[324]

Think, for instance, of professions or occupations for which there is minimal demand. A poet, for example, can hardly sustain themselves out of writing poetry.

12.2.8 Youth in the 21st century

Young adulthood in contemporary society is sometimes characterized by the term "extended adolescence," suggesting that becoming and adult is delayed by varying amounts of time.

According to István József, it is characterized by the following features:

- The boundary between studying and finding a job is no longer sharply drawn: on the one hand, many young adults study full time at college or university past 25 years of age, and many full-time students do part-time jobs, on the other.

[324] MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.

- Habits in choosing a career have also changed and the number of marriages is declining, and young people get married at an increasingly old age.
- Similarly, couples decide to have children at an increasingly old age. It is no longer rare for a woman in her mid- or late thirties to give birth her first child.
- Parental support is extended in time too. Most young people either still attend school or dropped out too early for them to be able to support themselves without a job. Therefore, many of them still live with their parents.[325]

All these circumstances will, of course, make emancipation and identification with adult roles harder.

"Extended adolescence" is a general characteristic of Generation Y. If adulthood is a matter of regarding oneself as an adult and of being regarded as an adult by others, then the factors just mentioned work against this. The prospect of becoming an adult is not particularly attractive for an adolescent because it promises a lot of uncertainty and anxiety. A "solution" to prospective career-related uncertainties is to continue to acquire college degrees, one after another. An escape hatch form the uncertainties and responsibilities involved in true relationships is offered by virtual relationships in the digital world.[326]

12.2.9 Biological and psychological features specific to adulthood

Biological skills begin to decline in middle adulthood. In fact, the process begins in our twenties but it goes unnoticed by individuals because the capacities of our organs are larger than what we actually need. Certainly, there is considerable individual variation in terms of when different people perceive these changes. People who engage in physically demanding activities, such as top athletes or manual laborers, begin to perceive these changes as early as their thirties, in contrast to people who do less physically demanding jobs. But everybody perceives these changes in their fifties, the latest. Biological changes are represented in the following diagram.

---

[325] JÓZSEF I.: Fejlődéspszichológia. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014.

[326] TARI A.: Y generáció. Klinikai pszichológiai jelenségek és társadalomlélektani összefüggések az információs korban. Budapest, Jaffa kiadó, 2010.

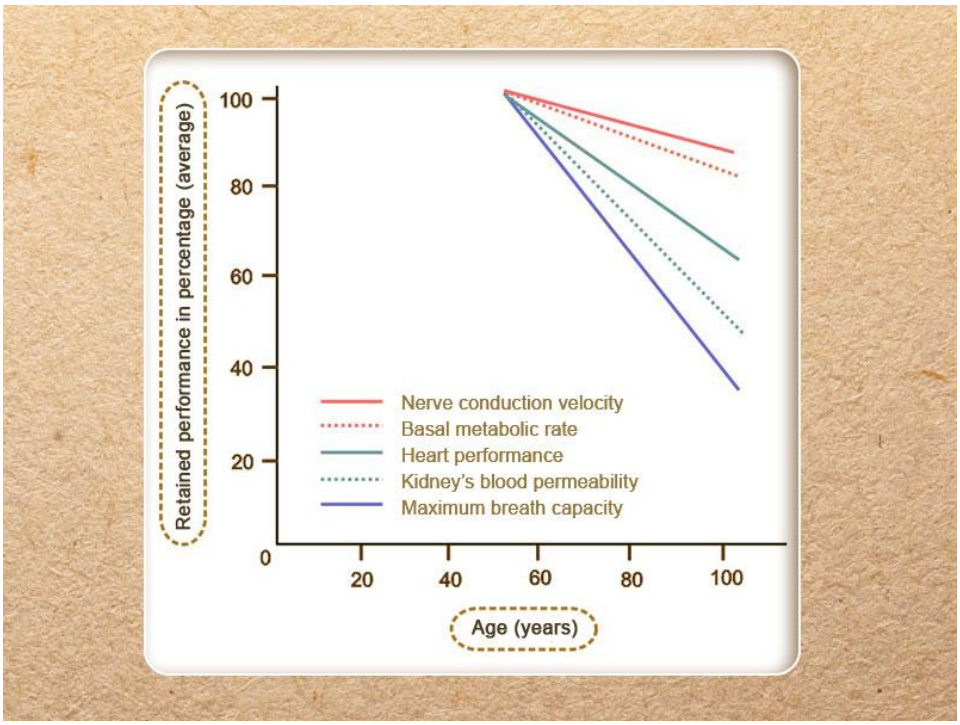

Figure 37. *Capacity of bodily organs above 35 years of age. After Shock (1960)*[327]

Menopause occurs in women between 45 and 55 years of age, ovulation and menstrual periods stop permanently, and women cease to be able to have children. Men produce testosterone and sperms until the end of their lives, though in decreasing amounts.

Menopause is important not only from a biological perspective; it has psychological consequences as well. It affects female roles considerably. Neugarten et al. (1963) found that women prior to menopause were more concerned about it than women after menopause. Its effects are also determined by cultural and social factors. Severne conducted a study in 1982 and found that women in higher social classes had fewer complaints than women in lower social classes. Women in western societies worry more about it than women in non-western cultures, who have fewer physical complaints about symptoms.[328]

[327] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.676.
[328] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.

- *Beyence (1991) found that Maya women regarded menopause as an opportunity to engage in activities which they had not been able to do before because of pregnancy and child care.*[329]

Changes occur in cognitive processes too. Performance in certain intellectual tasks declines, while it is not affected or improves in some other tasks. These changes are represented in the following diagram.

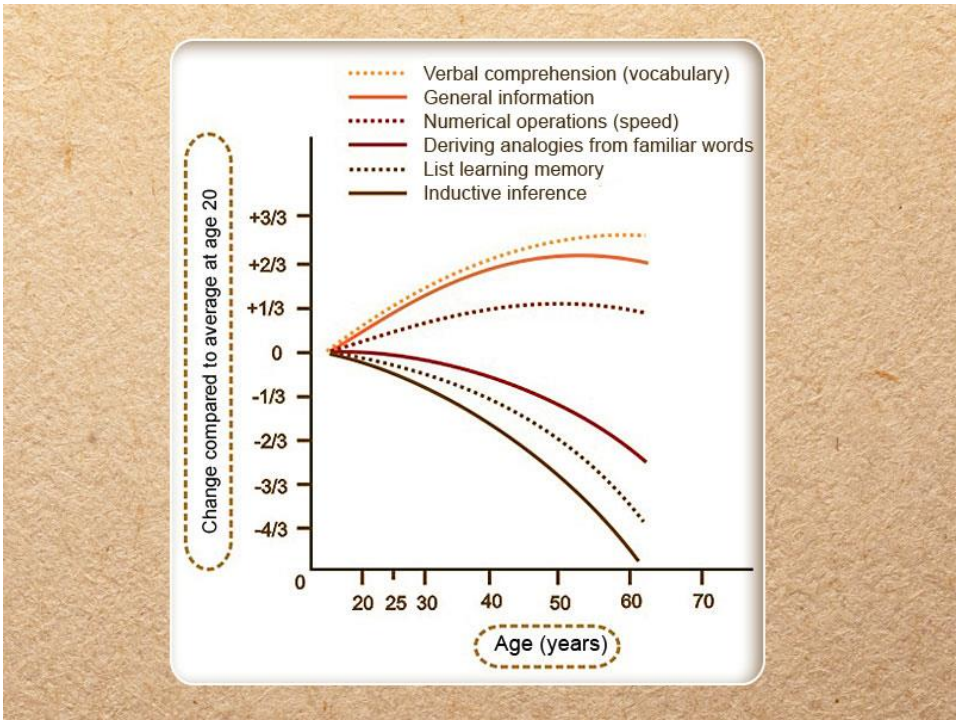

Figure 38. *Changes in cognitive skills above 20 years of age. After Horn and Donaldson (1980)*[330]

Fluid intelligence is at its peak in our 30s and 40s and then it declines. Crystallized intelligence is retained into late old age and may even improve, as the accumulation of experience at its basis may continue until the end of life.

From a sociological and psychological perspective, this period may be described by assuming responsibility, adaptation, a sense of duty, and

[329] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
[330] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001 678.

autonomy. Adulthood is characterized by a sense of reality, the ability to plan, and psychological maturity.[331]

István József defines psychological maturity as follows:

- **"Psychological maturity is demonstrated by an adult's autonomy, sense of responsibility, the ability to do creative work, and the possession of an accomplished view of the world and moral consciousness."[332]**

Creativity is a characteristic feature of this period, according to Erikson, which may manifest itself both in a person's way of life and in their work.[333]

12.2.10 Social features specific to adulthood

It is in this period, at its beginning, that an individual makes decisions that determine the rest of their life from a social perspective. These decisions typically have to do with career, a person's job, their family, and raising children. This is also the time when they decide where they want to settle down and make some important economic decisions, for example, about buying a house, taking out mortgage, etc., and decide about their commitments to some social group or community.[334]

Middle adulthood often brings new social changes. By this time, a person will have settled down, is at the peak of their career, but some dramatic changes often occur in family structure. Children leave the family and go their own ways, which may cause the couple to realize that their relationship has become empty, which they never noticed before because all their attention was taken up by looking after their children, and may eventually lead to a divorce. At the end of the period, people need to face retirement, meaning financial loss, and the passage of time.

---

[331] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
JÓZSEF I.: Fejlődéspszichológia. 2011. in:
http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html
accessed: April 11, 2014.

[332] JÓZSEF I.: Fejlődéspszichológia. 2011. in:
http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html
accessed: April 11, 2014.

[333] ERIKSON E. H.: A jelenkor kérdései: Az ifjúság. in: BERNÁTH L., SOLYMOSI K. (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997 109-119.

[334] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
JÓZSEF I.: Fejlődéspszichológia. 2011. in:
http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html
accessed: April 11, 2014.

The pressure of time may be felt earlier. According to Gould, people begin to feel they need to hurry as early as between 35 and 45. If they want to change their lives, they feel they had better do it soon, because they may not have enough time left to do it later. They need to face the fact that they, as well as their beloved ones, are mortal. They also need to face their dark sides and the things they have done, including things they may not be proud of. All this may lead to emotional turmoil and instability.

This is called midlife crisis. That is when people may ask themselves the same questions they asked in adolescence: "Who am I?" and "Where am I going?" The difference is that they are no longer looking for a new identity; instead, their established identities are questioned. Matters are made worse by the fact they have fewer choices and are running out of time.[335]

This is aptly represented in a short story titled "Meeting a young man" by Frigyes Karinthy, which is available in Hungarian at the following link:

1. 12_12_HH1 http://mek.niif.hu/06900/06980/06980.htm#22

The second phase of middle adulthood is a more balanced period both in terms of a person's career and in terms of their social relationships. But as people at this age will inevitably perceive that they are going downhill in terms of physical performance, an anxiety about health and about the shortage of time characterizes this period.[336]

12.2.11 Biological and psychological features specific to old age

The last period of adulthood is old age or late adulthood.

- As noted in the introduction, the most conspicuous changes in this period are biological in nature.

[335] BERNÁTH L.: A felnőttkor néhány jellegzetes kérdése. in: BERNÁTH L., SOLYMOSI K. (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997. 120-135.
JÓZSEF I.: Fejlődéspszichológia. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014.

[336] BERNÁTH L.: A felnőttkor néhány jellegzetes kérdése. in: BERNÁTH L., SOLYMOSI K. (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997. 120-135.

Biological changes in this period are in part a matter of “wear and tear” and in part the increasing likelihood of illnesses.

As we have already seen, aging starts much earlier but goes unnoticed for some time, until it becomes obvious at old age. Senses are deteriorating, vision, hearing, and smell are getting poorer.

Movement is more difficult. Body shape changes and so does an old person’s skin, hair, etc.

Intentional attention performance deteriorates. Elderly people perform poorly in memory tasks that require considerable attention capacity. Selective attention deteriorates with age, reaction time is longer, the processing of stimuli is slower, and the division of attention is more difficult. Elderly people’s interests often turn toward the past.[337]

The best researched area in this regard is the decline of intellectual capacities. As already noted, fluid intelligence begins to decline in middle adulthood, but crystallized intelligence is preserved into old age. Schaie (1980) found that intellectual decline prior to age 60 was always caused by some pathological process, that decline in some skills between 60 and 70 was normal, and decline was general above 80.[338]

12.2.12 Social features specific to old age

Old age is characterized by general withdrawal from society. Aging goes hand in hand with diminishing social status, competence, and prestige. Human relations become restricted, in part because occupational and business relationships end with retirement and in part because some old friends are no longer alive. Elderly people are also physically hampered in visiting friends living far away to keep in touch with them. As an old person’s personality is no longer as plastic as it once was, they have difficulty in making new friends and establishing new social relationships. All this leads to loneliness.[339]

The extent of decline is determined by a number of factors, which include biological constitution, illnesses, the physical and social environment, and lifestyle. Plenty of data in the literature suggest that

---

[337] BERNÁTH L.: A felnőttkor néhány jellegzetes kérdése. in: BERNÁTH L., SOLYMOSI K. (szerk.): Fejlődéslélektani olvasókönyv. Budapest, Tertia, 1997. 120-135.
COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.
VAJDA Zs.: A gyermek pszichológiai fejlődése. Budapest, Helikon, 2001.

[338] MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004

[339] JÓZSEF I.: Fejlődéspszichológia. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html accessed: April 11, 2014.

retirement, inactivity, loss of a spouse, or living in a nursing home contribute to biological and cognitive decline.[340]

12.3 SUMMARY AND QUESTIONS

12.3.1 Summary

We have discussed the characteristic features and periods of adulthood in this chapter. After defining adulthood and clarifying its boundaries in time, we described the biological, psychological, and social features of its phases. As the gap between generations is widening today, we briefly described the specific features of particular generations as well.

12.3.2 Self-test questions

- What factors determine development in childhood, adulthood, and old age?
- How do you define adulthood?
- What phases can adulthood be divided into?
- What is the central idea in the theory of generations and what features characterize particular generations?
- Which are the main biological and psychological features of youth?
- What social tasks characterize youth?
- Which are the main biological and psychological features of adulthood?
- Which are the social features of adulthood?
- Which are the main features of old age?

12.3.3 Practice tests

1, Which of these is characteristic of Generation Y?

A. Is composed of two waves
B. Its members were born between 1965 and 1975
C. **They seek instant ways to channel their stress and anxiety**
D. Is called Baby Boom in the USA

2, At which age does a third major change in body shape occur?

A. Middle adulthood

[340] COLE, M., COLE S. R.: Fejlődéslélektan. Budapest, Osiris, 2001.

B. Old age
C. Adolescence
E. Youth

3, Which of these is **not** a pillar of adulthood according to Popper?
F. Political commitment
A. Sustaining oneself and one's family
B. Understanding the reality in which one lives
C. Coping with stress

(Correct answers: 1 – C, 2 – D, 3 – A)

13. SUMMARY

In summary, the goal of the course in the Psychological Foundations of the Teaching Profession has been to introduce students to the science of psychology and offer a psychological perspective on phenomena that are believed to be most relevant to teaching. Discussions offer students some insight into the major areas of psychology (general psychology, personality psychology, and developmental psychology), the general principles, characteristics, and development of cognitive processes that are central to understanding learning, and human personality and its main theories. As restrictions of space preclude detailed discussions of particular problems, our primary goal was to offer students a general overview of phenomena and some questions posed by them which may serve as a solid foundation for pursuing their studies further in areas of applied psychology, such as educational psychology. The course has been organized into three modules, including a total of 11 units.

13.1 SUMMARY OF CONTENT

The first module, composed of 5 units, covers areas of general psychology. Units discuss the general principles and characteristics of cognitive functions that play very important roles in human cognition. Knowledge of phenomena discussed in these units is essential for students to understand what processes take place in cognition and how those cognitive processes affect learning and teaching in school. Knowledge of those processes may also enable teachers to better understand schoolchildren's possible failures in learning and think about ways to overcome learning difficulties.

- *For example, based on what you learned about attention, you will be able to regard a student's attention in a complex way and distinguish between such aspects and components as its scope, content, transfer, and division.*

Perceived learning problems are often symptoms of inadequate sensation, perception, attention, and memory operations, which may be developmental in nature.

Unit 1 is an introduction to general concepts and principles of the science of psychology, including the question of what psychology is, its methods and major fields. This general introductory discussion enables students to identify psychology in the context of other disciplines, understand the significance of psychology in the teaching profession, and

learn about ways in which psychology can contribute to the development of teachers' professional competencies in planning, organizing, and assessing the learning-teaching process, and to their understanding of the nature of learning and teaching.

The second unit in this module discusses questions and general principles of sensation, perception, and attention. Students learn about the central concepts and characteristics of sensation, perception, and attention, their roles in cognition and learning, and their major theories.

The third unit in this module addresses general psychological questions of memory and imagination, their general principles, and the roles these cognitive functions play in the process of learning.

The fourth unit continues the general discussion of cognitive processes, this time focusing on higher-level cognitive processes: thought, basic learning mechanisms, characteristics of intelligence and creativity, and their interrelationships.

The last unit in this module discusses emotion and intention, and aspects of motivation. In general, little attention is paid in pedagogical discussions to affective factors and processes in cognition despite the fact that it is these processes that serve as the engine of cognition energizing processes of learning. Often, cognitive and affective processes are separated from each other, with emphasis laid on the former, even though the teaching-learning process can hardly be effective without the activation of the affective machinery.

The second module, which is composed of two units, is an introduction to issues of personality and its development. An important aspect of the work of a teacher is to develop their students' personality, which presupposes an understanding of factors affecting personality development, on which teachers may rely in the teaching-learning process. Units of this module offer teachers some help with that.

The first unit in this module discusses the concept of personality and the factors that determine its development, and it offers an overview of the major theories of personality (psychoanalysis, behaviorism, etc.).

The second unit introduces students to the main aspects and theories of personality development.

The third module, which consists of four units, discusses questions of the psychology of different age groups, offering students a detailed analysis of features of various age groups from a developmental psychological perspective. Without an understanding of issues discussed in this module it is virtually impossible for a teacher to understand what goes on in a classroom, why students answer certain questions the way they do or why they cannot answer some questions at all, or how best to explain certain matters to students of different age groups. Based on the

clarification of some general psychological issues and phenomena in preceding sections, this module describes the age group-specific features of cognitive processes students are already familiar with in general, including developmental aspects specific to particular age groups. For example, students learn about the differences between young schoolchildren and adolescents in terms of what the latter are but the former are not yet capable of doing and understand the reasons for those differences.

The first unit of the module discusses developmental psychological aspects of the first six years of life, with specific emphasis on age-specific psychological features and their development.

The second unit offers a description of the physical, cognitive, affective, and social features of schoolchildren.

The third unit discusses adolescence, focusing on the main changes in and characteristics of this developmental period.

The fourth, and last, unit in this module discusses developmental psychological questions of young people and adults.

Familiarity with the biological, cognitive, affective, and social features of specific age groups and developmental periods is essential to the teaching profession, as it offers a solid foundation on which to construct and organize the teaching-learning process effectively.

13.2 CONCLUSION

The main goal of this course has been to offer students a solid general understanding of phenomena and issues in general psychology, personality psychology, and developmental psychology, which may serve as a foundation for planning, organizing, executing, and evaluating the teaching process in general and different teaching activities in particular. Constraints of space prevented the authors of this course from discussing many issues in more detail. It is hoped, though, that the general introduction offered here has raised the interest of prospective teachers in the topics briefly reviewed in this course and can serve as a basis for further studies of many exciting aspects of the human psyche.

14. APPENDICES

14.1 BIBLIOGRAPHY

ANDERSON, M.: *Intelligencia és fejlődés. Egy kognitív elmélet.* Budapest, Kulturtrade Kiadó, 1998.

ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, Pszichológia. Budapest, Osiris, 1997.

BADDELEY, Alan: *Az emberi emlékezet.* Budapest, Osiris, 2003

BAKOS Ferenc: *Idegen szavak és kifejezések szótára.* Budapest, Akadémiai kiadó, 1986.

BÁRDOS, György: Kémiai érzékelés. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): Általános pszichológia 1. Észlelés és figyelem. Budapest, Osiris Kiadó, 2007. 448-465

BARKÓCZI Ilona: *A problémamegoldó gondolkodás.* In: OLÁH A., BUGÁN A: (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös, 2000.

BARKÓCZI, Ilona, PUTNOKI, Jenő: *Tanulás és motiváció.* Budapest, Tankönyvkiadó, 1984. 223.

BERGHAUER-OLASZ, Emőke: *Fejlődéslélektan I.(jegyzet)* Beregszász, II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola, 2013.

BERNÁTH László, SOLYMOSI Katalin: *A fejlődés meghatározó tényezői és elméletei.* In: BERNÁTH László, SOLYMOSI Katalin (szerk.): *Fejlődéslélektani olvasókönyv.* Budapest, Tertia, 1997.7-24

BERNÁTH László: *A felnőttkor néhány jellegzetes kérdése*. in: BERNÁTH L., SOLYMOSI K. (szerk.): *Fejlődéslélektani olvasókönyv*. Budapest, Tertia, 1997. 120-135

BERNÁTH, László, RÉVÉSZ György*: A pszichológia alapjai.* Budapest, Tertia,1994.

CARVER, Charles S., SCHEIER, Michael: *Személyiségpszichológia.* Budapest, Osiris, 1998.

COLE Michael; COLE Sheila R.: *Fejlődéslélektan*. Budapest, Osiris. 2003.

COLE, Michael, COLE Sheila R.: *Fejlődéslélektan.* Budapest, Osiris, 2001.

CZIGLER, István: *Figyelem, szelekció, téri figyelem*. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 483-510.

CZIGLER, István: *Figyelem: információfeldolgozás, teljesítmény*. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 511-552

CSÉPE, Valéria., KOVÁCS, Ildikó: *A látás alapvető folyamatai.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 93-123.

CSÉPE, Valéria: *Alapvető tanulási formák*. In: CSÉPE, V. – GYŐRI, M. – RAGÓ, A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 24-85.

CSÉPE, Valéria: *Érzékelés, észlelés, környezet.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Ész-lelés és figyelem.* Budapest, Osiris Kiadó, 2007. 27-60.

DOLLARD, J., MILLER, N. E.: *A személyiség „ inger-válasz" elmélete.* In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. *Személyiséglélektani szöveggyűjtemény*. Budapest, Tankönyvkiadó, 1985. 425-450.

DÚLL Andrea: *Az érzékelés és az észlelés pszichológiája.* In: OLÁH Attila, BUGÁN Antal (szerk.): *Fejezetek a pszichológia alapterületeiből*. Budapest, ELTE Eötvös, 2000. 36-37-

ERIKSON E. H.: *A jelenkor kérdései: Az ifjúság.* in: BERNÁTH L., SOLYMOSI K. (szerk.): *Fejlődéslélektani olvasókönyv.* Budapest, Tertia, 1997 109-119.

ERIKSON, Erik, *Az emberi életciklus*. In: BERNÁTH László, SOLYMOSI Katalin (szerk.): *Fejlődés lélektani olvasókönyv*. Budapest, Tertia, 1997.

ERIKSON, Erik: *Pszichoszociális személyiségelmélet*. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. *Személyiséglélektani szöveggyűjtemény.* Budapest, Tankönyvkiadó, 1985.

ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/

EYSENCK Michael W. – KEANE Mark T., *Kognitív pszichológia.* Budapest, Nemzeti Tankönyvkiadó.1997.

FREUD Sigmund: *A pszichoanalízis rövid foglalata.* In: FREUD Sigmund. *Esszék.* Budapest, Gondolat, 1982

FREUD, Sigmund, *Az ősvalami és az én.* In. BUDA Béla (szerk.*): A pszichoanalízis és modern irányzatai.* Budapest, Gondolat, 1971. 139-164.

GALAMBOS, Katalin*: A fejlődéslélektan és a szocializáció alapjai.* Buda-pest, Műszaki Kiadó, 2008.

GYARMATHY, Éva: *A tehetség – Háttere és gondozásának gyakorlata*. Budapest, ELTE Eötvös Kiadó, 2007.

GYARMATHY, Éva: *IQ és tehetség*. Magyar Pszichológia Szemle, 2002. LVII. 1. 127-154

GYARMATHY, ÉVA: *Kreativitás és beilleszkedési zavarok.* In: Münich, Ákos (szerk.): *A kreativitás többszempontú vizsgálata.* Debrecen, Didakt Kiadó, 2011. 9-47.

HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: *Személyiséglélektani és szociálpszichológiai alapismeretek*. Távoktatási jegyzet. Eger, EKF, 2001.

HATVANI Andrea, TASKÓ Tünde: *Személyiség fejlődés és pályafejlődés.* In: VARGÁNÉ DÁVID Mária (szerk.): *Pedagógiai tanácsadási módszerek a pályaválasztás segítésében.* Eger, EKF, 2003. 5-16

HEBB, Donald O., *A pszichológia alapkérdései.* Budapest: Gondolat.1978.

HJELLE, L. A. ZIEGLER, D. J., *A személyiség behaviorista tanuláselmélete: B. F. Skinner*. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna (szerk.) *Személyiséglélektani szöveggyűjtemény.* Budapest, Tankönyvkiadó, 1985. 451-493.

JAKAB, Zoltán: *Színlátás*. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 124-160.

JÓZSEF István: *Fejlődéspszichológia.* 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html letöltés dátuma: 2014. április 11

JUHÁSZ, Levente Zsolt: *Komplex tanulás – kognitív tényezők a tanulásban*. In: CSÉPE V. – GYŐRI M. – RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 86 –110.

KARDOS Lajos: *Általános pszichológia.* Budapest, Tankönyvkiadó, 1986.

KEMÉNYNÉ PÁLFFY Katalin: *Bevezetés a pszichológiába.* Budapest, Tankönyvkiadó, 1989.

KIRÁLY ILDIKÓ: *A deklaratív emlékezet – epizódikus és önéletrajzi emlékezet.* In.: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 236-267.

KOMLÓSI Annamária: *A személyiség értelmezései*. In: BUGÁN Antal, OLÁH Attila (szerk.): *Fejezetek a pszichológia alapterületeiről.* Budapest, ELTE Eötvös kiadó, 2000. 189.

KÓNYA, Anikó: *A tapasztalat tartós fennmaradása – emlékezeti konszolidáció.* In.: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 209-235.

KOVÁCS, KRISTÓF: *Arthur Jensen és az IQ-vita 1969-től 2000-ig*. Magyar Pszichológiai Szemle, 2002. LVII. 1. 5-38.

KŐRÖSSY, JUDIT: *Az „én" fogalma, az énfejlődés elméletei.* In.: N. Kollár Katalin, Szabó Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris Kiadó, 2004. 51-73.

KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.

KÜRTI, JÁRMILLA: *Kreativitásfejlesztés kisiskoláskorban.* Budapest, Tankönyvkiadó, 1986.
LANDAU, ERICA: *A kreativitás pszichológiája.* Budapest, Tankönyvkiadó, 1974.
MÉREI Ferenc: *A pszichológiai labirintus. Fondorlatok és kerülő utak a lelki életben.* Budapest, Pszichoteam, 1989
MÉREI, Ferenc, BINÉT, Ágnes: *Gyermeklélektan*. Budapest, Gondolat kiadó, 1981.
MEZŐ, Ferenc, MEZŐ, Katalin: *Kreatív és iskolába jár.* Debrecen, Tehetségvadász Stúdió – Kocka Kör Tehetséggondozó Kulturális Egyesület, 2003.
MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.
N. KOLLÁR Katalin: *A pszichológia nézőpontjai, irányzatai és módszerei.* In: N. KOLLÁR Katalin, SZABÓ Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris. 2004.
PECK, David, WHITLOW, David, *Személyiség elméletek*. Budapest: Gondolat, 1983
PLÉH Csaba: *A tudomány jövője: A kognitív tudomány példája a tudományok tagoldásáról és diverzifikálódásáról.* Magyar Tudomány, 2007/09 1118. o. A jövőről a jelenben. http://www.matud.iif.hu/07sze/02.html letöl-tés dátuma: 2014. augusztus 18.
PLÉH Csaba: *Pszichológiatörténet.* Budapest, Gondolat, 1992.
PLÉH, Csaba: *A lélek és a nyelv.* Budapest, Akadémia Kiadó, 2013.
POPPER P.: *Nemzedékek sorsa és felelőssége*. In: CSEPELI GY., KÍGYÓS É., POPPER P.: *Magukra hagyott generációk. Fiatalok és öregek a XXI. században.* Budapest, Saxum, 2006. 95-139.
RACSMÁNY, Mihály: *Az „elsődleges emlékezet" – a rövid távú emlékezés és a munkamemória elméletei.* In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 177-208.
RACSMÁNY, Mihály: *Kódolás és előhívás az emberi emlékezetben* In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007. 159-176.
RAGÓ Anett: *Kategorizáció és fogalmi reprezentáció*. In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 273-315.
ROGERS, Carl.: *A személyiség és a viselkedés elmélete*. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna (szerk.): *Személyiséglélektani szöveggyűjtemény.* Budapest, Tankönyvkiadó, 1985. 369-404.
SALAMON Jenő: *A megismerőtevékenység fejlődéslélektana.* Budapest, Nemzeti Tankönyvkiadó,1996.

SCHACHTER Daniel L.: *Emlékeink nyomában. Az agy, az elme és a múlt*. Budapest, Háttér Kiadó, 1998.
SÉRA László: *Általános pszichológia*. Pécs, Coménius Bt., 1998.
SUHAI-HODÁSZ Gábor: *Pszichológia.* Budapest: SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa.1999.
SZABÓ, István: *Bevezetés a szociálpszichológiába.* Budapest, Nemzeti tankönyvkiadó, 1994.
SZABÓ, Mónika: *Motiváció.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 169-191
SZOKOLSZKY, Ágnes: *Öröklés-környezet: mit is jelent az „is"?* Magyar Pszichológiai Szemle, 2002. LVII. 1. 51-84.
SZUMSKA Irena: *Kutatási módszerek a magatartástudományban.* in: BUDA Béla, KOPP Mária: *Magatartástudományok*. Budapest, Medicina, 2001.701-714
TARI A.: *Y generáció. Klinikai pszichológiai jelenségek és társadalomlélektani összefüggések az információs korban.* Budapest, Jaffa kiadó, 2010.
TARI A.: *Z generáció. Klinikai pszichológiai jelenségek és társadalom-lélektani szempontok az Információs Korban.* Budapest, Tercium, 2011.
TÓTH László: *Pszichológia a tanításban*. Debrecen Pedellus Tankönyvkiadó, é.n.
TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Comenius Bt. 1997.
URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.
URBÁN, Róbert: *Érzelmek.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 95-118
URBÁN, Róbert: *Félelem és szorongás az iskolában.* In: N. KOLLÁR, Katalin, SZABÓ, Éva: *Pszichológia pedagógusoknak*. Budapest, Osiris kiadó, 2004. p. 111-114.
VAJDA Zsuzsanna, KÓSA Éva: *Neveléslélektan*. Osiris, Budapest, 2005
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001
VAJDA, ZSUZSANNA: *Az intelligencia természete.* Magyar Pszichológia Szemle, 2002. LVII. 1. 85-109.
VIKÁR György: *Az ifjúkor válságai.* Budapest, Animula, 1999.

14.2 REFERENCES

Unit 2

ATKINSON R. L., ATKINSON R. C., SMITH E. E., BEM, D. J.: *Pszichológia.* Budapest, Osiris, 1997.

BAKOS Ferenc: *Idegen szavak és kifejezések szótára.* Budapest, Akadémiai kiadó, 1986.
CARVER Charles S. – SCHEIER Michael F.: *Személyiségpszichológia.* Budapest, Osiris, 1998.
ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/
KEMÉNYNÉ PÁLFFY Katalin: *Bevezetés a pszichológiába.* Budapest, Tankönyvkiadó, 1989.
N. KOLLÁR Katalin: *A pszichológia nézőpontjai, irányzatai és módszerei.* In: N. KOLLÁR Katalin, SZABÓ Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris. 2004.
PLÉH Csaba: *Pszichológiatörténet.* Budapest, Gondolat, 1992.
SÉRA László: *Általános pszichológia*. Pécs, Coménius Bt., 1998.
SZABÓ, István: *Bevezetés a szociálpszichológiába.* Budapest, Nemzeti tankönyvkiadó, 1994.
SZUMSKA Irena: *Kutatási módszerek a magatartástudományban.* in: BUDA Béla, KOPP Mária: *Magatartástudományok*. Budapest, Medicina, 2001.701-714
TÓTH László: *Pszichológia a tanításban.* Debrecen Pedellus tankönyvkiadó, é. n.
VAJDA Zsuzsanna, KÓSA Éva: *Neveléslélektan*. Osiris, Budapest, 2005

Unit 3

ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.
BÁRDOS, György: *Kémiai érzékelés.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 448-465
BERNÁTH, László, RÉVÉSZ György*: A pszichológia alapjai.* Budapest,Tertia,1994.
CZIGLER, István: *Figyelem, szelekció, téri figyelem*. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem*. Budapest, Osiris Kiadó, 2007. 483-510.
CZIGLER, István: *Figyelem: információfeldolgozás, teljesítmény*. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 511-552
CSÉPE, Valéria., KOVÁCS, Ildikó: *A látás alapvető folyamatai.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános*

pszichológia 1. Észlelés és figyelem. Budapest, Osiris Kiadó, 2007. 93-123.
CSÉPE, Valéria: *Érzékelés, észlelés, környezet.* In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 27-60.
DÚLL Andrea: *Az érzékelés és az észlelés pszichológiája*. In: OLÁH Attila, BUGÁN Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös, 2000. 36-37-
ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/
JAKAB, Zoltán: Színlátás. In.: CSÉPE VALÉRIA, GYŐRI MIKLÓS, RAGÓ ANETT (szerk.): *Általános pszichológia 1. Észlelés és figyelem.* Budapest, Osiris Kiadó, 2007. 124-160.
PLÉH Csaba: *A tudomány jövője: A kognitív tudomány példája a tudományok tagoldásáról és diverzifikálódásáról.* Magyar Tudomány, 2007/09 1118. o. A jövőről a jelenben. http://www.matud.iif.hu/07sze/02.html letöltés dátuma: 2014. augusztus 18.
SÉRA László: *Általános pszichológia*. Pécs, Comenius Bt., 1998.
SUHAI-HODÁSZ Gábor, *Pszichológia.* Budapest, SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa, 1999.

Unit 4

ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997
BADDELEY, Alan: *Az emberi emlékezet.* Budapest, Osiris, 2003
BERNÁTH, László, RÉVÉSZ György*: A pszichológia alapjai.* Budapest, Tertia,1994.
ESTEFÁNNÉ VARGA Magdolna, DÁVID Mária, HATVANI, Andrea, HÉJJA-NAGY Katalin, TASKÓ Tünde: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008. [elektronikus dokumentum][2014.február 1.]< http://www.ektf.hu/hefoppalyazat/pszielmal/
EYSENCK Michael W. – KEANE Mark T., *Kognitív pszichológia.* Budapest, Nemzeti Tankönyvkiadó.1997.
HEBB, Donald O., *A pszichológia alapkérdései.* Budapest: Gondolat.1978.
KARDOS Lajos: *Általános pszichológia.* Budapest, Tankönyvkiadó, 1986. 165.
KIRÁLY ILDIKÓ: *A deklaratív emlékezet – epizódikus és önéletrajzi emlékezet.* In.: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 236-267.

KÓNYA, Anikó: *A tapasztalat tartós fennmaradása – emlékezeti konszolidáció.* In.: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 209-235.

RACSMÁNY, Mihály: *Az „elsődleges emlékezet" – a rövid távú emlékezés és a munkamemória elméletei.* In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 177-208.

RACSMÁNY, Mihály: *Kódolás és előhívás az emberi emlékezetben* In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás – emlékezés – tudás.* Budapest, Osiris, 2007. 159-176.

SCHACHTER Daniel L.: *Emlékeink nyomában. Az agy, az elme és a múlt*. Budapest, Háttér Kiadó, 1998.

SÉRA László, *Általános pszichológia.* Pécs: Comenius Bt.1998.

SUHAI-HODÁSZ Gábor: *Pszichológia.* Budapest: SOTE Képzéskutató, Oktatástechnológiai és Dokumentációs Központ kiadványa.1999.

Unit 5

ANDERSON, M.: *Intelligencia és fejlődés. Egy kognitív elmélet.* Budapest, Kulturtrade Kiadó, 1998.

ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997

BARKÓCZI Ilona: *A problémamegoldó gondolkodás.* In: OLÁH A., BUGÁN A. (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös, 2000.

BERNÁTH, László, RÉVÉSZ György*: A pszichológia alapjai.* Budapest, Tertia,1994.

CSÉPE, Valéria: *Alapvető tanulási formák*. In: CSÉPE, V. – GYŐRI, M. – RAGÓ, A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 24-85.

ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.*: Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/

GYARMATHY, Éva: *A tehetség – Háttere és gondozásának gyakorlata*. Budapest, ELTE Eötvös Kiadó, 2007.

GYARMATHY, Éva: *IQ és tehetség*. Magyar Pszichológia Szemle, 2002. LVII. 1. 127-154

GYARMATHY, ÉVA: *Kreativitás és beilleszkedési zavarok.* In: Münich, Ákos (szerk.): *A kreativitás többszempontú vizsgálata.* Debrecen, Didakt Kiadó, 2011. 9-47.

JUHÁSZ, Levente Zsolt: *Komplex tanulás – kognitív tényezők a tanulásban*. In: CSÉPE V. – GYŐRI M. – RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás.* Budapest, Osiris, 2007. 86 –110.

KOVÁCS, KRISTÓF: *Arthur Jensen és az IQ-vita 1969-től 2000-ig*. Magyar Pszichológiai Szemle, 2002. LVII. 1. 5-38.
KÜRTI, JÁRMILLA: *Kreativitásfejlesztés kisiskoláskorban.* Budapest, Tankönyvkiadó, 1986.
LANDAU, ERICA: *A kreativitás pszichológiája.* Budapest, Tankönyvkiadó, 1974.
MEZŐ, Ferenc, MEZŐ, Katalin: *Kreatív és iskolába jár.* Debrecen, Tehetségvadász Stúdió – Kocka Kör Tehetséggondozó Kulturális Egyesület, 2003.
RAGÓ Anett: *Kategorizáció és fogalmi reprezentáció*. In: CSÉPE V., GYŐRI M., RAGÓ A. (szerk.): *Általános pszichológia 2. Tanulás –emlékezés – tudás*. Budapest, Osiris, 2007. 273-315.
SÉRA László: *Általános pszichológia*. Pécs, Coménius Bt., 1998.
SZOKOLSZKY, Ágnes: *Öröklés-környezet: mit is jelent az „is”?* Magyar Pszichológiai Szemle, 2002. LVII. 1. 51-84.
TÓTH, LÁSZLÓ: *Pszichológia a tanításban.* Debrecen, Pedellus Kiadó, é. n.
VAJDA, ZSUZSANNA: *Az intelligencia természete.* Magyar Pszichológia Szemle, 2002. LVII. 1. 85-109.

Unit 6

ATKINSON R. L., ATKINSON R. C., SMITH E. E.,BEM, D. J.: *Pszichológia*. Budapest, Osiris, 1997.
BARKÓCZI, Ilona, PUTNOKI, Jenő: *Tanulás és motiváció.* Budapest, Tankönyvkiadó, 1984. 223.
ESTEFÁNNÉ VARGA M., DÁVID M., HATVANI, A., HÉJJA-NAGY K., TASKÓ T.: *Pszichológia elméleti alapok.* Eger, Eszterházy Károly Főiskola, 2008 http://www.ektf.hu/hefoppalyazat/pszielmal/
SÉRA, László: *Általános pszichológia*. Pécs, Coménius Bt., 1998
SZABÓ, Mónika: *Motiváció.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 169-191
URBÁN, Róbert: *Az érzelem és motiváció pszichológiája.* In: OLÁH,Attila, BUGÁN, Antal (szerk.): *Fejezetek a pszichológia alapterületeiből.* Budapest, ELTE Eötvös kiadó, 2000. 157-185.
URBÁN, Róbert: *Érzelmek.* In: N. KOLLÁR, Katalin, SZABÓ, Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris, 2004. 95-118

Unit 7

ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997.
CARVER, Charles S., SCHEIER, Michael: *Személyiségpszichológia*. Budapest, Osiris, 1998.

CARVER, Charles S., SCHEIER, Michael: *Személyiségpszichológia.* Budapest, Osiris, 1998. 341-372.
DOLLARD, J., MILLER, N. E.: *A személyiség „ inger-válasz" elmélete.* In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. *Személyiséglélektani szöveggyűjtemény*. Budapest, Tankönyvkiadó, 1985. 425-450.
FREUD, Sigmund, *Az ősvalami és az én.* In. BUDA Béla (szerk.*): A pszichoanalízis és modern irányzatai.* Budapest, Gondolat, 1971. 139-164.
HATVANI Andrea, ESTEFÁNNÉ VARGA Magdolna, TASKÓ Tünde: Személyiséglélektani és szociálpszichológiai alapismeretek. Távoktatási jegyzet. Eger, EKF, 2001.
HJELLE, L. A. ZIEGLER, D. J., *A személyiség behaviorista tanuláselmélete: B. F. Skinner*. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna (szerk.) *Személyiséglélektani szöveggyűjtemény.* Budapest, Tankönyvkiadó, 1985. 451-493.
KOMLÓSI Annamária: *A személyiség értelmezései*. In: BUGÁN Antal, OLÁH Attila (szerk.): *Fejezetek a pszichológia alapterületeiről.* Budapest, ELTE Eötvös kiadó, 2000. 189.
MÉREI Ferenc: *A pszichológiai labirintus. Fondorlatok és kerülő utak a lelki életben.* Budapest, Pszichoteam, 1989
PECK, David, WHITLOW, David: *Személyiség elméletek.* Budapest, Gondolat, 1983
PLÉH Csaba: *Pszichológiatörténet.* Budapest, Gondolat, 1992.
ROGERS, Carl.: *A személyiség és a viselkedés elmélete*. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna (szerk.): *Személyiséglélektani szöveggyűjtemény.* Budapest, Tankönyvkiadó, 1985. 369-404.
TÓTH László: *Pszichológia a tanításban.* Debrecen, Pedellus Tankönyvkiadó, é.n.

Unit 8

BERNÁTH László, SOLYMOSI Katalin: *A fejlődés meghatározó tényezői és elméletei.* In: BERNÁTH László, SOLYMOSI Katalin (szerk.): *Fejlődéslélektani olvasókönyv.* Budapest, Tertia, 1997.7-24
CARVER, Charles S., SCHEIER, Michael: *Személyiségpszichológia.* Osiris, Budapest, 1998.
COLE, M., COLE S. R.: *Fejlődéslélektan.* Budapest, Osiris, 2001.
ERIKSON, Erik, *Az emberi életciklus*. In: BERNÁTH László, SOLYMOSI Katalin (szerk.): *Fejlődés lélektani olvasókönyv*.Budapest, Tertia, 1997.
ERIKSON, Erik: *Pszichoszociális személyiségelmélet*. In: SZAKÁCS Ferenc, KULCSÁR Zsuzsanna szerk. *Személyiséglélektani szöveggyűjtemény.* Budapest, Tankönyvkiadó, 1985.
FREUD Sigmund: *A pszichoanalízis rövid foglalata.* In: FREUD Sigmund. *Esszék.* Budapest, Gondolat, 1982

KEMÉNYNÉ PÁLFFY Katalin: *Bevezetés a pszichológiába*. Tankönyvkiadó, Budapest, 1989.
MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.
PECK, David, WHITLOW, David, *Személyiség elméletek*. Budapest: Gondolat, 1983
SALAMON Jenő: *A megismerőtevékenység fejlődéslélektana.* Budapest, Nemzeti Tankönyvkiadó,1996.
TÓTH László: *Pszichológia a tanításban*. Debrecen Pedellus Tankönyvkiadó, é.n.
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon,2001.
COLE, Michael, COLE, Sheila. R.: *Fejlődéslélektan*. Budapest, Osiris Kiadó, 2001.

Unit 9

ATKINSON, Rita, ATKINSON, Richard, SMITH Edward, BEM, Daryl, *Pszichológia.* Budapest, Osiris, 1997
COLE, Michael, COLE, Sheila R.: *Fejlődéslélektan.* Budapest, Osiris Kiadó, 2001.
KŐRÖSSY, JUDIT: *Az „én" fogalma, az énfejlődés elméletei.* In.: N. Kollár Katalin, Szabó Éva (szerk.): *Pszichológia pedagógusoknak.* Budapest, Osiris Kiadó, 2004. 51-73.
MÉREI, Ferenc, BINÉT, Ágnes: *Gyermeklélektan*. Budapest, Gondolat kiadó, 1981.
PLÉH, Csaba: *A lélek és a nyelv.* Budapest, Akadémia Kiadó, 2013.
TÓTH, Ibolya: *A pszichológia alapjai.* Pécs, Coménius Bt., 1997.
VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése.* Pécs, Helikon Kiadó, 1999.

Unit 10

BERGHAUER-OLASZ, Emőke: *Fejlődéslélektan I.(jegyzet)* Beregszász, II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola, 2013.
GALAMBOS, Katalin: *A fejlődéslélektan és a szocializáció alapjai*. Budapest, Műszaki Kiadó, 2008.
MÖNKS, Franz J.,KNOERS Alphons M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.
TÓTH, Ibolya: *A pszichológia alapjai*. Pécs, Comenius Bt. 1997.
TÓTH, László: *Pszichológia a tanításban*. Debrecen, Pedellus Kiadó, én.
URBÁN, Róbert: *Félelem és szorongás az iskolában*. In: N. KOLLÁR, Katalin, SZABÓ, Éva: *Pszichológia pedagógusoknak.* Budapest, Osiris kiadó, 2004. p. 111-114.

VAJDA, Zsuzsanna: *A gyermek pszichológiai fejlődése.* Budapest, Helikon Kiadó, 1999.

Unit 11

COLE M,; COLE R. S.: *Fejlődéslélektan*. Budapest, Osiris. 2003.
HATVANI Andrea, TASKÓ Tünde: *Személyiség fejlődés és pályafejlődés.* In: VARGÁNÉ DÁVID Mária (szerk.): *Pedagógiai tanácsadási módszerek a pályaválasztás segítésében.* Eger, EKF, 2003. 5-16
JÓZSEF István: *Fejlődéspszichológia*. 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html letöltés dátuma: 2014. április 11
KULCSÁR Éva: *A serdülőkori fejlődés pszichológiai jellemzői.* Iskolapszichológia 29. Budapest, Argumentum, 2005.
MÖNKS, F. j.,KNOERS A, M. P. : *Fejlődéslélektan.* Budapest, Urbis, 2004.
VAJDA Zsuzsanna: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001
VIKÁR György: Az ifjúkor válságai. Budapest, Animula, 1999.

Unit 12

BERNÁTH L.: *A felnőttkor néhány jellegzetes kérdése*. in: BERNÁTH L., SOLYMOSI K. (szerk.): *Fejlődéslélektani olvasókönyv*. Budapest, Tertia, 1997. 120-135
COLE, M., COLE S. R.: *Fejlődéslélektan*. Budapest, Osiris, 2001.
ERIKSON E. H.: *A jelenkor kérdései: Az ifjúság.* in: BERNÁTH L., SOLYMOSI K. (szerk.): *Fejlődéslélektani olvasókönyv.* Budapest, Tertia, 1997 109-119.
JÓZSEF István: *Fejlődéspszichológia.* 2011. in: http://janus.ttk.pte.hu/tamop/kaposvari_anyag/jozsef_istvan/index.html letöltés dátuma: 2014. április 11
MÖNKS, F. j.,KNOERS A, M. P.: *Fejlődéslélektan*. Budapest, Urbis, 2004.
POPPER P.: *Nemzedékek sorsa és felelőssége*. In: CSEPELI GY., KÍGYÓS É., POPPER P.: *Magukra hagyott generációk. Fiatalok és öregek a XXI. században.* Budapest, Saxum, 2006. 95-139.
TARI A.: *Y generáció. Klinikai pszichológiai jelenségek és társadalomlélektani összefüggések az információs korban.* Budapest, Jaffa kiadó, 2010.
TARI A.: *Z generáció. Klinikai pszichológiai jelenségek és társadalom-lélektani szempontok az Információs Korban.* Budapest, Tercium, 2011.
VAJDA Zs.: *A gyermek pszichológiai fejlődése*. Budapest, Helikon, 2001

14.3 SUMMARY OF MEDIA ELEMENTS

14.3.1 List of tables

14.3.2. List of diagrams

14.3.6 URL references

Unit1
12_01_HH01: Study tips
www.tanulasfejlesztes.ektf.hu

Unit 2
12_02_HH01: Foundations of the history of philosophy
http://mmi.elte.hu/szabadbolcseszet/index.php?option=com_tanelem&id_tanelem=259&tip=0
12_02_HH02: Freud Museum, London: http://www.freud.org.uk/
12_02_HH03: Freud Museum, Bécs: http://www.freud-museum.at/cms/

Unit 3
12_03_HH01: Structure of the eye
https://www.mozaweb.hu/Lecke-Biologia-Biologia_11-A_szem_felepitese-102530
12_03_HH02: Structure of the ear
http://www.mozaweb.hu/Lecke-Biologia-Biologia_11-A_halloszerv_felepitese_es_mukodese_az_egyensuly_erzekelese-102531
12_03_HH03 Structure of the olfactory system
http://www.termeszetvilaga.hu/orvosi_nobeldijak/2004.html
12_03_HH04 Taste
http://tudasbazis.sulinet.hu/hu/termeszettudomanyok/biologia/biologia-11-evfolyam/a-szaglas-es-az-izerzekeles/az-izerzekeles
12_03_HH05 A Rubin vase
http://www.ektf.hu/hefoppalyazat/pszielmal/az_szlels_fogalma_s_funkcii.html
12_03_HH06 Gestalt basic principles
http://hu.wikipedia.org/wiki/F%C3%A1jl:Gestaltalapelvek.JPG

Unit 4
12_04_HH01 Game demonstrating short-term memory
http://egyszervolt.hu/jatek/jatek-majomparade.html
12_04_HH02 Animation by Jan Svankmajer:
http://www.youtube.com/watch?v=MxaNkklWBVk

Unit 5
12_05_HH01: classical conditioning experiment
http://www.youtube.com/watch?v=hhqumfpxuzI
12_05_HH02Thorndike's experiment:
http://www.youtube.com/watch?v=BDujDOLre-8
12_05_HH03: Skinner's experiment:
http://www.youtube.com/watch?v=X6zS7v9nSpo
12-05_HH04 Köhler's experiments:
http://www.youtube.com/watch?v=FwDhYUlbxiQ

Unit 6
12_06_HH01: Silent film
http://www.youtube.com/watch?v=vaNGDjm3Vxw

Unit 7
12_07_HH01 Freud speaking http://hu.livroseafins.com/o-unico-registro-de-audio-de-sigmund-freud-1938/
12_07_HH02 Rogers speaking about his theory
http://www.youtube.com/watch?v=DjTpEL8acfo

Unit 8
12_08_HH01 Piaget's experiment
http://www.youtube.com/watch?v=gnArvcWaH6I

Unit 10
12_10_HH01:School readiness assessment
http://gyermekpszichologus.blog.hu/2014/01/06/pszichologiai_erettseg_vizsgalat

Unit 11
12_11_HH01: LGT: Ő még csak most tizennégy
http://www.youtube.com/watch?v=YG5w9U-rzp0
12_11_HH02: Karinthy Frigyes: Lógok a szeren
http://mek.niif.hu/00700/00719/00719.htm#16

Unit 12

12_12_HH1 Karinthy: Találkozás egy fiatalemberrel (Meeting a young man) http://mek.niif.hu/06900/06980/06980.htm#22

14.4 GLOSSARY

ABSOLUTE HIGHEST THRESHOLD: The highest stimulus intensity we are capable of sensing.

ABSOLUTE LOWEST THRESHOLD: The lowest stimulus intensity we are capable of sensing.

ACCELERATION: Increase in the speed of development.

ACCOMMODATION: An aspect of adaptation in Piaget's theory of development which involves changings schemas in response to experience.

ADAPTATION: The alteration of structure or habits in order that an individual becomes better able to function in their environment (in Piaget's theory of development).

ADOLESCENCE: Developmental period from age 10 to 18.

ANAL STAGE: The second stage in Freud's theory of psychosexual development, named after the anal muscles, whose contraction and relaxation is a source of pleasure.

ANIMISM: A form of thinking typical of preschoolers in which animate properties are attributed inanimate things.

APGAR-SCALE: Scale worked out by Virginia Apgar, an American physician, to determine the health of newborn babies.

AROUSAL: Visceral physiological activity.

ARTIFICIALISM: A feature of thinking in preschoolers; the belief that natural phenomena have been artificially created by a human agent.

ASSIMILATION: Becoming similar in general. In Piaget's system, an aspect of adaptation in which the individual modifies experiential data in order that they fit the existing schemas.

BABY BOOM: The generation of people born in the United States between 1946 and 1964.

BEHAVIORISM: An approach in psychology that emphasizes objectivity and studies directly observable behavior.

BINOCULAR CLUE: Clue for depth perception which can be perceived with one eye.

BODY IMAGE: The internal appearance of our body, a basic condition for the formation of the self.

CATEGORIZATION: Assigning objects to concepts.

CLASSICAL CONDITIONING: A form of learning. A conditioned reflex is built on an unconditioned reflex.

COEXISTENCE: Existing or occurring together; co-occurrence.

COGNITIVE MAP: A mental map assisting a person in special orientation.

COGNITIVE PSYCHOLOGY: This approach focuses on the study of cognitive processes.

CONCEPT: Class of things or the set of features associated with such a class.

CONE: Photoreceptor responsible for color vision.

CONSCIOUS: In Freudian psychoanalysis, what we are aware of at the moment.

CONVERGENT THOUGHT: The recall and application of knowledge already acquired.

CORE OF A CONCEPT: The central, essential properties of a concept.

CREATIVITY: A novel arrangement of elements in the mind, which produces something new and original.

CUE-DEPENDENT FORGETTING: The memory trace is still present but the cues for its retrieval have been forgotten.

DECLARATIVE MEMORY: See explicit memory.

DEDUCTIVE INFERENCE: Inference from the general to the particular

DEFENSE MECHANISM: A way to combat anxiety. Each defense mechanism is unconscious and distorts reality.

DEPENDENT VARIABLE: Factors in an experiment which change as a consequence of free variables, measured by the experimenter.

DEVELOPMENT: Series of physical and psychological changes in quality during a person's life.

DIFFERENCE THRESHOLD: The smallest change in stimulus intensity we are capable of sensing.

DISCRIMINATION: The reveres process of generalization. The organism learns to distinguish between two similar stimuli, if only one of them is followed by reinforcement.

DIVERGENT THINKING: Thinking in which you are ready to leave well-trodden paths and connect elements of knowledge in different domains to work out alternative solutions.

DREAM IMAGES: Images we see in sleep.

DRIVE: Internal motivation to act, which arises from a need.

ECHOIC REGISTER: Sensory store in which auditive sensory information is stored.

EGO: See Self.

EGOCENTRIC THINKING: Thinking which focuses on the self, with limited or no capacity to consider other people's perspectives.

EIDETIC IMAGE: Exceptionally vivid, short-lasting photographic memory image, typical of children rather than adults.

EIDETIC MEMORY: Photographic memory. Stores vivid images of things seen.

EMANCIPATION: Becoming independent, cease subordination to a superior.

EMOTIONALITY: The extent to which an individual's physiological excitation increases in emotionally upsetting situations.

EPISODIC MEMORY: That is where we store our personal experiences.

EXPLICIT MEMORY: Stores knowledge acquired in the past, i.e. data, facts, and eventualities.

EXTINCTION: If the occurrence of the unconditioned reflex is repeatedly not followed by the unconditioned stimulus in classical conditioning, then the conditioned response desists.

EXTRAVERSION: Turning toward what is outside the self.

EXTRINSIC MOTIVATION: Action is motivated by the intention to achieve a goal or by some external factor.

EXTROSPECTION: Observing others.

FACIAL FEEDBACK HYPOTHESIS: The central nervous system receives feedback from our facial expressions, which, combined

with other components of emotion, enhances the intensity of the emotional experience.

FINALISM: Inviting a purpose to explain the cause of a situation; typical of preschoolers' thinking.

FIRST MAJOR CHANGE IN BODY SHAPE: The change in body proportions around the age of 6, in which limbs become longer and body shape typical of children begins to resemble that of adults.

FLUENCY: Easy flow of thought.

FREE VARIABLE: Factors in an experiment determined by the experimenter in accord with the purpose of an examination.

GENERALIZATION: A particular response is elicited not only by the original stimulus but other similar stimuli as well.

GENERATION X: People born between 1965 and 1975.

GENERATION Y: People born between 1976 and 1995.

GENERATION Z: People born between 1995 and 2010.

GENITAL STAGE: The fifth stage in Freud's theory of psychosexual development, by the end of which a person is ready for satisfying adult sexual relationships.

HABIT: The unification of previous experience of behaviors that helped satisfy needs.

HABITUATION: Getting used to harmless repeated stimuli.

HAPTIC REGISTER: Sensory register in which tactile sensory information is stored.

HOMEOSTASIS: A complex mechanism which sustains internal balance.

HUMANISTIC PSYCHOLOGY: A psychological approach which emphasizes self-actualization of people.

HYPOTHESIS: Set of partially verified assumptions intended to explain some phenomena, which contributes to advance in science.

ICONIC REGISTER: Sensory store of visual sensory information.

ID: The most primitive constituent of personality containing our instincts in Freudian psychoanalysis.

IDEAL SELF: An aggregate of properties representing what an individual desires to be.

IDENTITY: Self-sameness. The subjective experience of the continuity and sameness of individual existence.

IMAGINARY IMAGE: Conscious internal image that is not formed on the basis of external stimuli.

IMPLICIT MEMORY: Stores our skills.

INCENTIVE: The attractive, action-inducing power of a stimulus.

INDUCTIVE INFERENCE: Inference from the particular to the general.

INNATE IDEAS: Ideas present in the mind of a newborn already at birth.

INTELLECTUAL REALISM: A stage in children's drawing development, beginning at age 5. The child intends to draw a picture of they see but their knowledge overrides it and they will add elements from their knowledge.

INTELLIGENCE: On Wechsler's definition, intelligence is the aggregate capacity of an individual which allows them to act adequately, think rationally, and cope with the environment successfully.

INTERACTIONIST DUALISM: The separation of body and mind assuming that the two interact with each other.

INTERFERENCE: Disturbing interaction between stimuli.

INTERMEDIATE VARIABLE: A concept of neobehaviorism, denoting an entity in the brain which mediates between stimuli and responses.

INTRINSIC MOTIVATION: The motivation to act is the pleasure derived from performing the act.

INTROSPECTION: Observing oneself.

INTROVERSION: Turning toward one's internal self.

IQ: Intelligence age divided by biological age times 100.

JUXTAPOSITION: Disorganization in children's drawings. They are not representationally organized in ways in which adults see the world.

KORSAKOV SYNDROME: A syndrome of genetic origin, characterized by the damage of long-term memory, which prevents patients from storing new information for an extended period of time.

LATENCY: The fourth stage in Freud's theory of psychosexual development, in which the development of sexual instincts is overshadowed.

LEARNING BY INSIGHT: Means and ends connect in the mind of the organism. Insight occurs suddenly, without any behavioral antecedent. Essentially a form of mental trial and error learning.

LEARNING: A relatively long-lasting change in behavior based on experience.

LOCALIZATION: The perception of the location of objects.

MEMORY CONSOLIDATION: Stabilization and storage of memory traces.

MENTAL IMAGE: A visual, acoustic or verbal image which appears in thought without sensory stimuli.

METACOGNITION: Thinking about our own thinking.

METAMEMORY: Knowledge about our own faculties of memory.

MONOCULAR CUE: Depth perception aiding stimuli which can be perceived even with one eye only.

MORAL ANXIETY: In Freudian psychoanalysis, our fears that we are going to violate the restrictions imposed by the super-ego.

MOTIVATION: Internal factors which move an individual to act.

MYELIN SHEATH: Sheath surrounding the axon of a neuron.

MYELINATION: Production of the myelin sheath of the axon of a neuron.

NEED: Some deficit in the organism, which, if continues to obtain for an extended period of time, is a threat to the health, or even the life, of the organism.

NEGATION: A defense mechanism which refuses to recognize the existence of threating reality.

NEUROTIC ANXIETY: In Freudian psychoanalysis, the fear of the ego that it will be unable to control the drives dictated by the id.

OPERANT CONDITIONING: The animal will learn to associate a particular behavior with a particular consequence. The important point is reinforcement, which increases the likelihood that the behavior is repeated in future.

OPERATION: A mental act within a logical system, in Piaget's theory.

ORAL STAGE: The first stage in Freud's theory of psychosexual development, when the most important source of pleasure is the mouth.

ORGANISM: The entire individual in Rogers' theory.

ORGANIZATION: An effort to organize processes into a coherent system, in Piaget's theory of development.

PERCEPTION: A psychological process which is based on sensation and involves the processing of nerve impulses whereby they become part of our consciousness.

PERCEPTUAL CONSTANCY: The perception of an object remains constant even when the retinal image of the object changes.

PERSON PERCEPTION: The process in which and individual constructs a coherent image of the traits of another.

PERSONALITY: A dynamic and coherent system of bodily and mental characteristics which makes an individual unique, distinguishing him or her from everyone else, and determines his or her behavior and thinking.

PHALLIC STAGE: The third stage in Freud's theory of psychosexual development, in which the primary source of pleasure is one's own genitals.

PHANTOM LIMB: The perception of the presence of some amputated limb, mostly accompanied by severe pain.

PLASTICITY: The ability to be shaped and modified.

PRECONSCIOUS: In Freudian psychoanalysis, the content of the preconscious is not accessible to consciousness right now, but can easily become part of consciousness through regular memory processes.

PRE-PUBERTY: Age between cc. 10 and 12 years.

PRIMARY PROCESS: Forming the mental image of an object or event whose function is to satisfy a need.

PROACTIVE INTERFERENCE: Information already learnt impedes the acquisition and storage of new information.

PROCEDURAL MEMORY: See implicit memory.

PRODUCTIVE IMAGINATION: In this process an entirely new imaginary image is created, which remains within the boundaries of reality.

PROJECTION: A defense mechanism in which a person attributes their own unacceptable wishes and desires to other people.

PROTOTYPE: The best, most typical token of a concept.

PSYCHOANALYSIS: A personality theory which emphasizes the operation of unconscious processes in the operation of personality.

PSYCHOLOGY: Compound word of Greek origin, whose first element, “psyche” means ‘spirit, soul’ and the second element goes back “logos,” meaning ‘reasoned discourse’ or ‘account’. A science studying mental life and mental phenomena.

PUBERTY: Developmental period between 12 and 16/17/18 years of age.

RATIONALIZATION: A defense mechanism in which a person constructs a rational explanation of a behavior which they otherwise consider unacceptable.

REACTION FORMATION: A defense mechanism in which a person forms a habit which is the opposite of the unacceptable impulse.

REAL ANXIETY: In Freudian psychoanalysis, the fears induced by everyday life.

RECEPTOR: A modified neuron which responds to external or internal stimuli.

REGRESSION: A defense mechanism in which an individual returns to an earlier stage of development.

REPRESSION: A defense mechanism that relegates unacceptable contents of consciousness to the unconscious.

REPRODUCTIVE IMAGINATION: In this operation, our imagination recreates something already created by other people’s imagination.

RETROACTIVE INTERFERENCE: The acquisition of new information impedes retaining old information.

ROD: Photoreceptor which plays a role in vision in less intense light.

SECOND MAJOR CHANGE IN BODY SHAPE: Physical changes in adolescence.

SELF: Ego. In Freudian psychoanalysis, it develops from id; its task is self-sustenance.

SELF-IMAGE: Organized image of ourselves.

SELF-SCHEMA: Organized knowledge, schema of ourselves.

SEMANTIC MEMORY: This is where we store our general knowledge about the world.

SENSATION: A biological process whereby stimuli are transformed by receptors into signals that the brain is capable of processing, i.e. electrical impulses.

SENSITIZATION: The amplification of a weak stimulus when it is followed by a painful or threatening stimulus.

SENSORY STORE: Memory which stores sensory stimuli (image, sound, etc.)

SOCIABILITY: Enjoying being in the company of others.

SPONTANEOUS RECOVERY: The extinguished conditioned reflex may recur in new situations spontaneously.

STANDARD: An evaluation matrix used in psychological tests, derived from the statistical analysis of data obtained from a large number of subjects.

STRATEGY: A consciously selected activity carried out with the intention of achieving a particular goal.

SUBLIMATION: A defense mechanism in which an unacceptable impulse is converted into a socially acceptable drive.

SUPER-EGO: The mental domain which develops last in Freud's psychoanalysis, containing the rules and prohibitions defining correct behavior.

TABULA RASA: A Latin expression meaning blank slate. The view that a person is a blank slate at birth and their knowledge about the world will derive from their experience later.

THIRD MAJOR CHANGE IN BODY SHAPE: The emergence of harmonious body proportions in youth, following changes in adolescence.

TRACE-DEPENDENT FORGETTING: The memory trace is lost in forgetting.

TRAIT: A tendency or inclination, which ensures the consistency of an individual's responses at all times in all situations.

TRANSDUCTION: Inference from the particular to the particular.

ULTRA-PHENOMENA: Phenomena beyond experience and learning, of which the child has no direct experience at all.

UNCONDITIONED REFLEX: Innate reflex in which a particular stimulus is always followed by the same response.

UNCONSCIOUS: In Freudian psychoanalysis, the content of the unconscious is not directly accessible.

VETERANS: People born between the 1920s and ‘30s, according to the theory of generations.

VISUAL AURA: A point-like or web-like, colorful experience of a mostly moving image of retinal origin.