

POTE PILLARS

#LEARNING CULTURE CONCEPT UPMS

THE PILLARS OF CREATION

POTE

PILLARS

#LEARNING CULTURE CONCEPT UPMS

Our Medical School is a stronghold of education, research, and health care. We are building a special School with special people. Teachers, healing professionals, students, administrative staff are our partners in this. We are doing this in order to meet our social mission, namely, to fulfil the high, internationally recognized standards of medical education and to provide research with innovative thinkers. The principles of “Learning, Healing & Development” guide us in the changing socio-economic conditions of the 21st century, building on the resources of our community, which is creativity, innovation, and commitment.

(Mission Statement, UP MS 2020)

Foreword

“Success is for those who dare. Who move ahead out of sheer diligence, enthusiasm. They do not ask everyone about their idea in order to let themselves become distracted. Some are just planning all the time. There are those who seem to be constantly preparing for something. They are always planning, taking notes, brainstorming. Then they take courses. Then they join clubs. But they do not dare.”
(Róbert Vámosi)

POTE Pillars is the strategic plan of the Medical School that identifies and supports the directions of the School’s development in the coming years. The strategic plan was created after the evaluation, reflection, and conceptualisation of several fundamental areas. These concepts are integrally linked to each other. The first and most timely element of the **POTE Pillars** strategy is the **LEARNING CULTURE CONCEPT**. The architectural and interior architecture-related **INFRASTRUCTURE DEVELOPMENT PLAN** and also the faculty concept dealing with **SCIENTIFIC AND INNOVATION** goals fit into this. These will be **POTE Pillars LEARNING CULTURE CONCEPT**, namely the most important pillars of the Medical School’s future planning (“The Pillars of Creation”).

The year 2020 will be remembered as a special year. Even during this period, the dean's leadership is committed to raise one of our main missions, education, to an even higher standard, to point it to a more modern direction where innovative thinking can soar into new and almost endless areas. The first pillar of the **POTE Pillars** Medical School strategy - the **LEARNING CULTURE CONCEPT** - aims to facilitate the effective future application of the recently developed learning materials, to encourage our teachers and students for further innovation and to provide them with good advice, as well as to give a new drive to the unfolding of the creative mind and imagination. The first chapter of the document lays down the principles, the second chapter explains the foundation of the implementation, and the third outlines the specific directions and possibilities of the implementation. The strategy emerging from the concept will catalyse common thinking, a radically novel philosophy of education and teacher-student relationships along which our School will no longer merely follow the changes of 21st-century learning culture, but will be at the forefront of the processes shaping it.

We have all the resources for this. The leadership of the School is committed to the concept laid down in this document. Hereby I ask you to read this concept as a summary of the School's education development opportunities formulated and systematized along common ideas.

Miklós Nyitrai, dean

Pécs, 6 MAY 2020

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I. POTE Pillars LEARNING CULTURE CONCEPT PRINCIPLES

“If you want to build a ship, don't drum up people to collect wood and assign them tasks, but rather teach them to long for the endless immensity of the sea.”
(Antoine de Saint-Exupéry)

I.1 Motivation of the POTE Pillars LEARNING CULTURE CONCEPT

„He who fails to plan is planning to fail.”
(Winston Churchill)

Year 2020 has brought a crisis to the world and to the School as well. We are convinced that our goal must not only be to get through the crisis, but also to overcome it, to become stronger and to develop from it. Therefore, we formulate our plans and ideas into a strategy tailored to the possibilities, this is the **POTE Pillars strategy**. As the first pillar of **POTE Pillars**, in accordance with the previously formulated dean's strategy, the leadership of the Medical School of Pécs establishes a comprehensive, well-considered and complex development concept for the development of the School's education in the **LEARNING CULTURE CONCEPT**. Our responses to the crisis so far show that our teachers, staff and students are able to adapt flexibly to the crisis by maintaining high standards and by working together. This document outlines directions regarding how to transform our training programs to create a modern, student-friendly and efficient education system.

I.2 Goals of the POTE Pillars learning culture concept

„Modern science is based on the Latin injunction ignoramus – ‘we do not know’. It assumes that we don't know everything. Even more critically, it accepts that the things that we think we know could be proven wrong as we gain more knowledge. No concept, idea or theory is sacred and beyond challenge.”
(Yuval Noah Harari)

The **POTE Pillars LEARNING CULTURE CONCEPT** identifies education development directions and makes recommendations to teachers and students on development processes.

The aims are achieved, and the developments are made in order to:

- help all faculty members involved in education to discover and exploit their own, even hidden potential and to make them see their opportunities;
- support and encourage teachers and students to learn to take advantage of the situation caused by the change and to find the creative pleasure of the process of change;
- and thus, create a unique learning culture within the entire School, which makes the Medical School of Pécs one of the most attractive faculties both in the national and international context.

We find it important to emphasize that the **POTE Pillars LEARNING CULTURE CONCEPT** does NOT aim to discuss all the educational-learning issues, especially not our entire operation. Thus, e.g. it does not intend to summarize and analyse the commendable achievements of many

decades of the whole medical education, does not include curriculum reform, does not serve as a crisis intervention plan and so on. It builds on traditions, but it outlines new directions based on the needs of the 21st century by further developing them. The **POTEPILLARS LEARNING CULTURE CONCEPT** was made for the staff of the University of Pécs Medical School, specializes in the training programs of the Medical School and focuses primarily on the areas that are within our circle of influence, which is why its elements can also be implemented.

After discussing the **POTEPILLARS LEARNING CULTURE CONCEPT** with the public opinion of the School, the relevant strategy and action plan will be prepared, the implementation of which will be the task and interest of all of us.

I.3 Steps and elements

*“Those who start off a path always get guides who show them the possible directions for a while. Then they are left alone to light their own candle if they have one, or to get lost in the darkness of the spirit.”
(Péter Popper)*

The **POTEPILLARS LEARNING CULTURE CONCEPT** provides a vision for our trainings and makes suggestions for the identification, formulation, and implementation of each development goal. This building process involves the creation and application of a new learning paradigm, which is one of the unavoidable and vital tasks for the further development of medical education in Pécs in the 21st century, in the age of industry 4.0 and innovation. The leadership of the School is committed to developing and implementing the **POTEPILLARS LEARNING CULTURE CONCEPT** and takes the following key steps:

- develop conscious leadership behaviour and expect all top and middle-level leaders to be credible role models as leaders as well;
- set specific goals in this area and continuously monitor their implementation;
- support the search for methods needed for the implementation and give scope to test those;
- recognize, evaluate the “willingness to learn” (be it teachers, students or administrative staff supporting learning) and develop and provide appropriate incentive and recognition systems for this;
- allocates resources, tools, and support to consciously support learning, such as:
 - o expanding teaching and administrative human resources so that everyone "would have time!" for personal development and the development of one's own learning and teaching;
 - o providing students with challenging, but at the same time meaningful and achievable requirements, so that they will be able to discover the joy and effectiveness of their own learning, feel their responsibility;
 - o in addition, ensuring the conscious and planned expansion of the technical conditions of learning and teaching, taking into account the realities.

I.4 Actuality of the POTE Pillars Learning Culture Concept

*„In the hopes of reaching the moon men fail to see the flowers that blossom at their feet.”
(Albert Schweitzer)*

The **POTE Pillars Learning Culture Concept** does not mean the simple application of digital transformation in the process of education, although it would not be negligible either! The digital learning materials created in the spring of 2020 can bring the complex and systematised results we hope from them in the frame of a learning concept with clearly defined goals, based on completely new ways of thinking. Due to the nature of the new world, the pressure to adapt and learn, the unpredictability, the interdependence of teachers and students become constant. In democracies, there will not always be “someone” who tells us what to teach or learn. Increasingly, we need to figure it out together, “bottom-driven”, by monitoring international trends, harmonizing with the development of the world.

All these require a paradigm shift and a change in focus; that is, to move from the TEACHING to the LEARNING paradigm. This necessitates a significant change of mindset and effort from both the teachers and students. We learn new concepts such as learning agility, where the “learner” (be it the teacher or the student) is already (him- or herself) looking for what he or she needs to develop, to “learn”. It is a kind of intelligent responsiveness, which the School must help and encourage by providing the conditions.

One thing can be stated for sure: regardless of a special situation, currently we are not prepared to meet the needs of cognitive pedagogy, reflective and critical thinking, the development of social and personal competencies, to fulfil the expectations of the possibilities of cooperative learning organization, etc. in our teaching-learning methodology. Without these methods, it will be difficult or impossible to develop the skills determined for our students in the “Programme completion and exit requirements” currently in force (e.g. communication, sympathy, critical assessment, aggression management, ethical behaviour, independence, autonomy, decision-making, etc.). We perform a high level of the traditional transfer of theoretical and mainly practical medical knowledge. To make the necessary changes, we also need to focus on “How?” besides “What?” while maintaining the internationally recognized standard of our training!

I.5 Conditions for efficiency

*„He will win whose army is animated by the same spirit throughout all its ranks.”
(One of the essentials for victory of Sun Tzu)*

Teachers have key responsibility in the direction in which our students develop as human beings and professionals. The development of our education and the spread of a new way of thinking are constantly influenced and determined in many cases by the totality of our internal resources, everyday burdens, and external boundary conditions. Yet there are

elements in this process that also stand out from the complex network of conditions and are within our circle of influence. Some of these are based on personal attitude, judgment, and acceptance. Basic conditions for the effective implementation:

1. The planned changes are not enough to reflect the ideas of the leadership of the School; they must meet the needs and expectations of the qualified teaching board and the majority of open-minded students who want to learn.
2. On the one hand, the thinking of teachers must be shaped in such a way (creating a need in them) that it is possible, and even necessary to teach “differently” than in the 19th and 20th centuries. This is by no means just a change in technology, but a very important and difficult new learning process, the change of our thinking patterns. To put it simply, a shift in focus to “HOW?” from “WHAT?”, from the teaching process to the learning process.
3. On the other hand, we need to increase the responsibility and commitment of the students in acquiring their own knowledge. This cannot be done by external pressure, i.e. by making exams more rigorous or simply by the means of pressure, but only by increasing internal motivation, helping shape their personality, supporting the learning process. The university, although providing adult education, is also a socialization institution, which prepares students for their profession.

At the same time, the formation of a theoretical community alone is not enough. During the implementation of the **POTEPILLARS LEARNING CULTURE CONCEPT**, several infrastructural conditions must be met, which can effectively serve teacher developments. The concept cannot be implemented without building and operating specific, practical, and well-thought-out systems. We will make recommendations for solutions to all these necessary but not sufficient conditions.

I.6. Results of the POTEPILLARS LEARNING CULTURE CONCEPT

*“While success is a perishable product, creativity never expires.”
(László Albert Barabási)*

With the implementation of the **POTEPILLARS LEARNING CULTURE CONCEPT**, we will witness and participate in the process of raising the quality of our education even higher in the coming years by applying the best methods possible, primarily driven by internal motivation (methods supported by pedagogical, methodological, behavioural research). The attractiveness of our School - with the appearance of real, modern content elements and the marketing power of the concept’s existence - will increase, bringing even more motivated students to the School and also keeping the best ones here. It also has a special role in attracting ambitious and talented teachers to Pécs and in keeping them here as well.

The development of the concept will, in short term, be reflected in the creation of trust between the participants involved in education, of partnership, of win-win agreements, synergies and in strengthening sympathy for each other. Mutual learning from each other, valuing the differences expand the knowledge, shape the attitudes, help the development of all participants and the adaptive skill of the whole School. The continuous improvement of the well-being and mood of the School, the strengthening of commitment and loyalty (“it is good to be here”), and the decrease of staff and student turnover may also be more pronounced.

Our School performs its most important tasks through education, research, and healing. We are convinced that the **POTEPILLARS LEARNING CULTURE CONCEPT** will be the engine and catalyst of the process in which the implementation of the School’s mission can be completed.

II. THE FOUNDATION OF THE POTEPILLARS LEARNING CULTURE CONCEPT

Faculty systems to implement the concept

The systems of the concept cannot be implemented without building and operating specific systems. The next two main chapters deal with the foundation of the implementation on the one hand and its specific directions and elements on the other.

II.1 Organizational culture and personal development

*„I have never let my schooling interfere with my education.”
(Grant Allen)*

The basis and stability of the **POTEPILLARS LEARNING CULTURE CONCEPT** is the shaping of the School's organizational culture, which also includes community building and the personal development of the staff. The leadership of the School has been committed to this development since 2017 and has been doing a lot since then to support these changes, e.g. with the “7 Habits of Highly Effective People” training program, which is available to all staff members of the School, and with “The 4 Essential Roles of Leadership” training for heads of departments to develop their leadership skills. The basis for the implementation of the **POTEPILLARS LEARNING CULTURE CONCEPT** is provided by an organizational culture in which the participants are able to recognize the need for change and cooperate with each other in an interdependent manner, in partnership. The aim of developing the organizational culture is to achieve a change of approach and to strengthen the responsibility regarding the learning culture of all participants of the educational process. The relevant areas for development are the following:

- Continuing trainings primarily for leaders. Only a few heads of departments or deputies have participated so far in the “7 habits” training and the training helping develop leadership skills, so top-down changes cannot be expected automatically in the certain organizational units.
- Encourage teachers, students, and administrative staff to participate in the “7 habits” trainings, develop a motivational system (recognition in performance evaluation, determining leadership expectations, etc.).
- Incorporate “7 habits” training elements into the School's performance evaluation system.

II.2 Student commitment and responsibility

*„To know is to make each thing one's own, not depend on the text and always to look back on the teacher.”
(Lucius Annaeus Seneca)*

An effective strategy cannot be implemented without the commitment and responsibility of the students even by having outstanding teaching achievements. Pedagogical methods used by the teachers and the performance of the students show a correlation with each other: the application of well-chosen teaching strategies and methods maximizes the probability of the students' commitment in the learning process. The goal should be for the students to spend quality time with their studies and be effective as well. A learning-teaching culture needs to be developed that supports student engagement and responsibility. Its elements are as follows:

- supporting student autonomy in the learning process;
- setting goals for formal learning frameworks;
- maximizing the opportunity for student-student and student-teacher feedback and communication;
- frequent, detailed feedback on students' academic progress;
- involving students in the process of education, course development;
- facilitating opportunities for co-education, cooperation and social support in student communities;
- integrating students into the student community on the one hand and into the teaching and research communities on the other;
- open communication of high but clear and realistic expectations towards students;
- taking into account the different but realistic student needs in the learning process;
- strengthening, supporting, and rewarding the high degree of commitment and active participation.

Overall: on the one hand, example set by teachers, continuous feedback on student performance, providing opportunities for reflection and openness to student-centred methods can be applied in both contact and digital education; on the other hand, the strengthening of medical professionalism and professional motivation in students can be increased with the help of experience- and practice-based competence development, objective, standard performance evaluation and continuous positive reinforcement.

Several successful initiatives have already been launched and are working in order for some of the abovementioned elements to be implemented. Thus, for example, valuable and continuously developed work is being carried out in the frame of the Student Education Development Group (HOCS), the Demonstrator Student Circle, the TDK, and the Feedback (**POTEcho**) system. We have things to build on but student engagement and responsibility for the students' own learning should not only provide opportunities for the best, but the goal is to integrate them “systemically”¹³ in all aspects of everyday learning culture for every

student. This mode of operation may be unusual, it requires a new approach and imposes tasks on both teachers and students. In addition to the change of approach, the combined presence of courage and attentiveness is required. Courage to articulate our needs and attentiveness to understand the other party as well – whether we are teachers or students. The development of a common strategy and tools can only be implemented together and presupposes a change in the whole learning environment, a more flexible, student-centred approach in education. To develop this, it is necessary to examine international trends and research. Commitment can be measured by indicators and verified by successful exams. The dimensions of commitment can be interpreted on a behavioural, emotional, and cognitive level; therefore, each is a field for development.

We believe that “becoming” a doctor and “educating” a doctor are great experiences! Learning, teaching, working together, mutual professional socialization are real sources of joy, an exciting journey for both students and teachers! Those experiencing it once do not want to learn and teach differently anymore.

II.3 Teachers' participation

*„Better than a thousand days of diligent study is one day with a great teacher.”
(Japanese proverb)*

Pedagogical courses

*„If a child can't learn the way we teach, maybe we should teach the way they learn.”
(Ignacio Estrada)*

The vast majority of our teachers have not received pedagogical training during their teaching career. Knowledge transfer for students, despite the best intentions and efforts, is consequently contingent, often inadequately effective. Methods of motivating students are less known, and the lack of motivation in students can increase the risk of teachers' burnout. Therefore, we need courses that are suitable for introducing modern pedagogical knowledge and methods, with which knowledge transfer and motivating students become more effective, e.g. increasing student responsibility for and commitment to their own learning. The launch of pedagogical courses on several levels can play a role in the implementation e.g. for young, beginner teachers, and for PhD students also involved in teaching. In addition, these courses will be useful for teachers who already have significant teaching experience but are open to new knowledge and methods. To this end, it is reasonable to involve external national and international experts, to share the knowledge of our own trained experts with others, and to provide extra time and opportunities for teachers to learn and develop.

Teacher skills development workshops

*„Doubt is the beginning of wisdom.”
(Aristotle)*

The teacher skills development workshops organized since 2013 have proven their usefulness and effectiveness in increasing the pedagogical and teaching methodological knowledge of teachers in developing their skills, in introducing new, innovative methodologies and good practices. Building on the existing traditions, it will be important to continue the workshops at least twice a year and widening the range of participants, especially by involving clinicians. The material of the workshops should be made available to every teacher (in the form of publications or online). Particular emphasis should be placed on inspiring and implementing bottom-up ideas.

Specialist training

*„So it goes with education. It gives us the ability to understand and appreciate all of life – music, art, science, people, nature, ourselves – at a whole new level.”
(Sean Covey)*

Besides undergraduate training, specialist training is also an integral part of the **POTE Pillars Learning Culture Concept**. In addition to the priority of the specialist training's practice-oriented nature, there is no doubt about the need to renew preparatory theoretical

courses, especially if the new undergraduate educational environment results in young doctors with digital literacy who routinely use it and take more responsibility for their own learning. Besides maintaining personalness, part of the acquisition of knowledge is transferred to the digital space in the specialist training as well, which needs to be supported by information communication technologies.

During specialist training, instead of traditional learning strategies, the method and responsibility of independent learning have prevailed more strongly before as well. An important part of this is that resident doctors interact with each other directly or indirectly, thus creating a balance between traditional and innovative ways of learning. Traditional tutor communication, group techniques, self-management appear on the same platform and require a blended learning approach. Supporting the methodology of specialist training is an important task of the learning culture concept but shaping its content does not fall within the competence of the School.

II.4 Motivation systems

*„Those who are crazy enough to think they can change the world usually do.”
(Steve Jobs)*

Motivation can come from within, from internal commitment, but it is definitely worth catalysing and encouraging systemically as well.

Incorporating pedagogical skills into the rules of professional progression

"Only a good teacher thinks sometimes that he or she is a bad teacher."

The conditions for the appointment of an assistant professor / senior teacher should include the completion of the “Modern teaching methods” course or the proven use of an equivalent modern educating-teaching methodology. In doing so, we encourage our teachers to provide such trainings to their students that meets the requirements of the 21st century. In addition, the application of proven new methods, participation in the development of **PotePedia**, sharing the learned and applied methods with colleagues, etc. should be parts of the performance evaluation system.

Teaching quality index

*“Students must respect teachers, but teachers must earn this respect by respecting the student's individuality, human dignity, and self-esteem.”
(Károly Tar)*

The purpose of developing the index is to recognize teaching work. As the foreign language education framework is a category that is created and can be interpreted at the institutional / clinical level, the index should also contain elements related to the organizational units. In the first round, the index shall influence the distribution of the 20% of the foreign language framework in proportion to the number of teaching hour load, proportionate to points instead of the number of hours (the introduction and use of new teaching methods also play a role here), and rewards the efforts of the given community.

Celebration of Teachers

*“In a completely rational society, the best of us would be teachers and the rest of us would have to settle for something else.”
(Lee Iacocca)*

The aim of the celebration is to recognize the pedagogical-teaching and education development work of the teachers. The details of a suitable extension of the system need to be developed so that colleagues who use particularly innovative methods can also be awarded. The following awards are currently in effect:

- outstanding teacher award: we award outstanding teachers based on the votes of the graduating students.
- award for educational organization: we award the administrative colleagues involved in educational organization, based on the nominations of the heads of departments.

In the future, the feedback results of **POTEcho**, which include direct evaluation after real-time lessons, should also be taken into account in the selection of the awardees, and methodological-pedagogical innovations and research in the field of education development should have priority.

Idea competition for education development

*„The most effective kind of education is that a child should play among lovely things.”
(Platon)*

The **POTE**P**ILLARS LEARNING CULTURE CONCEPT** will be truly viable if it also reflects the expectations and ideas of students and teachers in line with the needs of the real users. This is especially important in times of crisis, but it is also necessary for continuous improvements in the case of normal operation. The competition can be announced in student and teacher categories, but the formation and cooperation of mixed teams is particularly supported. The submitted application explains in relation to a given subject (possibly subjects, including elective courses) what contents, platforms, and tools, not used at the School so far, would be considered to be useful and good. These can be implementations of existing technologies or individual developments as well. Successful teachers must be rewarded. Students can receive POE points for their work, and the development of a relevant scholarship can also be forward-looking. The HOCS, the Student Council (HÖK) and EGSC also play a role in the organization, planning and evaluation processes.

Education development research

*“Science is a joint venture that brings generations together. Passing the baton, teacher to student, student to teacher, the knowledge accumulated this way leads from the past all the way to the stars.”
(Cosmos movie)*

The aim of research in the field of teaching methods is to find out whether the newly applied methods are really more effective in the learning process and serve the satisfaction of the participants in education. The Division of Medical Education Development and Communication (Department of Behavioural Sciences) helps stimulate these types of research and provide methodological advice.

There is also a need to monitor technological research (examination and testing of new educational tools and technologies), which is carried out by the team of the Medical Simulation Education Center and the 3D Center / Biomedical Engineering.

III. ELEMENTS OF THE IMPLEMENTATION

*„Everyone who remembers his own education remembers teachers, not methods and techniques. The teacher is the heart of the educational system.”
(Sidney Hook)*

The aims of the **POTEPILLARS LEARNING CULTURE CONCEPT** must be to learn about new types of teaching-learning methodologies, apply them in teaching and learning, facilitate learning-centred education, create the conditions for learning, and make teachers and students more motivated and satisfied. We have several tools for these at our disposal:

- involvement of national and international experts in the development of new types of methodologies;
- supporting teachers in acquiring up-to-date knowledge of teaching methods;
- providing opportunity to test the newly developed methodologies.

Our plans in connection with the development of learning methods are the following:

- Collect modern teaching and learning methods (TBL, CBL, CLIL, etc.) under the coordination of the Division of Medical Education Development and Communication (OOKT, Department of Behavioral Sciences) and create a knowledge base from them (e.g. as a chapter of POTEPEIDIA).
- Exploit our international collaborations (Harvard, Nanyang, Mayo, ETH..., etc.) to gather state-of-the-art methodologies.
- Find and involve national external experts in the development process.
- Involve internal, faculty collaborating partners who already know and apply new methods, can set examples; the recognition of their work.
- Physical demonstration of the methods, e.g. in a teacher skills development workshop or in the frame of a separate pedagogical training series, with the help of making presentation films.
- Recommend the “good practice” method to course directors or other teachers willing to try and apply a new method. A faculty tender opportunity with financial support can also be provided for this purpose.
- Encourage teachers to find the method that is interesting to them and applicable in their professional field and to decide which modern teaching-pedagogical methods they want to learn, which they best serve the effective learning and teaching of their students with.
- In addition to the application of the methods, new research areas may also open, i.e. it is recommended to use the educational process as a research area to prove the effectiveness of the given method.

III.1 New opportunities in pedagogical methodology

*„What we want is to see the child in pursuit of knowledge, and not knowledge in pursuit of the child.”
(George Bernard Shaw)*

The adoption of general principles and the joint planning will only lead to effective developments and the process can only flourish and bring real and tangible progress in our education if we plan and provide the necessary conditions, both methodologically and in terms of assets demand. In this chapter, we take into account the modern and novel developments that can be implemented at our School and promise good results.

An essential goal of the **POTE Pillars Learning Culture Concept** is to draw attention to pedagogical methods that can make medical education in Pécs more open and flexible in order to achieve more effective knowledge transfer and to incorporate new medical results into the curriculum as soon as possible.

New methodological opportunities can strengthen medical competencies that enable the beginner physician to solve professional problems cooperatively, have advanced knowledge transfer, and provide a high level of patient education. The methods listed below can achieve this goal through the development of skills like learning motivation, independent acquisition of knowledge, the ability to cooperate, and critical thinking.

The first obvious step of the development plans is to store and organize digital learning materials. This can be followed by the organic and forward-looking incorporation of the materials into our education. In this chapter of the **POTE Pillars Learning Culture Concept** we list the novel teaching methods available for effective use.

Voting, quiz, real-time feedback (“in-class polling”)

Registering students' answers to shorter questions with the help of digital platforms is one of the easiest applicable procedures. The **POTEcho** system we developed provides the appropriate platform. With its help, we can easily assess the students' prior knowledge, their understanding of the materials of the classes, and the students' opinions on a particular issue.

Flipped classroom (“hybrid learning”)

A pedagogical methodology that requires significant student activity and can be excellently linked to the online learning spaces already created during distance education. The essence of the flipped classroom model is that students process the material individually or in groups based on pre-issued criteria. The main goal of the methodology is to develop the cooperation skills and problem-solving ability of the students. The focus is not on the teacher but rather on the student. That is, the teacher instructs, supervises, helps the

processing from the background but does not take over the transfer of knowledge in a frontal form for a long time. This methodology is particularly suitable for strengthening the practice-oriented nature of medical education because the applicability of previously published knowledge usually comes to the fore during the classes.

Team-based learning

Related to the former methodology, however, learning in the form of groups is even more emphasized in this methodology. In this case, students also prepare from the pre-issued learning materials before the class. During the class, students are organized into smaller groups: students in each group solve tests together, discuss the material and then defend their opinions against those of other groups. A very interesting element of this methodology is the several different teacher roles. During the classes, a moderator, and several profession-specific teachers (representatives of different scientific and clinical fields) are present at the same time. The methodology significantly improves both individual and group-level thinking, and multiple teachers with different medical competencies significantly reduce the distance between basic training knowledge and clinical practical applicability.

Game-based-learning

The use of games is a classic pedagogical tool in primary and secondary education, but it is relatively rare in national higher education. At the same time, it can be applied effectively in higher education, as it is known that playful activity develops cooperation, critical thinking, a competitive spirit and it can deepen the knowledge. The game can take online and offline forms; one that is applied outside of class or even during class. Incorporating playful elements into new technological and methodological solutions can increase student commitment, enable experiential education, and encourage its users to further learning by positive reinforcement.

Case-based learning

It is one of the key pedagogical paradigms of medical education. The analysis of individual clinical cases is essential in all medical disciplines. Our methods practiced in digital education can expand the possibilities of case-based education. For example, case processing can be placed in a broader context by providing students with background material about the cases in digital form (e.g., scientific articles, news published by non-professional press, films, etc.). Moreover, case-based learning can be excellently integrated into the abovementioned group learning forms. With the help of digital methods, the interactive processing of cases can also take place during the lectures; for

example, by using opinion polls or tests. It can be especially exciting to get to know the participants in the teamwork, which practically determines patient care today. That is, e.g. learning together with nurse and assistant candidates, physical and cognitive therapists, etc. On the one hand, thinking in a team as a basis can be established in advance, and on the other hand, mutual understanding, appreciation, and cooperation can increase significantly.

Online trainings (MOOC: „massive online open course”)

Things that worked great online can be kept in an online form in the future, as well. There may be areas of our training where the online form of education is the adequate pedagogical methodology. One such area could be, for example, the practice of certain doctor-patient communication situations: e.g. the patient asks for help by phone or via email. But in addition to having some classes online, we can also think about coordinating entire courses online. For example, for colleagues participating in individual-preparatory PhD training and while working in hospitals and clinics at the same time, it is often burdensome to attend courses requiring personal presence. A well-structured online course can be a quality solution for them. Based on the same logic, online courses can be launched in the resident trainings or even for students of other co-professions who cannot or could only very difficultly solve to be present in the classes in Pécs.

Virtual collaboration with other universities, faculties, schools

Why should we not get out of the lecture and seminar rooms with the help of online tools? Why not design a class in a way that, for example, medical and engineering students can participate simultaneously by sharing a common online platform? Or why should medical, law, and philosophy students not analyse an interesting medical ethics problem at the same time? The possibility of cooperation offered by online educational platforms can create a completely new perspective of problem processing, cooperation, and the application of what has been learned.

This methodology can also be applied between groups of students studying similar subjects at foreign universities, which strengthens our internationalization efforts and international university relations.

Our teaching hospital system and the network of our external departments are constantly developing. With the development of practical clinical trainings, these training places are expected to have more emphasis in our education in the future than before. The **POTE**PILLARS** LEARNING CULTURE CONCEPT** can be easily and effectively extended to the trainings taking place here as well, providing important and effective support for the preparation, organization, and foundation of practical sessions.

At the same time, the method also offers new opportunities for cooperation with secondary and primary schools. To be able to provide society with professionals capable of reflective and critical thinking, as well as having social competencies, depends not only on the university but also on the lower level systems of public education. It is also possible to expand the learning culture concept; we can build new relationships with grammar schools and primary schools. The modern methods and “skills” of the Medical School can appear in these schools with information technology solutions, which would also greatly help and inspire the work of the teachers there. We can be sure that many secondary and primary schools would be happy to join our system, which will also lead to an increase in the standard of education and directly to an increase in the visibility and popularity of our School.

The presence of more teachers (co-teaching)

An option related to the previous point is the presence of more teachers in the class. A recurring problem is the separation of the individual training periods (basic, preclinical, clinical) and their low-level educational integration. The problem can be alleviated by a solution where a theoretical expert of the given topic and a professional working in a clinical field are present in the class at the same time. In reality, this is an almost unsolvable organizational task. However, integrating online education platforms into traditional practical education can provide a solution to this. We can easily imagine a class in the undergraduate training when the teacher connects a clinical expert of the topic online, who complements the topic with clinical aspects.

Nurturing talent (personalized learning)

It is one of the most important methodological development directions. The wide range of digital learning materials and online platforms can be a major step towards personalized education. For example, if we often use tests and quizzes, we can better perceive the differences in knowledge, we can react faster and more effectively to the certain problems even before the exam period. Digital education platforms also provide an opportunity to deliver additional learning materials to students lagging behind. Of course, these things are also true in the case of nurturing talent. Digital platforms can also serve as a bridge to interested students who will have easier access to materials that require a higher level of knowledge and motivation.

Open access to digital learning materials

Some of the digital learning materials produced in the frame of distance education should be made widely available, or even without any restrictions, online. This can have several

benefits. The well-prepared online educational materials have great marketing value as they express the high level of professional work that is being carried out at the School. This may increase the number of students interested in medical education and later applying to the School.

III.2 The development of digital learning spaces

“The world has changed far more in the past 100 years than in any other century in history. The reason is not political or economic but technological-technologies that flowed directly from advances in basic science.”
(Stephen Hawking)

The new lecture halls and seminar rooms in the new theoretical block built in the frame of the Modern Cities Program will include state-of-the-art technical solutions for classroom lectures and theoretical classes in small groups. These technical solutions are integral parts of the rooms by their nature. In these rooms, we need solutions, which are basically not tied to only one room but can be “deployed” in any room, perhaps at an external location, in undergraduate / postgraduate education, at conferences or even in the case of individual learning, if required.

Streaming system - extended venues for live streaming

Clinical practical training, the expansion of the live patient-teacher-student relationship with a streaming system can be a “breakout” point, which can be used to extend the number of students present, without being tied to patient or examination rooms. It is an excellent method not only for undergraduate and postgraduate education but also for holding compulsory maintainer courses, and it can also be used well for organizing events and international congresses. The streaming system can be particularly useful in clinical practical training because currently there are not enough places at the clinics to teach patient presentation and examination methods. It is possible to stream live surgeries and transmit the live image of imaging diagnostic examination devices with this system.

Computer rooms of the new educational block

Our infrastructural possibilities will significantly expand after the handover of the new building. For example, the two computer rooms can be considered as new digital learning spaces, the operation of which will reveal the technical needs of the teacher and student bodies. Smaller lecture halls are likely to be the most suitable for establishing the digital learning spaces.

Technical elements and content development

We need to think through exactly which new digital devices we will use and how we will handle them in everyday life. Our education will necessarily require the use of active AR (augmented reality) or VR (virtual reality) glasses, e.g. Oculus Go, Oculus Rift. This type of technology may be more useful in small-group education. Outside the framework of timetable education, it can be explicitly forward-looking if the devices are also available to the students for individual learning.

In addition to the proper selection of devices, the quality of the content provided is essential. There are many opportunities to provide the proper learning materials, but it seems appropriate to develop our own contents even in the medium term. To achieve this, we plan to create a demonstration material that shows the potential of the system and motivates future content developers and users. The system supported by new technology can achieve maximum efficiency if students can use it not only in a timetable framework but also in an optional way, for example in the frame of online optional courses that the student can take at their own pace without timetable or location restrictions.

Learning curve

AR / VR contents can serve as good additions to the teaching of both the basic module and the clinical subjects. In the basic module, they can help develop three-dimensional vision and better spatial understanding of each structure and process. In clinical education, they provide an opportunity to present the taught procedures and interventions from the doctor's point of view. It can be especially useful in cases where even small-group education does not provide proper opportunity for all students to monitor the steps of the workflow at the same time and multiple repetitions are not feasible (e.g., invasive device examination and therapeutic procedures, surgeries, gynaecological examinations, etc.).

AR / VR devices and contents can be valuable complementary tools not only for the thematic teaching of individual subjects, but also for the vertical integration of knowledge. They can be incorporated into the process of acquiring theoretical and practical knowledge required for basic and even more complex medical interventions. For example, in case of taking samples from the cerebrospinal fluid, in the first step it would be possible to repeat the structures of the lumbar spine with the help of anatomical models and three-dimensional images created from radiological images for educational purposes. This can be followed by a study of the theory of technical implementation, which is well complemented by a two- and / or three-dimensional image taken from the perspective of the physician performing the examination. In the third stage of learning, the intervention can be practiced by the student developing his or her manual skills using the tools available in the MediSkills Lab. The last step in the practice process may be to practice the procedure on Thiel fixed cadavers and, in some cases, on laboratory animals. The described learning curve, which can be applied to a wide range of procedures, provides a good basis for the student to successfully perform a specific intervention under real clinical conditions, already in the first concrete situation.

Utilization of 3D printing capacity, POT-E Brand development

It is justified to involve the 3D Center and, through the cooperation between the individual faculties, the UP “Biomedical Engineering” group in the student work. In the frame of this,

we are planning to establish a web shop with 3D models that help support education. Through this system, students can place orders for models they would like to use in physical form during learning (e.g., ventricular models, skull bones, etc.). The desired aids are prepared and distributed to the student by the Center's professionals.

We consider the development of our own contents to be a key issue in this respect, as well. Developing our own contents provides an excellent opportunity to establish our own faculty brand. The aim of the POT-E Brand is to strengthen the sense of belonging to the School, to develop and support a sense of community through the implementation and service of real student and staff needs. Our plan is that the POT-E Brand will appear on every product and service created by market participants along an appropriate quality assurance process with the approval and based on the needs of the School. Its target audience is mainly the staff and students of the UPMS. Its products include teaching aids, models, materials supporting teaching, individualised gifts and related services, which can be implemented not only online, but even in the form of a small university shop.

Unified user platform

We are planning to create a framework running on tablets and computers. The task of the system is to provide access to the university's online infrastructure in three languages with the help of a personalized, unified, user-friendly, simple interface. The integration of **POTEPEDIA**, **POTEcho**, Neptun and the School's website into the system is especially important. The program would include a written exam module, which would also facilitate the conduct and evaluation of written exams in each subject. In addition, the ability required of the system is to be able to handle the learning materials related to the **POTEPILLARS LEARNING CULTURE CONCEPT** and the COVID-19 emergency.

III.3 POTEPEdia

*„Sometimes the best option for finding the wisdom we seek isn't a search engine but instead a wise counsellor or advisor.”
(Chip Conley)*

Digitalization and high technology are the vision of medical education in Pécs. One of the pillars of this vision will be the new and novel system of **POTEPEdia**. **POTEPEdia** is a digital project unique in Hungary initiated by the Medical School of Pécs, which is only available to faculty citizens and in which an up-to-date online knowledge base and information network supporting medical training is implemented with the active participation of the students and with a high level of professional guidance and support. It is constructed also in terms of content and appearance to provide an excellent resource for students to learn. It aims to meet the student expectation of making the up-to-date repository of the knowledge describing and accompanying medical training available on modern data communication devices, while maintaining quality and reliability in a controlled manner. The purpose of **POTEPEdia** is to provide modern and student-friendly learning conditions that make teaching work more effective and enjoyable. Its aim is to develop transparent learning materials, to reduce unnecessary duplications in the curriculum, to create easy and anytime accessibility, and to establish a continuously expanding and updated subject knowledge that provides a controlled professional foundation.

Functionally, **POTEPEdia** can be divided into two separate parts. On the one hand, it is a cloud storage with a practically unlimited extension opportunity where all subjects can upload their existing materials systematically and in a searchable way, regardless of their format. Call it a library or repository that summarizes the basics of our training requirements system. On the other hand, it has a toolkit for learning material development, standardization, and networking. With this, we can make our learning materials of different quality and structure responsive and provide a unified quality, moreover, it also gives us the opportunity to create a logical connection between them.

POTEPEdia will have a prominent place and role in our education. To do this, we need to find a healthy balance that will help our traditional forms of training and in some cases may even replace them in the future. Naturally, it cannot take over the practice-oriented process of the medical training, however, it provides excellent support and an opportunity for our training to apply new methodologies as well. Participants, i.e., teachers, researchers, medical practitioners, and students can all contribute to keeping the knowledge material up to date. The key to the development is continuous monitoring, the constant revision of knowledge based on the available and reliable sources and knowledge.

POTEPEdia will be one of the most reliable sources of knowledge of medical education in Pécs, hopefully it will be a defining experience for many medical generations.

III.4 International relations

*"Education is universal."
(Dalai Lama)*

Education and development of education are universal. In the past two years, we have experienced that even the most prestigious universities are happy to join our planning process. Through a joint reflection on the trainings, we have been able to build meaningful relationships with researchers and teachers of the Harvard Medical School, the Mayo Clinic, the ETH in Zurich, the Nanyang Technological University in Singapore, and the Houston Methodist Hospital (to name just a few). On the one hand, we get to know excellent ideas and best practices in the frame of the collaborations, some of which can be incorporated directly into our own trainings. On the other hand, the significance of these new personal acquaintances goes beyond their immediate goals, as several research collaborations are evolving through them and hopefully, will evolve in the future as well. Friendships are made that will help us maintain and improve our reputation for decades.

However, in addition to external international partners, we must not forget our internal partners and the foreign students studying at our School because they also provide us with extremely valuable resource. In the international environment of the UPMS, we can learn not only about each other's customs, traditions, and gastronomy from our students. A part of each country's culture is also the way they think about learning, the possession of knowledge and the way they act to this end. Getting to know and incorporating them into the learning culture concept is an excellent development opportunity for all of us. Thus e.g. by making the transition between trainings in the three languages more flexible, i.e. by making the learning conditions more integrated, we can contribute to the development of our students' global skills and become a truly international faculty. The involvement of our recognised graduates working on the international scene can also bring more opportunities, e.g. through the Alumni system.

III.5 Critical points in implementation

*“Many countries, which spent more money on the military than they could afford,
but none that has spent it on education, have gone bankrupt.”
(Klebensberg Kuno)*

One of the most important aspects is the capacity of teachers and students. As mentioned earlier, basically the digital pedagogical methodology requires active student participation and usually involves many student tasks but preparation also requires a lot from the teachers. That is, while traditional methodology puts too much load on the students through the expectation of a large amount of subject knowledge, the digital or alternative methodology can cause significant stress and fatigue through the performance of many independent tasks. A paradigm shift and the change in the organizational culture can only be a lengthy and slow process in its very nature.

The aspect of availability. A key aspect when using digital education technologies is to avoid being technologically discriminatory, i.e. we have to pay attention to the technical possibilities available to our students. It is important that some students may be ashamed and therefore keep it a secret that they do not have the required technical conditions, so we have to pay special attention to these situations in order to handle them properly.

The aspect of cooperation and competition. The **POTE**P**ILLARS LEARNING CULTURE CONCEPT** can be considered to have been successfully implemented when we are able to create the right balance between cooperation and healthy competition. Cooperation does not need to be explained and competition should not be restricted, we only have to develop the culture of competition. The culture of competition within the community serves individual and community development and growth.

Of course, the developments also raise several technical issues. One such problem to be solved will be to provide a room for the storage of the devices equipped with an alarm, security cameras and an access control system. It will be worth registering the devices with a barcode system. An accurate handover administration system is required. There will definitely be a need for supervision by the staff, which the teachers rightly expect, but professionals will also be needed to deal with technical critical situations. We need to find the right solution to monitor the occupancy of the rooms.

There will, of course, be financial conditions for the implementation. Moreover, we are now in a period when our usual revenues have suddenly become uncertain and difficult to calculate.

Final thoughts on the new beginning

*“The future has many names: For the weak, it means the unattainable. For the fearful, it means the unknown. For the courageous, it means opportunity.”
(Victor Hugo)*

The POTE Pillars strategy sets out the future directions of the development of the Medical School. The aim of the first pillar, the POTE Pillars Learning Culture Concept, is inspiration. To evoke thoughts and encourage to act. Teachers, students, and administrative staff alike! For the sake of our common future, please take and read this document carefully. You may rightly ask whether the time for developments and the investments accompanying it is now. Our answer is clear: yes! On the one hand, many of these changes are up to us because they require the transformation of our thinking. This is also one of the biggest challenges! On the other hand, in times of crisis, the biggest mistake is to take away resources from the very areas that underpin our future. Not only must we invest in the future, we must do it in time!

We are convinced that the POTE Pillars Learning Culture Concept sets out great and highly important directions. If we do not take action today, we will not do it tomorrow either and it will be too late the day after tomorrow. We need everyone: the knowledge of the experienced and the momentum and courage of the young teachers, colleagues, and students as well!

We ask you to be our partner. Teachers, students, and staff. Let us use our strengths, learn from our experiences and take the future of our School, our own fate in our hands! Let us create a world-class education system we have envisioned and created!

WHO ELSE COULD IMPLEMENT THE POTE Pillars STRATEGY, IF NOT US?

AND WHEN, IF NOT NOW?

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